



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

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

***MECHANICAL VENTILATION, SMOKE VENTS AND AIR
CONDITIONING
SPECIFICATIONS AND BILLS OF QUANTITIES***

CLOSING DATE: 11TH DECEMBER, 2017

Contents Page

SECTION I	- 3 -
SECTION II	- 9 -
INSTRUCTIONS TO TENDERERS	- 9 -
APPENDIX TO INSTRUCTIONS TO TENDERERS	- 22 -
Where the deviation in the view of the tender committee with the concurrence of the procuring entity representative is major, the tender shall be deemed non-responsive and will not be evaluated further	- 31 -
SECTION IV	- 33 -
CONDITIONS OF MAIN CONTRACT	- 33 -
GENERAL CONDITIONS OF CONTRACT	- 33 -
SPECIAL CONDITIONS OF CONTRACT	- 52 -
APPENDIX TO CONDITIONS OF CONTRACT	- 53 -
(SUBCONTRACT WORKS)	- 53 -
SECTION VI	- 55 -
STANDARD FORMS	- 55 -
NOTES ON THE SAMPLE FORMS	- 55 -
FORM OF INVITATION FOR TENDERS	- 57 -
QUALIFICATION INFORMATION	- 58 -
TENDER QUESTIONNAIRE	- 61 -
CONFIDENTIAL BUSINESS QUESTIONNAIRE FORM	- 62 -
DECLARATION OF UNDERTAKING (INTEGRITY STATEMENT)	- 64 -
SITE VISIT DECLARATION FORM	- 67 -
TENDER SECURITY FORM	- 68 -
DETAILS OF SUB-CONTRACTORS	- 70 -
BANK GUARANTEE FOR ADVANCE PAYMENT FORM	- 71 -
PERFORMANCE SECURITY FORM	- 72 -
METHOD STATEMENT	- 73 -
STATEMENT OF FOREIGN CURRENCY REQUIREMENTS	- 74 -
LETTER OF NOTIFICATION OF AWARD	- 75 -
LETTER OF ACCEPTANCE	- 76 -
FORM OF AGREEMENT	- 77 -
CONTRACT FORM	- 79 -
PUBLIC PROCUREMENT ADMINISTRATIVE REVIEW BOARD	- 80 -

SECTION I

INVITATION FOR TENDER (IFT)

Open International Tender (OIT)

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

IFT NO.: GF-KEMSA-CONST - 6/OIT6/ 2017-2018

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

Date: 17th November, 2017

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

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

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

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

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

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

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

Kenya shillings Account

Account Name: Kenya Medical Supplies Authority

Bank Name & Branch: Co-operative Bank, Enterprise Road Branch

Account Number: 01141217405100

United States Dollar Account

Account Name: Kenya Medical Supplies Authority

Bank Name & Branch: Co-operative Bank, Enterprise Road Branch

Account Number: 02120217405100

Swift Code: KCOOKENA

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

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

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

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

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

Yours sincerely,

CHIEF EXECUTIVE OFFICER,
KENYA MEDICAL SUPPLIES AUTHORITY

REGISTRATION FORM FOR ONLINE TENDERERS/BIDDERS/SUPPLIERS

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

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

Name of the firm:.....

Postal Address:.....

Telephone Contacts:.....

Company email address:.....

Contact Person:.....

Once completed please submit this form to the email below;

procure@kemsaco.ke

SPECIAL NOTES

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

PRE-BID SITE VISIT CERTIFICATE

KENYA MEDICAL SUPPLIES AUTHORITY

TENDER REFERENCE NO. GF-KEMSA-CONST-6 /OIT 6/2017-2018 MECHANICAL VENTILATION, SMOKE VENTS AND AIR CONDITIONING

=

We confirm that M/s.

..... was

duly represented by

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

Signed:

**CHIEF EXECUTIVE OFFICER
KENYA MEDICAL SUPPLIES**

AUTHORITY

SECTION II INSTRUCTIONS TO TENDERERS

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

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

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

Mandatory Requirements

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

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

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

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

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

years, in which the tenderer is involved, the parties concerned and disputed amount; and

- (j) Proposals for subcontracting components of the Works amounting to more than 10 percent of the Contract Price.

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

- (a) the tender shall include all the information listed in clause 1.5 above for each joint venture partner;
- (b) the tender shall be signed so as to be legally binding on all partners;
- (c) all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms;
- (d) one of the partners will be nominated as being in charge, authorized to incur liabilities, and receive instructions for and on behalf of all partners of the joint venture; and
- (e) The execution of the entire Contract, including payment, shall be done exclusively with the partner in charge.

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

- (a) annual volume of construction work of at least 2.5 times the estimated annual cashflow for the Contract;
- (b) experience as main contractor in the construction of at least five works of a nature and complexity equivalent to the Works over the last 10 years (to comply with this requirement, works cited should be at least 70 percent complete);
- (c) proposals for the timely acquisition (own, lease, hire, etc.) of the essential equipment listed as required for the Works;
- (d) a Contract Manager with at least ten years' experience in works of an equivalent nature and volume, including no less than three years as Manager; and
- (e) liquid assets and/or credit facilities, net of other contractual commitments and exclusive of any advance payments which may be made under the Contract, of no less than 2 months of the estimated payment flow under this Contract.

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

2 Tender Documents

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

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

3 Preparation of Tenders

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

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

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

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

4 Submission of Tenders

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

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

5 Tender Opening and Evaluation

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

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

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

- 5.9 In evaluating the tenders, Kenya Medical Supplies Authority will determine for each tender the evaluated tender price by adjusting the tender price as follows:
- (a) making any correction for errors pursuant to clause 5.7;
 - (b) excluding provisional sums and the provision, if any, for contingencies in the Bill of Quantities, but including Dayworks where priced competitively.
 - (c) making an appropriate adjustment for any other acceptable variations, deviations, or alternative offers submitted in accordance with clause 3.12; and
 - (d) making appropriate adjustments to reflect discounts or other price modifications offered in accordance with clause 4.6
- 5.10 Kenya Medical Supplies Authority reserves the right to accept or reject any variation, deviation, or alternative offer. Variations, deviations, and alternative offers and other factors which are in excess of the requirements of the tender documents or otherwise result in unsolicited benefits for the Employer will not be taken into account in tender evaluation.
- 5.11 The tenderer shall not influence the Kenya Medical Supplies Authority on any matter relating to his tender from the time of the tender opening to the time the Contract is awarded. Any effort by the Tenderer to influence the Employer or his employees in his decision on tender evaluation, tender comparison or Contract award may result in the rejection of the tender.
- 5.12 Firms incorporated in Kenya where indigenous Kenyans own 51% or more of the share capital shall be allowed a 10% preferential bias provided that they do not sub-contract work valued at more than 50% of the Contract Price excluding Provisional Sums to non-indigenous sub-contractor.

6 Award of Contract

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

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

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

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

- 6.15 Kenya Medical Supplies Authority shall give prompt notice of the termination to the tenderers and on request give its reasons for termination within 14 days of receiving the request from any tenderer.
- 6.17 A tenderer who gives false information in the tender document about its qualification or who refuses to enter into a contract after notification of contract award shall be considered for debarment from participating in future public procurement.

7 Corrupt and Fraudulent practices

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

APPENDIX TO INSTRUCTIONS TO TENDERERS

APPENDIX TO INSTRUCTIONS TO TENDERERS

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

SECTION III

TENDER EVALUATION CRITERIA

(a) Tender Evaluation Criteria

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

1.1 Stage I – Mandatory Requirements

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

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

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

STAGE 2: TECHNICAL EVALUATION

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

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

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

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

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

1.2 Stage II -Technical Evaluation

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

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

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

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

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

stage II : Technical Evaluation

Item	Description	Raw Points Scored	Max. Point
1	<p>Compliance with Technical Specifications</p> <ul style="list-style-type: none"> • Full Compliant -----40 • Non-compliant----- 0 <p><i>(Note: Tender Evaluation Committee to carry out analysis showing how decision on this requirement has been arrived at. Attach analysis on this as an Appendix)</i></p>	40	40
2	Presentation and response (This includes binding the documents, neat presentation, separation and arrangement of requested information and general response to all requirements)		2
3	<p>Key Personnel (Attach evidence)</p> <p>Director of the firm</p> <ul style="list-style-type: none"> • Holder of degree in relevant field -----4 • Holder of diploma in relevant field -----3 • Holder of certificate in relevant Engineering field---- 2 • Holder of trade test certificate in relevant Engineering field (At least three personnel)----- --1 <p>2No. degree/diploma holders of key personnel in relevant field</p> <ul style="list-style-type: none"> • With over 10 years relevant experience ----- 8 • With over 5 years relevant experience----- 4 • With under 5 years relevant experience ----- 2 <p>4 No certificate holder of key personnel in relevant field</p> <ul style="list-style-type: none"> • With over 10 years relevant experience----- 4 • With over 5 years relevant experience ----- 3 • With under 5 years relevant experience -----1 <p>8 No artisan (trade test certificate in relevant field)</p> <ul style="list-style-type: none"> • Artisan with over 10 years relevant experience -- 4 • Artisan with under 10 years relevant experience --2 		20
iii	<p>Contract completed in the last Ten (10) years <u>Provide Evidence</u></p> <p>Warehouses - 2 projects of similar nature/ complexity and magnitude</p> <p>Warehouses- Maximum - 12 marks</p> <p>(a) Above Kshs.30. Million (6 marks for each project)</p> <p>(b) Kshs 25 Million – 29.9Million(4 marks for each project)</p> <p>(c) Kshs 20 Million – 24.9Million – (2 mark for each project)</p> <p>Office Block/ office facilities – 8 marks</p> <p>(d) Above Kshs.30 Million (4 marks for each project)</p> <p>(e) Kshs 25 Million – 29.Billion – (2 mark for each project)</p> <p>(f) Below Kshs 25 Million (1 mark for each project)</p>		20

iv	On-going projects and their values <u>Provide Evidence</u>			3
v	<p>Schedule of contractors equipment and transport (proof or evidence of ownership/Lease)</p> <p>a) Relevant Transport</p> <ul style="list-style-type: none"> • Trucks 2No. (4Mks) • Pickups 2No. (2mks) <p>b) Equipment's/tools</p> <ul style="list-style-type: none"> • Copper tube cutter 2No. (2mks) • Deburring tools 2No. (2Mks) • Flaring tool 2No. (2 Mks) • Pipe calibration tools 1No. (2Mks) • Refrigeration ratchet 1No. (2Mks) • calibrated leak test tools 4No. (4mks) • Manifold gauge Hoses 2No. 2Mks) • PPE Equipment's (2mks) • Recovery and recycling unit (2mks) • Vacuum pump (2mks) • Oxy-acetylene Equipset (4mks) <p>c) Vertical transport</p> <ul style="list-style-type: none"> • Mobile Hosting Crane 30T & above (6Mks) 			38
vi	<p>Financial report</p> <p>a) Audited financial report (last three (3) years)</p> <ul style="list-style-type: none"> • Provide Audited Accounts for 2016, 2015, 2014 (3 Mks) • Average Annual Turn-over equal to or greater than the annual Expected Turnover of the project ----- (12mks) • Average Annual Turn-over above 50% but below 100% of the cost of the project ----- (2Mks) • Average Annual Turn-over below 50% of the cost of the project ----- 1Mks 			15
	<p>b) Evidence of Financial Resources (cash in hand, lines of credit, over draft facility, etc)</p> <ul style="list-style-type: none"> • Has financial resources to finance the projected monthly cash flow* for three months -----15 • Has financial resources equal to the projected monthly cash flow*-----10 			15

	<ul style="list-style-type: none"> Has financial resources less the projected monthly cash flow*-----5 Has not indicated sources of financial resources ----- 0 		
	Name, Address and Telephone of Banks		2
vii	Litigation History <ul style="list-style-type: none"> Duly Filled ----- 1 Not filled ----- 0 		1
xi	Prepared for Compliance to warehouse Main contractor (to be appointed) completion time	4 Mks	4
	TOTAL		140

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

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

A) Compliance with technical specifications

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

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

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

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

B) Assessment of deviations

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

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

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

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

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

STAGE 3 - FINANCIAL EVALUATION

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

The evaluation shall be in **three stages**

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

A) Determination of Arithmetic Errors

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

- i) In the event of a discrepancy between the tender amount as stated in the form of Tender and the corrected tender figure in the Main summary of the Bills of Quantities, the amount as stated in the Form of Tender shall prevail. Pursuant to Section 82 of the Public Procurement and Asset Disposal Act 2015, the tender sum as submitted and read out during the tender opening shall be absolute and final and shall not be the subject of correction, adjustment or amendment in any way by any person or entity;
- ii) Error correction factor shall be computed by expressing the difference between the amount and the corrected tender sum as a percentage of the corrected contract works (i.e. corrected tender sum less P.C; and Provisional Sums);

- iii) The Error correction factor shall be applied to all contract works (as a rebate or addition as the case may be) for the purposes of valuations for Interim Certificates and valuation of variations.

B) Comparison of rates

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

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

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

C) Consistency of the Rates

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

FINANCIAL EVALUATION

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

SECTION IV

CONDITIONS OF MAIN CONTRACT

GENERAL CONDITIONS OF CONTRACT

1 Definitions

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

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

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

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

“The Contract” means the agreement entered into between the Kenya Medical Supplies Authority and the Contractor as recorded in the Agreement Form and signed by the parties including all attachments and appendices thereto and all documents incorporated by reference therein to execute, complete, and maintain the Works,

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

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

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

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

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

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

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

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

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

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

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

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

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

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

“Project Manager” is the person named in the Appendix to Conditions of Contract (or any other competent person appointed by the Kenya Medical Supplies Authority and notified to the Contractor, to act in replacement of the Project Manager) who is responsible for supervising the execution of the Works and administering the Contract and shall be an “Architect” or a “Quantity Surveyor” registered under the Architects and Quantity Surveyors Act Cap 525 or an “Engineer” registered under Engineers Registration Act Cap 530.

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

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

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

“Start Date” is the latest date when the Contractor shall commence execution of the Works. It does not necessarily coincide with the Site possession date(s).

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

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

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

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

2 Interpretation

- 2.1 In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning in English Language unless specifically defined. The Project Manager will provide instructions clarifying queries about these Conditions of Contract.
- 2.2 If sectional completion is specified in the Appendix to Conditions of Contract, reference in the Conditions of Contract to the Works, the Completion Date and the Intended Completion Date apply to any section of the Works (other than references to the Intended Completion Date for the whole of the Works).
- 2.3 The following documents shall constitute the Contract documents and shall be interpreted in the following order of priority;
 - a) Agreement,
 - b) Letter of Acceptance,
 - c) Contractor's Tender,
 - d) Appendix to Conditions of Contract,
 - e) Conditions of Contract,
 - f) Specifications,
 - g) Drawings,
 - h) Bill of Quantities,

 - i) Any other documents listed in the Appendix to Conditions of Contract as forming part of the Contract.

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

3 Language and Law

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

4 Project Manager's Decisions

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

5 Delegation

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

6 Communications

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

7 Subcontracting

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

8 Other Contractors

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

9 Personnel

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

10 Works

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

11 Safety and Temporary Works

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

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

12 Discoveries

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

13 Work Program

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

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

14 Possession of Site

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

15 Access to Site

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

16. Instructions

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

16.2 If within seven days after receipt of a written notice from the Project Manager requiring compliance with Project Manager's instructions the Contractor does not comply therewith, the Kenya Medical Supplies Authority may employ and pay

other persons to execute any work whatsoever which may be necessary to give effect to such instructions and all costs incurred in connection therewith shall be recoverable from the Contractor by the Employer as a debt or may be deducted by the Project Manager from any moneys due or to become due to the Contractor under this Contract

17 Extension or Acceleration of Completion Date

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

18 Management Meetings

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

19 Early Warning

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

20 Defects

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

21 Bills of Quantities

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

22 Variations

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

ordered.

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

23 Payment Certificates, Currency of Payments and Advance Payments

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

of Kenya's average rate for base lending prevailing as of the first day the payment becomes overdue.

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

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

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

Where:

R =the amount to be reimbursed

A =the amount of the advance which has been granted

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

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

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

24 Compensation Events

24.1 The following issues shall constitute Compensation Events:

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

Completion.

- (k) Other compensation events described in the Contract or determined by the Project Manager shall apply.

24.2 If a compensation event would cause additional cost or would prevent the Work being completed before the Intended Completion Date, the Contract Price shall be increased and/or the Intended Completion Date shall be extended. The Project Manager shall decide whether and by how much the Contract Price shall be increased and whether and by how much the Intended Completion Date shall be extended.

24.3 As soon as information demonstrating the effect of each compensation event upon the Contractor's forecast cost has been provided by the Contractor, it shall be assessed by the Project Manager, and the Contract Price shall be adjusted accordingly. If the Contractor's forecast is deemed unreasonable, the Project Manager shall adjust the Contract Price based on the Project Manager's own forecast. The Project Manager will assume that the Contractor will react competently and promptly to the event.

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

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

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

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

25 Price Adjustment

25.1 The Project Manager shall adjust the Contract Price if taxes, duties and other levies are changed between the date 30 days before the submission of tenders for the Contract and the date of Completion. The adjustment shall be the change in the amount of tax payable by the Contractor.

- 25.2 The Contract Price shall be deemed to be based on exchange rates current at the date of tender submission in calculating the cost to the Contractor of materials to be specifically imported (by express provisions in the Contract Bills of Quantities or Specifications) for permanent incorporation in the Works. Unless otherwise stated in the Contract, if at any time during the period of the Contract exchange rates shall be varied and this shall affect the cost to the Contractor of such materials, then the Project Manager shall assess the net difference in the cost of such materials. Any amount from time to time so assessed shall be added to or deducted from the Contract Price, as the case may be.
- 25.3 Unless otherwise stated in the Contract, the Contract Price shall be deemed to have been calculated in the manner set out below and in sub-clauses 25.4 and 25.5 and shall be subject to adjustment in the events specified thereunder;
- (i) The prices contained in the Contract Bills of Quantities shall be deemed to be based upon the rates of wages and other emoluments and expenses as determined by the Joint Building Council of Kenya (J.B.C.) and set out in the schedule of basic rates issued 30 days before the date for submission of tenders. A copy of the schedule used by the Contractor in his pricing shall be attached in the Appendix to Conditions of Contract.
 - (ii) Upon J.B.C. determining that any of the said rates of wages or other emoluments and expenses are increased or decreased, then the Contract Price shall be increased or decreased by the amount assessed by the Project Manager based upon the difference, expressed as a percentage, between the rate set out in the schedule of basic rates issued 30 days before the date for submission of tenders and the rate published by the J.B.C. and applied to the quantum of labour incorporated within the amount of Work remaining to be executed at the date of publication of such increase or decrease.
 - (iii) No adjustment shall be made in respect of changes in the rates of wages and other emoluments and expenses which occur after the date of Completion except during such other period as may be granted as an extension of time under clause 17.0 of these Conditions.
- 25.4 The prices contained in the Contract Bills of Quantities shall be deemed to be based upon the basic prices of materials to be permanently incorporated in the Works as determined by the J.B.C. and set out in the schedule of basic rates issued 30 days before the date for submission of tenders. A copy of the schedule used by the Contractor in his pricing shall be attached in the Appendix to Conditions of Contract.
- 25.5 Upon the J.B.C. determining that any of the said basic prices are increased or decreased then the Contract Price shall be increased or decreased by the amount to be assessed by the Project Manager based upon the difference between the price set out in the schedule of basic rates issued 30 days before the date for submission of tenders and the rate published by the J.B.C. and applied to the quantum of the relevant materials which have not been taken into account in arriving at the amount of any interim certificate under clause 23 of these

Conditions issued before the date of publication of such increase or decrease.

- 25.6 No adjustment shall be made in respect of changes in basic prices of materials which occur after the date for Completion except during such other period as may be granted as an extension of time under clause 17.0 of these Conditions.
- 25.7 The provisions of sub-clause 25.1 to 25.2 herein shall not apply in respect of any materials included in the schedule of basic rates.

26 Retention

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

27 Liquidated Damages

- 27.1 The Contractor shall pay liquidated damages to Kenya Medical Supplies Authority at the rate stated in the Appendix to Conditions of Contract for each day that the actual Completion Date is later than the Intended Completion Date. Kenya Medical Supplies Authority may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not alter the Contractor's liabilities.
- 27.2 If the Intended Completion Date is extended after liquidated damages have been paid, the Project Manager shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rate specified in Clause 23.30.

28 Securities

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

29 Dayworks

- 29.1 If applicable, the Dayworks rates in the Contractor's tender shall be used for small additional amounts of Work only when the Project Manager has given written instructions in advance for additional work to be paid for in that way.
- 29.2 All work to be paid for as Dayworks shall be recorded by the Contractor on Forms approved by the Project Manager. Each completed form shall be verified and signed by the Project Manager within two days of the Work being done.
- 29.3 The Contractor shall be paid for Dayworks subject to obtaining signed Dayworks forms.

30 Liability and Insurance

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

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

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

30.4 Policies and certificates for insurance shall be delivered by the Contractor to the Project Manager for the Project Manager's approval before the Start Date. All such insurance shall provide for compensation required to rectify the loss or damage incurred.

30.5 If the Contractor does not provide any of the policies and certificates required, Kenya Medical Supplies Authority may effect the insurance which the Contractor should have provided and recover the premiums from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.

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

31 Completion and Taking Over

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

32 Final Account

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

unsatisfactory after it has been resubmitted, the Project Manager shall decide on the amount payable to the Contractor and issue a Payment Certificate. Kenya Medical Supplies Authority shall pay the Contractor the amount due in the Final Certificate within 60 days.

33 Termination

- 33.1 Kenya Medical Supplies Authority or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract. These fundamental breaches of Contract shall include, but shall not be limited to, the following;
- (a) the Contractor stops work for 30 days when no stoppage of work is shown on the current program and the stoppage has not been authorized by the Project Manager;
 - (b) the Project Manager instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within 30 days;
 - (c) the Contractor is declared bankrupt or goes into liquidation other than for a reconstruction or amalgamation;
 - (d) a payment certified by the Project Manager is not paid by Kenya Medical Supplies Authority to the Contractor within 30 days (for Interim Certificate) or 60 days (for Final Certificate) of issue.
 - (e) the Project Manager gives notice that failure to correct a particular defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Project Manager;
 - (f) the Contractor does not maintain a security, which is required.
- 33.2 When either party to the Contract gives notice of a breach of Contract to the Project Manager for a cause other than those listed under Clause 33.1 above, the Project Manager shall decide whether the breach is fundamental or not.
- 33.3 Notwithstanding the above, the Employer may terminate the Contract for convenience.
- 33.4 If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible. The Project Manager shall immediately thereafter arrange for a meeting for the purpose of taking record of the Works executed and materials, goods, equipment and temporary buildings on Site.

34 Payment Upon Termination

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

a debt payable by the Contractor.

- 34.2 If the Contract is terminated for the Kenya Medical Supplies Authority convenience or because of a fundamental breach of Contract by the Employer, the Project Manager shall issue a certificate for the value of the Work done, materials ordered, the reasonable cost of removal of equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works.
- 34.3 Kenya Medical Supplies Authority may employ and pay other persons to carry out and complete the Works and to rectify any defects and may enter upon the Works and use all materials on the Site, plant, equipment and temporary works.
- 34.4 The Contractor shall, during the execution or after the completion of the Works under this clause remove from the Site as and when required, within such reasonable time as the Project Manager may in writing specify, any temporary buildings, plant, machinery, appliances, goods or materials belonging to or hired by him, and in default Kenya Medical Supplies Authority may (without being responsible for any loss or damage) remove and sell any such property of the Contractor, holding the proceeds less all costs incurred to the credit of the Contractor.

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

35 Release from Performance

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

36 Corrupt Gifts and Payments of Commission

- 36.1 The Contractor shall not;
- (a) Offer or give or agree to give to any person in the service of Kenya Medical Supplies Authority any gift or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of this or any other Contract for Kenya Medical Supplies Authority or for showing or

forbearing to show favour or disfavour to any person in relation to this or any other contract for Kenya Medical Supplies Authority.

- (b) Enter into this or any other contract with the Kenya Medical Supplies Authority in connection with which commission has been paid or agreed to be paid by him or on his behalf or to his knowledge, unless before the Contract is made particulars of any such commission and of the terms and conditions of any agreement for the payment thereof have been disclosed in writing to Kenya Medical Supplies Authority.

Any breach of this Condition by the Contractor or by anyone employed by him or acting on his behalf (whether with or without the knowledge of the Contractor) shall be an offence under the provisions of the Public Procurement Regulations issued under The Exchequer and Audit Act Cap 412 of the Laws of Kenya.

37 Settlement Of Disputes

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

- (i) Architectural Association of Kenya
- (ii) Institute of Quantity Surveyors of Kenya
- (iii) Association of Consulting Engineers of Kenya
- (iv) Chartered Institute of Arbitrators (Kenya Branch)
- (v) Institution of Engineers of Kenya

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

37.2 The arbitration may be on the construction of this Contract or on any matter or thing of whatsoever nature arising thereunder or in connection therewith, including any matter or thing left by this Contract to the discretion of the Project

Manager, or the withholding by the Project Manager of any certificate to which the Contractor may claim to be entitled to or the measurement and valuation referred to in clause 23.0 of these conditions, or the rights and liabilities of the parties subsequent to the termination of Contract.

- 37.3 Provided that no arbitration proceedings shall be commenced on any dispute or difference where notice of a dispute or difference has not been given by the applying party within ninety days of the occurrence or discovery of the matter or issue giving rise to the dispute.
- 37.4 Notwithstanding the issue of a notice as stated above, the arbitration of such a dispute or difference shall not commence unless an attempt has in the first instance been made by the parties to settle such dispute or difference amicably with or without the assistance of third parties. Proof of such attempt shall be required.
- 37.5 Notwithstanding anything stated herein the following matters may be referred to arbitration before the practical completion of the Works or abandonment of the Works or termination of the Contract by either party:
- (a) The appointment of a replacement Project Manager upon the said person ceasing to act.
 - (b) Whether or not the issue of an instruction by the Project Manager is empowered by these Conditions.
 - (c) Whether or not a certificate has been improperly withheld or is not in accordance with these Conditions.
 - (d) Any dispute or difference arising in respect of war risks or war damage.
- 37.6 All other matters shall only be referred to arbitration after the completion or alleged completion of the Works or termination or alleged termination of the Contract, unless Kenya Medical Supplies Authority and the Contractor agree otherwise in writing.
- 37.7 The Arbitrator shall, without prejudice to the generality of his powers, have powers to direct such measurements, computations, tests or valuations as may in his opinion be desirable in order to determine the rights of the parties and assess and award any sums which ought to have been the subject of or included in any certificate.
- 37.8 The Arbitrator shall, without prejudice to the generality of his powers, have powers to open up, review and revise any certificate, opinion, decision, requirement or notice and to determine all matters in dispute which shall be submitted to him in the same manner as if no such certificate, opinion, decision requirement or notice had been given.
- 37.9 The award of such Arbitrator shall be final and binding upon the parties.

SPECIAL CONDITIONS OF CONTRACT

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

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

SECTION V

APPENDIX TO CONDITIONS OF CONTRACT (SUB-CONTRACT WORKS)

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

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

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

The minimum insurance covers shall be;

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

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

The period between Program updates is 30 days.

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

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

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

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

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

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

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

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

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

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

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

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

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

SECTION VI

STANDARD FORMS

NOTES ON THE SAMPLE FORMS

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

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

FORM OF INVITATION FOR TENDERS

_____ [date]

To: TENDERER'S NAME _____

P. O. BOX _____

Dear Sirs:

RE: _____

You have been prequalified to tender for the above project.

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

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

Upon payment of a non-refundable fee of _____

All tenders must be accompanied by ONE (1) copy of both Technical and Financial Proposals and a security in the form and amount specified in the tendering documents, and must be delivered to _____, or be addressed to _____

_____. Tenders will be opened immediately thereafter, in the presence of tenderers' representatives who choose to attend.

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

Yours faithfully,

_____ Authorized Signature

_____ Name and Title

QUALIFICATION INFORMATION

1. Individual Tenderers or Individual Members of Joint Ventures

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

Place of registration: _____

Principal place of business _____

Power of attorney of signatory of tender _____

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

Year	Volume	
	Currency	Value

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

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

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

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

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

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

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

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

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

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

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

3.0 Joint Ventures

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

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

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

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

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

Date: -----

TENDER QUESTIONNAIRE

Please fill in block letters.

1. Full names of tenderer

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

3. Telephone number (s) of tenderer

4. Facsimile number of tenderer

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

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

Signature of Tenderer

CONFIDENTIAL BUSINESS QUESTIONNAIRE FORM

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

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

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

Part 3 – Eligibility Status

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

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

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

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

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

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

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

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

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

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

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

Date Signature of Candidate

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

DECLARATION OF UNDERTAKING (INTEGRITY STATEMENT)

Anti – Corruption Policy in the Procurement Process

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

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

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

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

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

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

1. MEMORANDUM (FORMAT)

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

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

Authorized Signature: _____

Name and Title of Signatory: _____

NON - DEBARMENT DECLARATION

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

NameSignature.....Date

Company Seal / Business Stamp

SITE VISIT DECLARATION FORM

PROPOSED CONSTRUCTION OF KEMSA WAREHOUSE AND OFFICE BLOCK

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

COMPANY REPRESENTATIVE

NAME:

DESIGNATION:

Date

OFFICIAL STAMP

KEMSA REPRESENTATIVE

NAME:.....

SIGNATURE:.....

DATE:.....

OFFICIAL STAMP

Signed

Date

TENDER SECURITY FORM

(Amend accordingly if provided by Insurance Company)

Whereas[name of the tenderer]

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

[name and/or description of the services]

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

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

of.....having registered office at

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

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

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

THE CONDITIONS of this obligation are:

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

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

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

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

[signature of the bank]

DETAILS OF SUB-CONTRACTORS

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

Failure to comply with this requirement may invalidate the tender.

(1) Portion of Works to be sublet:

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

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

(2) Portion of Works to sublet:

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

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

[Signature of Tenderer]

Date

BANK GUARANTEE FOR ADVANCE PAYMENT FORM

To

Gentlemen and/or Ladies:

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

.....

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

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

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

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

Yours truly,

Signature and seal of the Guarantors _____
[name of bank or financial institution]

[address]

[date]

PERFORMANCE SECURITY FORM

To:

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

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

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

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

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

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

This guarantee is valid until the ____ day of 20____

Signature and seal of the Guarantors

[name of bank or financial institution]

[address]

_____ [date]

METHOD STATEMENT

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

STATEMENT OF FOREIGN CURRENCY REQUIREMENTS

(See Clause 23] of the Conditions of Contract)

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

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

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

Currency in which foreign exchange element is required:

.....

Date: The Day of 20.....

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

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

(Signature of Tenderer)

LETTER OF NOTIFICATION OF AWARD

To: _____

RE: Tender No. _____

Tender Name _____

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

1. Please acknowledge receipt of this Letter of Notification signifying your Acceptance.
2. The Contract/contracts shall be signed by the parties within 30 days of the date of this letter but not earlier than 14 days from the date of the letter.
3. You may contact the officer whose particulars appear below on the subject matter of this Letter of Notification of Award.

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

FOR:

LETTER OF ACCEPTANCE
[letterhead paper of the Employer]

_____ [date]

TO: _____ (Contractor)

P. O. BOX: _____

Dear Sir,

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

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

_____ *(amount in words)*
in accordance with the Instructions to Tenderers is hereby accepted.

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

Authorized Signature:

Name and Title of Signatory:

FORM OF AGREEMENT

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

_____ of [or whose registered

office is situated at] _____ (hereinafter called “the Contractor”) of the other part.

WHEREAS THE Procurement Entity is desirous that the Contractor executes

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

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

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

Kenya Shillings _____ *Amount in figures*],

Kenya Shillings _____ [*Amount in words*].

NOW THIS AGREEMENT WITNESSETH as follows:

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

- (v) Specifications
- (vi) Drawings
- (vii) Priced Bills of Quantities

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

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

The common Seal of _____

Was hereunto affixed in the presence of _____

Signed Sealed, and Delivered by the said _____

Binding Signature of the Procurement Entity

Binding Signature of Contractor _____

In the presence of (i) Name _____

Address _____

Signature _____

(ii) Name _____

Address _____

Signature _____

CONTRACT FORM

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

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

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

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

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

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

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

in the presence of _____

FORM RB 1

REPUBLIC OF KENYA

PUBLIC PROCUREMENT ADMINISTRATIVE REVIEW BOARD

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

BETWEEN

.....APPLICANT

AND

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

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

REQUEST FOR REVIEW

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

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

- 1.
- 2.
- etc

SIGNED(Applicant)

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

FOR OFFICIAL USE ONLY

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

SIGNED
Board Secretary

SECTION B

CONDITIONS OF

SUB-CONTRACT AGREEMENT

CONDITIONS OF CONTRACT

SUB-CONTRACT AGREEMENT (KABCEC)

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



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

June 2002 Edition

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

CONTENTS

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

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

ORIGINAL
embossed stamp

COUNTERPART
embossed stamp

1.0 AGREEMENT

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

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

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

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

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

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

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

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

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

NOW IT IS HEREBY AGREED AS FOLLOWS:

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

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

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

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

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

such appointment arises and shall communicate the appointment to the Sub-Contract through the Contractor.

1.10 Where the sub-contract does not incorporate bills of quantities, the term “sub-contract bills” and “bills of quantities” wherever appearing shall be deemed deleted and replaced with the term “schedule of rates” as applicable.

1.11 The terms defined in the main contract shall have the same meaning in this sub-contract as that assigned to them therein.

1.12 AS WITNESS the hands of the said parties;

Signed by the said

.....(Contractor)

In the presence of

Name

Address

Signed by the said

.....(Sub-Contractor)

In the presence of

Name

Address

CONDITIONS OF SUB-CONTRACT

2.0 GENERAL OBLIGATIONS OF THE CONTRACTOR

The Contractor shall:

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

3.0 GENERAL OBLIGATIONS OF THE SUB-CONTRACTOR

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

4.0 SUB-CONTRACT DOCUMENTS

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

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

5.0 GENERAL LIABILITY OF THE SUB-CONTRACTOR

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

6.0 INSURANCE AGAINST INJURY TO PERSONS AND PROPERTY

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

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

7.0 PERFORMANCE BOND

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

8.0 POSSESSION OF SITE AND COMMENCEMENT OF WORKS

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

9.0 PROJECT MANAGERS INSTRUCTIONS

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

10.0 VARIATIONS

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

11.0 LIABILITY FOR OWN EQUIPMENT

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

12.0 PROVISION OF FACILITIES BY THE CONTRACTOR

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

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

13.0 LIABILITY FOR OWN WORK

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

14.0 CO-OPERATION IN USE OF FACILITIES

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

15.0 ASSIGNMENT AND SUBLETTING

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

16.0 WORK PRIOR TO APPOINTMENT OF CONTRACTOR

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

17.0 SUB-CONTRACTOR DESIGN

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

18.0 SPECIFICATION OF GOODS, MATERIALS AND WORKMANSHIP

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

19.0 COMPLIANCE WITH STATUTORY AND OTHER REGULATIONS

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

20.0 ROYALTIES AND PATENT RIGHTS

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

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

21.0 ANTIQUITIES AND OTHER OBJECTS OF VALUE

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

22.0 SUSPENSION OF WORKS

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

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

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

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

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

23.0 PAYMENTS

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

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

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

- 23.12 The sub-contract final account shall be agreed between the Sub-Contractor, the Contractor, the Quantity Surveyor and the Project Manager and shall be annexed to the Contractor's final accounts which shall be agreed as provided for in the main contract. For purpose of finalizing the accounts, the Quantity Surveyor may request the Sub-Contractor to submit further documents as he may deem necessary.
- 23.13 The final certificate issued under sub-clause 34.21 of the main contract shall be final and binding on the Sub-Contractor in the same manner it is binding on the Contractor.
- 23.14 If the Project Manager desires to secure final payment to the Sub-Contractor before final payment is due to the Contractor, the provisions of sub-clause 32.1 of the main contract shall apply.
- 23.15 The Contractor shall be entitled to deduct from or set off against any money due from him to the Sub-Contractor in interim certificates any sum or sums which the Sub-Contractor is liable to pay to the Contractor arising under or in connection with the sub-contract.

24.0 PRACTICAL COMPLETION AND DEFECTS LIABILITY

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

25.0 EXTENSION OF TIME

- 25.1 Upon it becoming reasonably apparent that the progress of the sub-contract works is or will be delayed, the Sub-Contractor shall forthwith give written notice of the cause of the delay to the Contractor and to the Project Manager with supporting details showing the extent of delay caused or likely to be caused. Thereafter, the Project Manager shall evaluate the information supplied by the Sub-Contractor and if in his opinion, the completion of the works is likely to be or has been delayed beyond the date for practical completion stated in the appendix to these conditions or beyond any extended time previously fixed under this clause, by any of the reasons entitling the Contractor to extension of time under sub-clause 36.1 of the main contract, then the Project Manager shall, so soon as he is able estimate the length of the delay beyond the date or time

aforesaid, recommend to the Contractor a fair and reasonable extension of time to be granted for the completion of the sub-contract works.

- 25.2 Thereupon, the Contractor shall grant in writing to the Sub-Contractor the recommended time. Provided that the Contractor shall not grant any extension of time to the Sub-Contractor without the written recommendation of the Project Manager. And provided that the Sub-Contractor shall constantly use his best endeavors to prevent delay and shall do all that may be reasonably required to proceed with the works.
- 25.3 The procedures for dealing with requests for extension of time and the observance of time limits prescribed in the main contract shall apply to the sub-contract in the same manner as they apply to the main contract.

26.0 LOSS AND EXPENSE CAUSED BY DISTURBANCE OF REGULAR PROGRESS

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

27.0 DAMAGES FOR DELAY IN COMPLETION

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

28.0 FLUCTATIONS

- 28.1 Unless otherwise stated in the sub-contract bills or specifications, the sub-contract price shall be deemed to have been calculated to include all duties and taxes imposed by statutory and other competent authorities in the country where the works are being carried out, and

- 28.2 The sub-contract price shall be deemed to be based on currency exchange rates current at the date of tender as regards materials or goods to be specifically imported for permanent incorporation in the works.
- 28.3 Should duties, taxes and exchange rates vary during the period of the contract, compensation thereof shall be calculated in accordance with sub-clause 24.5 of the main contract.
- 28.4 Compensation for change in prices of goods and materials incorporated in the works and in the rates of wages provided for in the main contract shall not apply to the sub-contract unless specifically provided for in the bill of quantities or specifications.

29.0 TERMINATION OF MAIN CONTRACT

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

30.0 TRMINATION OF SUB-CONTRACT.

- 30.1 Without prejudice to any other rights and remedies which the contractor may possess, if the sub-contractor shall make default in any one or more of the respects which would entitle the employer to terminate the main contract under clause 38.0 therein, the contractor shall give the sub-contractor a notice, with a copy to the Project Manager and to the employer by registered post of recorded delivery specifying the default. Should the sub-contractor continue the default for 14 days after receipt of such notice or at any time thereafter repeat such default and should the Project Manager certify that the sub-contractor is in default, the contractor may terminate the Sub-contract forthwith after the expiry of the notice provided that the notice is not given unreasonably or vexatiously. The termination letter shall be copied to the Project Manager and to the Employer.
- 30.2 Where the sub-contract is terminated due to the default of the sub-contractor as in sub-clause 30.1 herein, the adjustment of sub-contract accounts shall be performed in the like manner as is provided at sub-clause 33 of the main contract regarding the main contract accounts.
- 30.3 Without prejudice to any other rights and remedies which the Sub-Contractor may possess, if the Contractor shall make default in one or more of the respects which, if committed by the Employer, would entitle the contractor to terminate the main contract under clause 33 therein, the Sub-Contractor shall give the Contractor a notice, with a copy to the Project Manager and to the Employer, by registered post or recorded delivery specifying the default. Should the contractor continue the default for 14 days

after receipt of such notice or at any time thereafter repeat such default, and should the Project Manager certify that the contractor is in default, the Sub-Contractor may terminate the sub-contract forthwith after expiry of the notice, provided that the notice is not given unreasonably or vexatiously. The termination letter shall be copied to the Project Manager and to the Employer.

- 30.4 If the Sub-Contract is terminated due to the default of the Contractor as in sub- clause 30.3 herein, the Contractor shall pay the sub-contractor for work done in the like manner as the Contractor would be paid at sub-clause 39.5 of the main contract where the termination is done by the Contractor.
- 30.5 Where the sub-contract is terminated due to the default of the Contractor, all expenses arising from the termination shall be done wholly by the Contractor and the termination shall not create any liability on the Employer.
- 30.6 Where the sub-contract is terminated due to the default of the Sub-Contractor, the sub-contractor shall be liable to the contractor for all expenses arising therefrom.

31.0 SETTLEMENT OF DISPUTES

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

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

SUB CONTRACTOR’S PERFORMANCE BOND

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

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

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

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

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

Surety

Witness

Authorised by Power of Attorney No.....

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

..

Signed by the said:

.....

.....

CONTRACTOR

SUB-CONTRACTOR

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

Modify Clause 28.4

This is a fixed price contract.

SECTION C

SUB-CONTRACT PRELIMINARIES

AND

GENERAL CONDITIONS

CONTRACT PRELIMINARIES AND GENERAL CONDITIONS

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

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

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

SECTION C

SUB-CONTRACT PRELIMINARIES AND GENERAL CONDITIONS

1.01 Examination of Tender Documents

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

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

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

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

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

1.02 Discrepancies

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

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

1.03 Conditions of Sub-Contract Agreement

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

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

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

1.04 Payment

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

1.05 **Definition of Terms**

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

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

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

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

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

1.06 **Site Location**

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

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

1.07 **Duration of Sub-Contract**

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

1.08 **Scope of Sub-Contract Works**

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

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

1.09 **Extent of the Sub-contractor’s Duties**

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

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

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

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

1.10 Execution of the Works

The works shall be carried out strictly in accordance with:

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

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

1.11 Validity of Tender

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

1.12 Firm – Price Sub-contract

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

1.13 Variation

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

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

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

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

1.14 Prime Cost and Provisional Sums

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

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

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

1.15 Bond

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

1.16 Government Legislation and Regulations

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

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

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

1.17 Import Duty and Value Added Tax

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

1.18 Insurance Company Fees

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

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

1.19 Provision of Services by the Main Contractor

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

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

- ii) Any specialist scaffolding, cranes, etc. by the Sub-contractor for his own exclusive use shall be paid for by the Sub-contractor.

1.20 **Suppliers**

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

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

1.21 **Samples and Materials Generally**

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

1.22 **Administrative Procedure and Contractual Responsibility**

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

1.23 **Bills of Quantities**

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

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

1.24 **Sub-contractor’s Office in Kenya**

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

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

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

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

1.25 Builder's Work

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

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

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

1.26 Structural Provision for the Works

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

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

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

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

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

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

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

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

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

1.28 Checking of Work

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

1.29 Setting to Work and Regulating System

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

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

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

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

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

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

1.30 Identification of Plant Components

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

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

1.31 Contract Drawings

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

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

1.32 Working Drawings

The Sub-contractor shall prepare such Working Drawings as may be necessary. The Working Drawings shall be complete in such detail not only that the Sub-contract Works can be executed on

site but also that the Engineer can approve the Sub-contractor's proposals, detailed designs and intentions in the execution of the Sub-contract Works.

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

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

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

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

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

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

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

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

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

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

1.33 Record Drawings (As Installed) and Instructions

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

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

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

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

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

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

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

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

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

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

1.34 **Maintenance Manual**

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

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

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

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

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

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

1.35 **Hand-over**

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

The procedure to be followed will be as follows:

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

1.36 **Painting**

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

1.37 **Spares**

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

1.38 **Testing and Inspection – Manufactured Plant**

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

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

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

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

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

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

1.39 **Testing and Inspection -Installation**

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

1.40 **Labour Camps**

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

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

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

1.41 Storage of Materials

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

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

1.42 Initial Maintenance

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

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

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

1.43 Maintenance and Servicing After Completion of the Initial Maintenance

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

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

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

1.44 Trade Names

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

1.45 Water and Electricity for the Works

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

1.46 Protection

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

1.47 Defects After Completion

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

1.48 Damages for Delay

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

1.49 Clear Away on Completion

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

1.50 Final Account

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

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

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

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

1.51 Fair Wages

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

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

1.52 Supervision

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

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

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

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

1.53 Test Certificates

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

1.54 Labour

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

1.55 Discount to the Main Contractor

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

1.56 Guarantee

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

1.57 Direct Contracts

Notwithstanding the foregoing conditions, the Government reserves the right to place a "Direct Contract" for any goods or services required in the works which are covered by a P.C Sum in the Bills of Quantities and to pay for the same direct. In any such instance, profit relative to the P.C Sum in the priced Bills of Quantities will be adjusted as deserved for P.C Sum allowed.

1.58 Attendance Upon the Tradesmen etc

The Contractor shall allow for the attendance of trade upon trade and shall afford any tradesmen or other persons employed for the execution of any work not included in this contract every facility for carrying out their work and also for the use of ordinary scaffolding. The contractor however, shall not be required to erect any special scaffolding for them.

1.59 Trade Unions

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

1.60 Local and other Authorities notices and fees

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

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

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

1.61 Assignment or subletting

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

1.62 Partial Completion

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

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

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

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

1.63 Temporary Works

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

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

1.64 Patent Rights

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

1.65 Mobilization and Demobilization

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

1.66 Extended Preliminaries

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

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

1.67 Supervision by Engineer and Site Meetings

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

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

1.68 Amendment to Scope of Contract Works

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

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

1.69 Contractor Obligation and Employers Obligation

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

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

1. ADD TO CLAUSE 1.17

Prices quoted shall include **16% VAT**

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

PARTICULAR SPECIFICATIONS

a. SECTION 15831 – FAN COIL UNITS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, Division 1 Specification Sections, apply to this Section.
- B. Related Sections include:
 - 1. Division 15 Section “Basic Mechanical Requirements.”
 - 2. Division 15 Section “Hydronic Piping.”
 - 3. Division 15 Section “Metal Ducts and Accessories.”

1.2 SUMMARY

- A. This Section includes fan-coil units with water coils for heating and cooling.

1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data for each type of product specified. Provide basic unit information such as model number, diemensions, weight, fan power and electrical requirements, coil construction, filter construction and efficiency. Include unit designation as given on the drawings, unit airflow, cooling performance at listed conditions.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Engage a firm experienced in manufacturing fan-coil units similar to those indicated for this Project and that have a record of successful in-service performance.
- B. Comply with ARI 440 for testing and rating units.
- C. Comply with ASHRAE 33 for testing air coils.
- D. Comply with NFPA 70 for components and installation.
- E. Listing and Labeling: Provide products specified in this Section that are listed and labeled.
 - 1. The Terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
 - 1. Carrier
 - 2. Enviro – Tec
 - 3. York

2.2 MATERIALS

- A. Chassis: Galvanized steel with flanged edges.
- B. Coil Section Insulation: Faced, heavy-density, glass-fiber insulation over entire section.
- C. Drain Pans: Galvanized steel, insulated with polystyrene or polyurethane insulation or a solid drain pan, both types with connection for drain.
- D. Cabinet: Galvanized steel with removable panels.
 - 1. Horizontal Unit Bottom Panels: Fastened to unit with cam fasteners and hinge, with safety chain.
- E. Cabinet Finish: Bonderize, phosphatize, and flow-coat with baked-on primer.

2.3 WATER COILS

- A. Fin-and-Tube Coil: Copper tube, with mechanically bonded aluminum fins spaced no closer than 0.1" mm. Leak test to 2068 kPa underwater.

2.4 FAN

- A. Centrifugal fan, with forward-curved, double-width wheels, in galvanized steel fan scrolls, directly connected to manufacturer's standard motor.

2.5 ACCESSORIES

- A. Wiring Terminations: Match conductor materials and sizes indicated. Connect motor to chassis wiring with plug connection.
- B. Filters: 1"-mm-thick, throwaway filters in fiberboard frames.
- C. Dampers: Steel damper blades with polyurethane stop across entire blade length, operated by factory-mounted electric operators for 25 percent open cycle.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and supports to receive fan-coil units for compliance with requirements for installation tolerances and other conditions affecting performance of fan-coil units. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install fan-coil units as indicated, to comply with manufacturer's written instructions and NFPA 90A.
- B. Connect fan-coil units to hydronic piping according to Division 15 Section "Hydronic Piping." Provide shutoff valve and union or flange at each connection.

3.3 FIELD QUALITY CONTROL

- A. Testing: After installing fan-coil units and after electrical circuitry has been energized, demonstrate product capability and compliance with requirements.
- B. Remove and replace malfunctioning units with new units, and retest.

3.4 CLEANING

- A. Replace filters in each fan-coil unit.

3.5 COMMISSIONING

- A. Startup Services: Engage a factory-authorized service representative to provide startup service.
- B. Operate fan motor to verify proper rotation.
- C. Test and adjust controls and safeties. Replace damaged or malfunctioning controls and equipment.

- AIR FILTRATION

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Disposable, extended area panel filters.
- B. Extended surface high efficiency media filters.
- C. Filter frames.
- D. Filter gages.

1.2 QUALITY ASSURANCE

- A. Provide all filters as product of one manufacturer.
- B. Assemble filter components to form filter banks from products of one manufacturer.
- C. All filters shall conform to class II of CCR Title 24, Part 12.

1.3 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Provide filter media, filter performance data, filter assembly, filter gages, and filter frames.

1.4 OPERATION AND MAINTENANCE DATA

- A. Include 4 copies of instructions for operation, changing and periodic cleaning.

1.5 EXTRA STOCK

- A. Provide one set of disposable panel filters for each air-handling unit.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Store and protect products.

PART 2 - PRODUCTS

2.1 APPROVED MANUFACTURERS

- A. Aerostar
- B. Farr Filter

2.2 LOW EFFICIENCY FILTERS

- A. Average efficiency of 25-30%. Average arrestance 90%.

*Proposed KEMSA warehouse and office- Mechanical Ventillation, Smoke Vents & Air Conditioning Installations
Particular specifications*

- B. Application: Pre-filters, fan coils, indoor unit split-system, construction start-up filters and elsewhere as indicated.
 - C. Description: Pleated, disposable type, 1” 2” or 4” as scheduled. Each filter shall consist of a non-woven cotton fabric media, media support grid and enclosing frame.
 - D. Manufacturer: Flanders airpure Pleat.
- 2.3 MEDIUM EFFICIENCY FILTERS:
- A. Average efficiency: 66 – 65%. Average arrestance.
 - B. Application: Prefilter for air handling units as indicated on drawings.
 - C. Description: Rigid, 4” thick, disposable type, consisting of media, media supports and enclosed frame.
 - D. Manufacturer: Aerostar SL-65, Farr.
- 2.4 HIGH EFFICIENCY FILTERS:
- A. Average efficiency 90-95%. Minimum arrestance 99%.
 - B. Application: After air filters for air handling units.
 - C. Description: Rigid, 12” thick, disposable type, consisting of media, media supports and enclosing frame.
 - D. Manufacturer: Aerostar FP95.
- 2.5 FILTER HOUSING:
- A. Housing for filters in air handling unit will be part of air handling unit section including holding frames and locking devices.
 - B. Provide crank-operated spring loaded filter sealing mechanical and/or spring loaded bolt type filter sealing device for HEPA filters housing, factory tested under 3” wg. Pressure and soap bubble inspect for leakage.
- 2.6 FILTER GAUGES:
- A. Provide air filter gauges for all filter banks mounted on filter housing in an accessible location for ease of reading.
 - B. Gauge required at each prefilter and final filter.
 - C. Gauges: Magnehelic type, equivalent to Dwyer No. 2002-AF, range of 0-2” w.c., complete with required mounting accessories, tubing, vent valves and with static pressure taps installed across filter bank. Provide visual red line on gauge indicating final resistant point of filter.
- 2.7 TEMPORARY FILTERS: During construction period and during testing and balancing, provide replaceable media panel filters with pressure drop equal to filters specified. Do not run systems without filters.
- 2.8 CLEAN FILTERS: Provide clean filters when building is turned over to Hospital.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install air filter devices in accordance with manufacturer's instructions.
- B. Prevent passage of unfiltered air around filters with felt, rubber or neoprene gaskets.
- C. Do not operate fan system until filters (temporary or permanent) are in place. Replace temporary filters used during construction.
- D. Install filter gage static pressure tips upstream and downstream of filters. Mount filter gages on outside of filter housing or filter plenum in accessible position. Adjust and level.

SECTION 15890 - DUCTWORK

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Low pressure ducts/medium pressure ducts.
- B. Sheet metal plenum and housings.
- C. Isolation room exhaust ductwork.
- D. Stainless steel fume hood exhaust ductwork.

1.2 RELATED WORK

- A. Section 09900 - Painting: Exposed ductwork.
- B. Section 15121 - Expansion Compensation.
- C. Section 15140 - Supports and Anchors: Sleeves.
- D. Section 15290 - Duct Insulation.
- E. Section 15910 - Ductwork Accessories.
- F. Section 15936 - Air inlets and Outlets.
- G. Section 15990 - Testing, Adjusting and Balancing.

1.3 REFERENCES

- A. ASHRAE - Handbook Fundamentals; Duct Design.
- B. ASHRAE - Handbook Equipment; Duct Construction.
- C. ASTM A 90 - Weight of Coating on Zinc-Coated Galvanized Steel Articles.
- D. ASTM A 167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

- E. ASTM A 525 - General Requirements for Steel Sheet, Zinc- Coated Galvanized by the Hot-Dip Process.
- F. ASTM A 527 - Steel Sheet, Zinc-Coated Galvanized by Hot-Dip Process, Lock Forming Quality.
- G. ASTM B209 - Aluminum and Aluminum Alloy Sheet and Plate.
- H. ASTM E 84 - Surface Burning Characteristics of Building Materials.
- I. NFPA 255 - Surface Burning Characteristics of Building Materials.
- J. NFPA 90A - Installation of Air Conditioning and Ventilating Systems.
- K. NFPA 90B - Installation of Warm Air Heating and Air Conditioning Systems.
- L. NFPA 96 - Installation of Equipment for the Removal of Smoke and Grease-Laden Vapors from Commercial Cooling Equipment.
- M. SMACNA - HVAC Duct Construction Standards, 1995 Edition.
- N. UL 181 - Factory-Made Air Ducts and Connectors.
- O. UL 723 - Surface Burning Characteristics of Building Materials.
- P. California Mechanical Code (CMC), Title 24, 2001 Edition, Chapter 6.

1.4 DEFINITIONS

- A. Duct Sizes: Inside clear dimensions. For lined ducts, maintain sizes inside lining.
- B. Low Pressure: 2 inch WG positive or negative static pressure and velocities less than 2,500 fpm.
- C. Medium Pressure: Duct serving system with air terminal controllers extending from the discharge of the air handling unit to inlet of air terminal controllers.

1.5 REGULATORY REQUIREMENTS

- A. Construct ductwork to NFPA 90A and NFPA 90B and NFPA 96 standards.
- B. California Mechanical Code (CMC), Title 24, 2001 Edition, Chapter 6.

1.6 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Section 01340.
- B. Indicate duct fittings, particulars such as gages, sizes, welds, and configuration prior to start of work for low pressure.
- C. Submit samples under provisions of Section 01340.
- D. Submit samples of typical shop fabricated low and medium pressure duct fittings.
- E. Submit complete shop drawings, indicating method of connections, each plenum size, framing, for approval.
- F. Ductwork and sheet metal fabrication drawings. The contractor shall submit to the Architect for review 1/4" to 1 foot scaled plan drawings of all parts of the building showing all duct systems. Plans shall show all duct details,

offset, transitions, after coordination with all other sections and existing conditions. Drawings shall also include mechanical rooms with ductwork and plenums complete. PARTIAL OR INCOMPLETE DRAWINGS WILL NOT BE ACCEPTABLE. Conform to Section 01330.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver ductwork to the site clean and shrink wrapped under provisions of Section 01000.
- B. Store and protect products under provisions of Section 01000.

1.8 QUALITY ASSURANCE

- A. Flexible Duct Materials: Flame spread/smoke developed rating of not to exceed 25/50 in accordance with ASTM E84, NFPA 255 and UL 723.
- B. All duct fittings shall be manufactured. Field fabricated fitting is not acceptable.

PART 2 - PRODUCTS

2.1 MANUFACTURERS FOR FLEXIBLE DUCT

- A. Thermaflex Model "MK-E" (low pressure).
- B. Clasflex.

2.2 FLEXIBLE DUCT MATERIAL

- A. General: Factory pre-insulated, non-combustible or conforming to requirements for Class 1 air duct materials, or UL 181.
- B. Low pressure flexible ducts shall consist of an exterior reinforced laminated vapor barrier, 1-1/2" thick fiber glass insulation (K=0.25 @ 75 degrees F.), encapsulated spring steel wire Helix and impervious, smooth, non-perforated interior vinyl liner. Individual lengths of flexible ducts shall contain factory fabricated steel connection collars. Flexible ducts shall be supported at or near mid-length with 8" wide 28 ga. steel hanger collar attached to the structure with an acceptable duct hanger. Installation shall avoid sharp radius turns or offsets. 6' maximum length connecting to terminal outlets. Flexible ducts may be used to cross seismic joints without offset. Flexible ducts shall not penetrate through any wall. The composite assembly including insulation and vapor barrier shall meet Class 1 requirements of flame spread of 25 or less, smoke developed to 50 or less as set forth in NFPA 90A and be labeled by U.L. Air duct material listed and labeled with a flame and smoke rating. Duct shall be rated 6" positive wg. pressure. Submit data for review. Flexible round duct joints shall be held in place with factory fabricated steel connection collars. Secure with three sheet metal screws equally spaced. Seal joints with two wraps of acceptable duct tape.
- C. Supports, bar or angle reinforcing damper rods, which shall be of uncoated, mild steel, painted with one (1) coat of primer and one (1) additional coat of aluminum paint, confirming with painting division.
- D. Provide conical or tapered duct connection at all round duct takeoffs from rectangular sheet metal duct. Straight tab connections not acceptable.
- E. Sealant: Non-hardening, water resistant, fire resistive, compatible with mating materials; liquid used alone with canvas tape, or heavy mastic.
- F. Hanger Rod: Steel, galvanized; threaded both ends, threaded one end, or continuously threaded.

2.3 LOW PRESSURE DUCTWORK

- A. Low Pressure duct system shall be used for supply air duct down stream of boxes, fan coil units, return air and exhaust air system.
- B. Size round ducts installed in place of rectangular ducts in accordance with ASHRAE table of equivalent rectangular and round ducts. No variation of duct configuration or sizes permitted except by written permission.
- C. Construct T's, bends, and elbows with radius of not less than 1-1/2 times width of duct on centerline. Where not possible and where rectangular elbows are used, provide air foil turning vanes. Where acoustical lining is indicated, provide turning vanes of perforated metal with glass fiber insulation.
- D. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible. Divergence upstream of equipment shall not exceed 30 degrees; convergence downstream shall not exceed 45 degrees.
- E. Round ducts shall be spiral galvanized steel type with matching fittings as manufactured by "United Sheet Metal" or equivalent by "Omni Duct". Round duct shall be fabricated and installed in accordance with 2001 CMC Table 6-2 and SMACNA "HVAC Duct Construction Standard" Table 3.2 for 2" wg. Where CMC and SMACNA requirements differ, the more stringent of the two requirements shall govern.
- F. All sheet metal fabricated or galvanized steel except supports, bar or angle reinforcing damper rods, which shall be of uncoated, mild steel, painted with one (1) coat of primer and one (1) additional coat of aluminum paint.
- G. Supports: Ducts shall be secured against displacement and vibration as detailed in the "Guidelines for Seismic Restraints of Mechanical Systems and Plumbing Piping Systems" published by "The Sheet Metal Industry Fund of Los Angeles, California" (SMACNA) and "The Plumbing and Piping Industry Council Inc., Los Angeles, California" (PPIC).
- H. Steel Ducts: ASTM A525 or ASTM A527 galvanized steel sheet, lock-forming quality, having zinc coating of 1.25 oz per sq. ft. for each side in conformance with ASTM A90.
- I. Provide easements where low pressure ductwork conflicts with piping and structure. Where easements exceed 10 percent duct area, split into two ducts maintaining original duct area.
- J. Connect flexible ducts to metal ducts with adhesive plus sheet metal screws, metal bands and factory built collars. Plastic collars will not be allowed.
- K. Rectangular low pressure ductwork shall be fabricated and installed in accordance with 2001 CMC Table 6-1 and SMACNA "HVAC Duct Construction Standard" Second Edition 1995, Table 1-6 for 2" wg. Where CMC and SMACNA requirements differ, the more stringent of the two requirements shall govern. Seal all transverse joints and longitudinal seams with approved solvent based sealers for Class A.
- L. Use double nuts and lock washers on threaded rod supports.
- M. For fitting and branch connection: use 45° entry for rectangular duct and conical or bell mouth for round duct. Saddle tops, Straight tap, flanged or spin-in fitting are not acceptable.

2.4 ISOLATION ROOM EXHAUST DUCT

- A. Construct of 20 ga. Type 316 stainless steel with slip joint.
- B. Joint sealant shall be Plasite 7122 JAS joint sealant. Interior coating, exterior primer, and joint sealant materials shall have a Class I Flame Rating of 25 or less in accordance with ASTM E84-68.

- C. The exhaust duct shall be identified by appropriate labeling with the words "Caution Negative-Pressure Isolation Room Exhaust" or similar terminology. Such labeling shall be in a manner which is not readily removable and shall appear on the exhaust duct at intervals of not more than 20 feet (6096 mm) and at least once near each room and each story traversed by the exhaust system.

2.5 MEDIUM PRESSURE DUCTS

- A. Medium Pressure duct system shall be used for supply air duct and plenums downstream of supply fans and upstream of terminal boxes.
- B. Construct T's, bends, and elbows with 5-piece, or 3-piece 45° ells. long radius elbows. Where not possible and where rectangular elbows are used, provide air foil turning vanes. Where acoustical lining is required, provide turning vanes of solid metal with glass fiber fill. Weld in place.
- C. Transform duct sizes gradually, not exceeding 15 degrees divergence and 30 degrees convergence.
- D. Fabricate continuously welded medium pressure round and oval duct fittings two gages heavier than duct gages indicated in SMACNA Standard. Joints shall be minimum 4 inch cemented slip joint, brazed or electric welded. Prime coat welded joints.
- E. Provide standard 45 degree lateral wye takeoffs unless otherwise indicated where 90° conical or bell mouth connections may be used. Saddle tops, Straight tap, flanged or spin-in fitting are not acceptable.
- F. Medium pressure ductwork from the air handling unit to mixing dampers and air terminal units shall be fabricated and installed in accordance with 2001 CMC Table 6-1 and SMACNA "HVAC Duct Construction Standard" Second Edition 1995, Table 1-8 for 4" wg. Where CMC and SMACNA requirements differ, the more stringent of the two requirements shall govern. Seal all transverse joints, longitudinal seams and duct wall penetrations with approved solvent based sealers for Class A. When duct reinforcement required on two sides, they shall be tied with rods at the end.
 - 1. Round duct elbows up to 8" shall be die-stamped 20 gauge galvanized steel. Elbows larger than 8: shall be 5-piece welded walls with centerline radius not less than 1-1/2 times duct diameter unless otherwise approved by the Engineer. Branch take-offs shall be conical type, A.S.M.E. short flow nozzle, low-loss design, seamless construction. Fittings and pipe shall be as manufactured by Spiral Pipe Division of United Sheet Metal Company, or equal in "spiro-duct".
 - 2. All transverse joints, longitudinal seams, and duct penetrations wall shall be sealed by applying approved solvent based sealer to male end of duct with brush before assembly. After assembly and sheet metal screws are installed, apply 2" wide band of duct sealer around joint covering all screws and rivets. Allow 24 hours to set before pressure testing duct system. This Contractor shall guarantee the systems against air leakage in excess of 1%.
 - 3. Fire dampers for medium and high pressure ducts shall be of interlocking steel certain type. Submit shop drawings with Fire Marshal approval and California State Listing noted thereon. Access doors to high pressure duct fire dampers shall be minimum size 13" x 18".
 - 4. Medium and high pressure plenums and housings shall be constructed of 18 gauge galvanized iron and 3" x 3" x 1/4" galvanized angles in strict accordance with high pressure requirements of "Duct Manual" published by SMACNA.
 - 5. Submit complete shop drawings, indicating method of connections, each plenum size, framing, for review and acceptance.

2.6 FUME HOOD EXHAUST DUCT

- A. Provide stainless steel exhaust duct from fume hoods to the fume hood collecting plenum. The exhaust systems shall be for the use of corrosive, flammable and reactive material and shall be constructed and installed in

accordance with Uniform Building Code (UBC) Standard Number 10.3 (1976 Edition) "Blower and Exhaust System for Dust, Stock and Vapor Removal".

1. Ductwork and accessories shall be constructed from American Society for Testing and Materials (ASTM) A312 Type 316L stainless steel (SS) and built for structural strength.
 2. Exhaust duct for fume hood shall be 18 gauge SS minimum.
 3. Longitudinal and transverse joints between ductwork and fitting shall be continuous welded, use of spot welds and sealants is prohibited.
 4. Elbows and angles shall have the same gauge as ductwork, inside radius not less than width of duct.
 5. The duct system shall be fitted with copper-grounding straps, connected to the duct and to an effective grounding system.
- B. Fume hood exhaust air plenum on the roof shall be constructed of stainless steel. Construct in accordance with Section VI, SMACNA DCS.

2.7 CASINGS, HOUSINGS, PLENUMS & REGISTER BOXES

- A. Fabricate casings in accordance with SMACNA Low Pressure Duct Construction Standards and SMACNA High Pressure Duct Construction Standards and construct for operating pressures indicated.
- B. Mount floor mounted casings on 4 inch high concrete curbs. At floor, rivet panels on 8 inch centers to angles. Where floors are acoustically insulated, provide liner of 18 gage galvanized expanded metal mesh supported at 12 inch centers, turned up 12 inches at sides with sheet metal shields.
- C. Reinforce door frames with steel angles tied to horizontal and vertical plenum supporting angles. Install hinged access doors where indicated or required for access to equipment for cleaning and inspection. Provide clear wire glass observation ports, minimum 6 X 6 inch size.
- D. Sheet metal housing shall be constructed of 18 gauge galvanized iron, reinforced with 2" x 2" x 1/4" galvanized angles to form a rigid housing. Housing shall be fastened to the floor and walls or channel base as shown and sealed. Housings shall be sturdily braced and stiffened to prevent vibration and breathing. Angles shall be on three foot (3') centers maximum. Sheet metal shall be riveted to angles. Spot welding will not be allowed. Joints in low pressure plenums shall be sealed during assembly with a generous coat of "United" duct sealer in the joint. A final sealer on all joints inside the plenums shall be made with 6 oz. canvas strips and Arabol.
- E. Plenum Access Doors: All access doors shall be of double wall, 20 gauge galvanized sheet metal construction. A 1" thickness of Fiberglass rigid board insulation shall be installed between inner and outer door shells. Edges of doors shall be flanged for rigidity. One inch galvanized angle iron frames in casings shall be provided to receive doors. Doors shall be sealed with sponge rubber cemented in place and shall be mounted with heavy duty galvanized hinges and provided with brass door latches and strikers that can be opened from either inside or outside the casings. Ventlock No. 260 or approved equal. Access doors shall be constructed and hinged so that the air pressure tends to close door.
- F. Fabricate acoustic casings with reinforcing turned inward. Provide 16 gage back facing and 22 gage perforated front facing with 3/32 inch diameter holes on 5/32 inch centers. Construct panels 3 inches thick packed with 4.5 lb/cu ft minimum glass fiber media, on inverted channels of 16 gage.
- G. Sheet metal register boxes shall be provided for all ceiling diffusers and registers with round duct connections. Register boxes shall be complete with round starter collar, size as indicated on drawings.
- H. Steel Ducts: ASTM A525 or ASTM A527 galvanized steel sheet, lock-forming quality, having zinc coating of 1.25 oz. per sq. ft. for each side in conformance with ASTM A90.

2.8 FABRICATION DRAWINGS

- A. Ductwork and sheet metal fabrication drawings. This contractor shall submit to the Architect and Engineer for review 1/4" to 1 foot scaled plan drawings of all parts of the building showing all duct systems. Plans shall show all duct details, offset, transitions, elevation, etc., after coordination with all other trades and existing conditions. Drawings shall also include mechanical rooms with ductwork and plenums complete. **PARTIAL OR INCOMPLETE DRAWINGS WILL NOT BE ACCEPTABLE.**

2.9 FLEXIBLE DUCT CONNECTION AT SEISMIC SEPARATION

- A. Flexible duct connection at seismic separation: provide where shown on drawings flexible duct connections shall be "Durolan" as manufactured by Duro-Dyne, closely woven glass fabric double coated with neoprene and suitable for the system pressure.

2.10 MISCELLANEOUS MATERIALS

- A. Duct Sealant: United Duct Sealer, 3M #800, or equal, nonflammable, UL labeled.
- B. Tape Sealing System: Hardcast RTA-50 or equal (no known equal), two-part system. Tape DT-5400, minimum 4" wide. Adhesive FTA20 for indoor applications, TRTA-50 for indoors or outdoors.
- C. Gasket Material: Tremco 440, Ductmate 440, or equal, minimum 3/16" thick by 1/2" wide.
- D. Test Ports: Steel with screw cap to suit exhaust service, Ventlock 699, Young Regulator, or equal. Coat inside of test ports same as ductwork when installed on coated ducts.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Drawings are in part diagrammatic and are intended to convey the scope of work and indicate the general arrangement of equipment, ducts and piping. Consult general construction drawings for all conditions affecting work and verify spaces in which work will be installed. Where job conditions require changes in indicated locations and arrangement, make such changes at no additional cost to Owner. Contractor shall verify duct sizes and clearances on job prior to fabricating ductwork. Provide transitions and offsets as required to install the work and allow clearance for other sections.
- B. Provide openings in ductwork where required to accommodate thermometers and controllers. Provide pilot tube openings where required for testing of systems, complete with metal can with spring device or screw to ensure against air leakage. Where openings are provided in insulated ductwork, install insulation material inside a metal ring.
- C. On medium pressure systems use only 5-piece, long radius elbows and 3-piece, 45° elbows. Tees shall be conical. All fittings shall be manufactured. Saddle tops in lieu of conical tees will not be allowed.
- D. All ductwork, supply, return, and exhaust shall be sealed. Ductwork shall be sealed according to SMACNA Class A. Solvent based sealers are preferred. Water based sealers may be used on renovations where odor may be a problem with hospital staff.
- E. Supply ductwork and plenums downstream of supply fans and upstream of terminal boxes shall be leak tested to show leakage is less than 1% of design cfm. Furnish results to the CM.
- F. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.

*Proposed KEMSA warehouse and office- Mechanical Ventillation, Smoke Vents & Air Conditioning Installations
Particular specifications*

- G. Coat buried, metal ductwork without factory jacket with one coat and seams and joints with additional coat of asphalt base protective coating.
- H. Connect diffusers or troffer boots to low pressure ducts with 6 feet maximum length of flexible duct. Hold in place with strap or clamp.
- I. During construction provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.
- J. Neck connection of diffuser or register shall not be made directly into main trunks. Where direct duct neck connection are required due to space limitations, main duct shall be lined 5 feet each side of neck connection.
- K. Girth seams shall be at intervals of 48" or less. All side of ducts shall be cross broken. Where required to prevent sagging and vibration, ducts shall be stiffened on the outside with flat bars or angles.
- L. Provide Young Regulator #110 instrument port in each main supply duct and main return adjacent to air handling equipment.
- M. All duct joints shall be sealed by applying "United" duct sealer to male end of duct with brush before assembly. After assembly and sheet metal screws are installed, apply 2" wide band of duct sealer around joint covering all screws and rivets. Allow 24 hours to set before pressure testing duct system. The Contractor shall guarantee the systems against air leakage in excess of 4%. All audible leaks sealed. No duct tape will be allowed.
- N. Flashings, counterflashings and equipment exposed above the roof or exterior to the building shall have all seams and laps soldered with 50/50 solder or sealed with PRC Rubber #5000 or #7000. These installations shall be coordinated with the roofing section.
- O. Layout:
 - 1. Manual Balancing Dampers: Install in all supply ducts, downstream of boxes, where two or more ducts are connected of a plenum and where shown on drawings, and at the branch takeoff connection of all return and exhaust branch ducts even though such balancing dampers may not be shown on the drawings. Provide locking, indicating quadrant operators.
 - 2. Contractor shall verify duct sizes and clearances on job prior to fabricating ductwork. Provide transitions and offsets as required to install the work and allow clearance for other trades.
 - 3. Casings & Joints: Airtight for the purpose intended. Sealed with seal and transverse duct joints, ends of standing seams, and all around united duct sealer or equal.
 - 4. Drawings indicate required size and points of termination of ducts and pipes, and suggest proper routes of ductwork and piping to conform to structure, avoid obstructions, and preserve clearances. However, it is not the intention of drawings to indicate all necessary offsets, and it shall be the responsibility of the Contractor to install ductwork and piping in such a manner as to conform to structure, avoid obstructions, preserve headroom, and keep openings and passageways clear without further instructions or cost. Make changes in locations of equipment, ductwork, and piping which may be necessary in order to accomplish this.
 - 5. All Architectural and Structural drawings of the building and those for the plumbing, mechanical and electrical work are hereby made a part of these specifications, and shall be consulted by the Contractor and his work adjusted to meet the conditions shown thereon.
 - 6. Reroute, provide transition with same cross sectional area and make necessary duct changes in order to fit ductwork in attic without any additional cost to the Owner.
- P. Duct leakage test: All ductwork shall be tested for leaks, using necessary instruments before insulating ductwork. Conduct tests as follows and as recommended in accordance with SMACNA Air Leakage Test Manual and Charter 23 of the National Standards Manual of the Associated Air Balance Control.

Proposed KEMSA warehouse and office- Mechanical Ventillation, Smoke Vents & Air Conditioning Installations Particular specifications

1. All the leak testing shall be observed and witness by the General Contractors Quality Control on-site representative.
 2. At all times onsite, the General Contractor and all partner General Contractors shall have the duct leak test training Video distributed by HCA Design and Construction.
 3. The General Contractor to maintain on-site a set of ductwork prints that are shaded in different colors to show the duct sections isolated for each test.
 4. The contractor shall indicate of the print the date each section of duct was tested and the final percent leakage rate measured for each test section.
 5. Test apparatus shall be a high-pressure portable blower with an orifice flow measuring device. Each orifice assembly is accurately calibrated with its' own calibration curve.
 6. Seal all openings in duct section and plenum to be tested.
 7. Connect test apparatus to test section of duct, using a flexible duct connection or hose, (fitting provided by Mechanical Contractor).
 8. Duct access panel is to be installed, if require in that duct section, before the pressure duct leakage test.
 9. Close damper on blower and gradually open damper on suction side of blower.
 10. Determine amount of air leakage and make repairs as required.
 11. Each section shall be tested at 1.5 times the design system operating static pressure. Leakage factor allowable shall be 1% based on the total operating CFM of the section of duct under test.
 12. Tested sections of ductwork shall be visually marked with certification sticker and initials of field test inspector. Tests shall be made before duct sections are concealed.
 13. The entire duct system shall be not covered with insulation or concealed in the ceiling, shafts, etc. until complete air duct leak test has been conducted and approved by Owner, IOR, the Design Team.
 14. The entire duct system shall be tested for leaks after complete installation and joints are mmade from the air handlers to the CAV units for supply air systems, relief, OSA, return and exhaust air system. Systems from mains (12" in size and larger duct) up to AH units and exhaust fans. Allowable leakage is 1% for all the systems.
- Q. Install all fresh air intakes as to be 10' - 0" from any and all sanitary vents or exhaust fan discharge. When necessary, extend vents or provide additional fresh air intake ductwork approved by the Architect.
- R. All exhaust air duct shall be completely air tight throughout the duct run and shall be equipped with back draft damper in accordance with section 1104 UMC 88.
- S. All outside air intake/louvers shall be equipped with wire mesh screens and back draft damper as per section 706(h) UMC 88.
- T. Duct smoke detectors shall be installed in supply air main ducts for all air handling units that exceeds 2000 CFM for automatic shut-off. Duct smoke detectors by electrical contractor.
- U. Provide openings thru roof, concrete wall, stud wall & at all places wherever mechanical duct, pipe and all other utility crossing/or penetrating. Provide structural member and/or strengthening method as per structural drawings or as necessary at all crossing/penetrations. Refer to structural drawing for method of strengthening.
- V. Pitch duct distribution according to structural beam slope in order to accommodate ductwork in attic space and wherever it occurs.
- W. Contractor is responsible to fit all ductwork in available attic space and also shall provide all fittings, elbows to accommodate ductwork in available space without any additional cost.
- X. All ductwork shall be positively sealed according to specification. Ductwork installation will need periodic inspection during construction. Ductwork installation will not be approved without Architect's periodic inspection for approval. No duct tape will be allowed. All mechanical duct joint shall be araboled.
- Y. All concealed mechanical work shall be inspected and approved by Architect prior to concealing or covering any mechanical work.

Z. Provide minimum 24" X 24" clear access door/panel to all concealed mechanical work for adjustments, repairs & maintenance.

AA. Where not otherwise specified herein, shown, noted, or required by codes, work shall conform to "HVAC Duct Construction Standards, Metal and Flexible," First Edition, 1995, as published by the Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA).

BB. Duct Placement and Fittings:

1. Form transitions with uniform taper not to exceed 15 degree include angle, unless shown otherwise on drawings.
2. Offsets over 15 degrees shall have two radius turns or square turning vanes.
3. Exposed Ducts: Exercise extreme care to product neat and pleasing-in-appearance joints, connections, supports, and other modifications. Ducts shall have no offsets, dents, or dings. They shall be clean and grease-free. Remove all excess sealant. Appearance shall be acceptable to the owner's representative.
4. Install ducts true to line and grade.
5. Make changes of direction by curved sections with inside radius equal to duct width or square elbows with turning vanes as shown. Where square elbows are definitely shown, radius turns shall not be used.
6. Closely fit and accurately place ducts, coordinating with work of other trades. Ducts shall be so placed that piping, ceiling support grid, ceilings, and light fixtures may be installed without warping, springing, or deforming ducts.
7. Use 45° entry tapered duct for rectangular branch and conical or bell mouth for round branch connections takeoff from rectangular sheet metal duct. Straight tap or spin-in fittings are not acceptable.

CC. Medium Pressure Round Ductwork:

1. United McGill Corporation, Uni-Seal, or equal, prefabricated, machine-wrapped, round duct with a sealed spiral-locked seam, minimum gauges of 26 in sizes through 14" basic round diameters, 24 in sizes 15" through 26" diameter, 22 for ducts 27" through 36" diameter, and 20 for ducts 37" through 50" diameter.
2. Fittings: United McGill "Uniform", or shop fabricated or match, or equal, minimum 20 gauge zinc-coated steel with continuous butt welded joints.
3. 45-degree and 90-degree elbows, 3" through 8" Diameter: Die stamped with all butt welded seams. Elbows 9" diameter and larger shall be 5 piece all butt welded. Radius to center of duct shall not be less than 1.5 times the duct diameter.
4. Reducers: Machine formed to ASME short flow nozzle shape.
5. Tees: Conical tape machine formed to short flow nozzle shape.
6. Laterals: Machine formed to ASME short flow nozzle, conical tape at 30 deg.F to 45 deg.F.
7. Round Tap Fittings: Saddle type for round duct or conical for rectangular ducts.
8. Round Duct Joints; Join by means of couplings with swaged bead in center and secured with sheet metal screws at each end of coupling. Make duct-to-fittings joints either by a tight slip fit of the fitting lapped inside the duct or by means of couplings with swaged bead in center, all secured with sheet metal screws. Screw spacing: 6", unless otherwise shown on the drawings. Seal joints and seams with 4" wide Hardcast tape or specified internal sealant applied continuously around the coupling.
- 9.

DD. Low Pressure Round Ductwork:

1. Same as medium pressure round ductwork, except United McGill "Uniweld" fittings, spot-welded and sealed same gauge as duct, may be used.

EE. Duct Support:

1. Support horizontal ducts with hangers of schedule size and spacing per SMACNA DCS, Tables 4-1 and 4-2. Install hangers at each change in direction of duct.

2. Extend strap hangers down both sides of ducts, turn under bottom 2" minimum. Metal screw hangers to bottom of duct and to upper and lower sides of ducts at not more than 12" on center.
3. Provide angle hangers formed by extending vertical bracing and angles or by rods connecting to bottom angles if size of bracing angles conforms to hanger schedule.
4. Support vertical ducts at every floor with angles or channels riveted to ducts. Rest angles or channels on floor slab or structural steel members placed in opening, unless otherwise noted.
5. Construct hangers of galvanized steel.
6. Provide hangers for duct as recommended by SMACNA.
7. Power driven anchor not permitted.

FF. Ducts Outdoors:

1. Exposed ducts outdoors or on roof shall be sealed watertight. Install outdoor horizontal ducts with pitched top to ensure complete drainage. Pitch to of duct ½" from edge to edge.
2. All steel parts, including nuts and bolts, for duct supports outdoors or on roof shall be hot-dipped galvanized after fabrication.

3.2 DUCT ACCESSORIES

- A. Duct Access Doors: Install in ducts and plenum walls where shown and where required for cleaning and for access to equipment and devices in ducts, including automatic dampers. Doors shall airtight. Doors outdoors shall be weathertight.
- B. Gravity Backdraft Dampers: Install dampers in removable flanged duct section. Adjust counter balance for proper relief pressure or as directed by the owner's representative. Install an access panel in duct immediately upstream or downstream from the damper for access to the counter weight adjustment and for inspection.
1. After fabrication, coat all components with coating specified for fume exhaust and ducts.
- C. Fire/Smoke Dampers: Install fire smoke dampers with access doors in accordance with all governing regulations, listing requirements, and manufacturer's recommendations.
- D. Volume Dampers: Volume dampers are required on each branch of supply, return and exhaust ductwork. Install damper as far upstream from air outlet/inlet as possible. Where required additional volume dampers are necessary to achieve proper air balance, furnish and install them in ducts where shown or not shown, at no additional cost to the contract.
- E. Fixed Turning Vanes: Install vanes in square elbows. Vanes shall run full diagonal dimension of elbow with first vane tight in heel corner. When turning vanes are installed in duct with internal insulation, install 20 gauge hat channels of same depth as insulation and secure vane runners to channels. Contractor-fabricated turning vanes shall not be acceptable.
1. Use single thickness turning vanes only where shown and where required for tight turns. Vanes shall be 18 gauge galvanized steel metal. Secure vanes to duct at both ends with angles and screws at 3" o.c. minimum spacing. Reinforce turning vanes with ½" diameter tie rods when vanes are longer than 72".
- F. Adjustable Air Extractors: Install at tap-ins without flared connection. Secure operator to duct with screws after balancing.
- G. Provide Plexiglass Viewports in ductwork at all humidifiers installation to observe operation.

3.3 CLEANING

- A. Clean all plenums and air ducts so that no dirt or dust is present in any system.

- B. Examine air handling systems and clear any obstruction and debris. With dampers wide open and closed, run fan systems and check for air leaks.
- C. Patch, repair or replace ductwork as required. All ductwork shall be made airtight. Repair or replace ducts and joints as required to the satisfaction of the owner's representative.

3.4 DUCT-LEAK TESTING

- A. Use extreme care in the fabrication and installation of all the ductwork, including Isolation Room exhaust ducts and plenums, to ensure that it will be airtight. All the duct systems shall be leak tested for leaks in sections as the work progresses, before insulating. Fire/smoke dampers, access panels and appropriate branch ducts shall be in place during the testing.
- B. Follow procedure published by United Sheet Metal Division of United McGill Corporation entitled "System Pressure Testing for Leaks" using prescribed test kit containing test blower, two U-tube manometer, and calibrated orifice tube. Orifice flow measurement device to be individually calibrated against a primary standard and a calibrated curve permanently attached to orifice tube assembly.
- C. Test Procedures:
 - 1. Test for audible leaks as follows:
 - a. Close off and seal all openings in the duct section to be tested. Connect the test apparatus to the duct by means of a section of flexible duct.
 - b. Start the blower with its control damper closed to avoid damage to ducts.
 - c. Gradually open the inlet damper until the duct pressure reaches 25% in excess of designed duct operating pressure.
 - d. Survey all joints for audible leaks. Mark each duct and repair after shutting down blower. Do not apply a retest until sealants have set.
 - 2. After all audible leaks have been sealed, measure the remaining leakage with the orifice section of the test apparatus as follows:
 - a. Start blower and open damper until pressure in duct reaches 25% in excess of designed duct operating pressure.
 - b. Read the pressure differential across the orifice. The leakage rated in cfm shall be read directly from the calibration curve for the orifice.
 - c. Total allowable leakage shall not exceed 1% of the total system design air flow rate. When partial sections of the duct system are tested, the summation of the leakage for all sections shall not exceed the total allowable leakage.
- D. All leak testing is to be witnessed by General Contractor's Quality Control on-site representative. The General Contractor is required to have on-site, at all times, the duct leak test training video distributed by HCA Design and Construction to all Partner General Contractors. Require the General Contractor to maintain, on-site, a set of ductwork prints that are shaded in different colors to show the duct sections isolated for each test. The General Contractor shall also indicate on the print, the date each section of duct was tested and the final percent leakage rate measured for each test section.
- E. Rectangular ducts shall perform to Leakage Class 6.
- F. Round ducts shall perform to Leakage Class 3.

3.5 DUCTWORK APPLICATION SCHEDULE

<u>AIR SYSTEM</u>	<u>MATERIAL</u>
Low Pressure Supply	Galv. Steel
Return and Relief	Galv. Steel
Outside Air Intake	Galv. Steel
General Exhaust	Galv. Steel
Isolation Room Exhaust	Galv. Steel
Fume Hood Exhaust	Stainless Steel

3.6 ADJUSTING AND CLEANING

- A. Prior to installation, all ductwork left on site shall be kept with closed up open ends.
- B. Clean duct system to remove accumulated dust. To obtain sufficient air, clean half the system at a time. Protect equipment which may be harmed by excessive dirt with temporary filters, or bypass during cleaning.
- C. Protect equipment which may be harmed by excessive dirt with filters, or bypass during cleaning. Provide adequate access into ductwork for cleaning purposes.

SECTION 15910 - DUCTWORK ACCESSORIES

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Volume control dampers.
- B. Combination fire and smoke dampers.
- C. Smoke dampers.
- D. Backdraft dampers.
- E. Flexible duct connections.
- F. Duct access doors.
- G. Duct instrument test ports.
- H. Sound Trap

1.2 SUBMITTALS

- A. Submit under the provisions of Section 01330.
- B. Complete submittals shall be provided to the Mechanical Engineer for approval.
- C. Submittals shall include the following information:
 - 1. Complete rectangular and round duct appurtenances including:
 - a. Double wall turning vanes.
 - b. Manual volume dampers – lined & wrapped ductwork.
 - c. Manual volume dampers above non-accessible ceilings.
 - d. Housings and plenums Field Fabrication Drawings.
 - e. Duct through roof details.
 - f. Combination Fire / Smoke damper assemblies.
 - g. Fusible Link Fire Damper assemblies.
 - h. Sheet metal register boxes.
 - i. Flexible ductwork.
 - j. Instrument test ports.
 - 2. Manufacturer model numbers and technical cut sheets shall be provided for all purchased products for items listed above.
 - 3. Submit appropriate SMACNA Plate or schedule where duct construction is based on SMACNA Standards.
- D. Refer to Section 15010 for additional submittal requirements.

1.3 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in the manufacturer's original, unopened, labeled containers and protect all products against moisture, tampering or damage from improper handling or storage.

- B. Do not deliver materials to the Project Site before they are ready for installation, unless adequate security is provided. The security and protection of all jobsite materials is the responsibility of the installing Contractor.
- C. All materials and products shall be new and in perfect condition when received, of the best grade and of the same manufacturer throughout for each class or group of materials or products.
- D. Provide standard products of a manufacturer regularly engaged in the manufacturer of the product indicated. Where more than one (1) unit of any product or material is required, Provide products by the same manufacturer.
- E. Protect all ductwork and specialties from entry of contaminating material.

PART 2 - PRODUCTS

2.1 VOLUME CONTROL DAMPERS

- A. Install volume dampers at each branch duct for supply, return, and exhaust duct systems, manually operated opposed blade dampers with interlocking edges, fabricated of 18-gauge steel and equipped with locking quadrants and end bearings.
- B. Duro Dyne SRH-228 damper regulators shall be installed on dampers in lined duct; SRST-2 on wrapped duct, with proper offset for duct insulation.
- C. Each damper regulator assembly shall be equipped with a closed end bearing assembly, shaft size to match regulator rod, Duro Dyne model "SB."
- D. Where manual dampers are installed above non-accessible ceilings, provide "Duro Dyne" model AD-38 miter gear assembly, 3/8" sq. rod, length as required, and model SRC-38 concealed regulator set with hex nut for each damper shown on the drawings. Install regulator set in a flush mounted 4S electrical box with blank cover, painted to match ceiling finish.
- E. Provide stainless steel dampers and components of dampers installed in stainless steel duct systems.

2.2 COMBINATION FIRE/SMOKE DAMPERS

- A. Manufacturer: Ruskin FSD 60 or equivalent by Pottorff.
- B. Fabricate in accordance with NFPA 90A, UI555, and UL555S.
- C. Provide factory sleeve for each damper. Install damper operator on exterior of sleeve and link to damper operating shaft.
- D. Fabricate with multiple blades with galvanized steel frame and 14 gage air foil blades, labeling as a leakage class I, oil-impregnated bronze or stainless steel sleeve bearings and plated steel axles, stainless steel jamb seals, 1/8 x 1/2 inch plated steel concealed linkage, stainless steel closure spring, blade tops, lock and 1/2 inch actuator shaft.
- E. Operators shall be spring return electric type suitable to operate on 120 V AC, 60 cycle. Operators shall be UL Listed and labeled. Provide disconnected switches.
- F. Provide two microswitches, one at each end of damper, to indicate damper position. Damper reset from fire alarm system. Fusible link melts and spring action close damper in fire mode.

2.3 DUCT SMOKE DAMPERS

- A. Manufacturer: Ruskin SD60 low leakage or equivalent by Pottorff.
- B. Fabricate in accordance with NFPA 90A and UL 555S.
- C. Provide factory sleeve for each damper. Install damper operation on exterior of sleeve and link to damper operating shaft.
- D. Fabricate with multiple blades and shall bear UL label for leakage resistance Class I. The leakage rating shall not exceed 4 cfm/square foot at 1" w.g. after exposure to 450°F for ½ hour. Blade edge shall be silicone rubber designed to withstand 450°F. Jamb seals shall be stainless steel.
- E. Operator shall be electric type suitable to operate on 120V AC,60 cycle and shall be factory installed by the damper manufacturer to constitute a UL rated package. Linkage shall be arranged to permit emergency manual operation of damper. Provide disconnected switch.
- F. Provide Ruskin SP100 switch package for blade position indicator. The switch package shall include two position indicator switches linked directly to the damper blade to provide the capability of remotely indicating damper blade position.

2.4 BACKDRAFT DAMPERS

- A. Manufacturer: Ruskin BD2 Op equivalent by Pottorff.
- B. Fabricate multi-blade, parallel action gravity balanced back draft dampers of 16 gage galvanized steel, or extruded aluminum, with center pivoted blades of maximum 6 inch width, with felt or flexible vinyl sealed edges, linked together in rattle-free manner with 90 degree stop, steel ball bearings and plated steel pivot pin; adjustment device to permit setting for varying differential static pressure.

2.5 FLEXIBLE DUCT CONNECTIONS

- A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards and as indicated.
- B. UL listed fire-retardant neoprene coated woven glass fiber fabric to NFPA 90A, minimum density 20 oz per sq yd, approximately six (6) inches wide, crimped into metal edging strip.
- C. Leaded vinyl sheet, minimum 0.55 inch thick, 0.87 lbs per sq ft, 10 dB attenuation in 10 to 10,000 Hz range.

2.6 DUCT ACCESS DOORS

- A. Manufacturer: Ruskin or equivalent by Pottorff.
- B. Fabricate in accordance with SMACNA HVAC Duct Construction Standards suitable for pressure classification in which it will be installed.
- C. Review locations prior to fabrication.
- D. Fabricate rigid and close-fitting doors of galvanized steel with sealing gaskets and quick fastening locking devices. For insulated ductwork, install minimum one-inch thick insulation with sheet metal cover.
- E. Access doors smaller than 12 inches square may be secured with sash locks.

- F. Provide two hinges and two sash locks for sizes up to 18 inches square, three hinges and two compression latches with outside and inside handles for sizes up to 24 x 48 inches. Provide an additional hinge for larger sizes.
- G. Access doors with sheet metal screw fasteners are not approved.

2.7 DUCT INSTRUMENT TEST PORTS

- A. All duct instrument test ports shall be as manufactured by "DuroDyne Model TH-1".

2.8 SOUND TRAP

- A. Description: Factory assembled unit, tested and certified by an independent acoustic testing laboratory, per ASTM E477. Provide test data taken within six months or submittal date.
- B. Manufacturer: IAC or equivalent by Vibro Acoustics.
- C. Construction:
 - 1. Casings: 22 gauge minimum galvanized steel with minimum 26 gauge perforated galvanized steel baffle in accordance with ASHRAE Guide recommended construction for high pressure ductwork. Seams locked form and mastic filled. Acoustic baffles use smooth bell-mouth at inlet and discharge, attached to casing using tongue and groove connection. Provide vertical supports where baffles are horizontal.
 - 2. Acoustical Fill: Inorganic long fiberglass or mineral fiber packed under not less than 5% compression, and have a flame spread classification of 25, smoke development rating 15, and fuel contribution 20.
 - 3. For the supply air sound traps, provide IAC packless silencers for hospital service, having the feature of no sound absorptive material of any kind in the shell.
- D. Acoustical Performance: Sound trap tested by an independent testing laboratory and certified that units must meet the acousting ratings. Meet local codes for fill erosion.
- E. Certification: The sound traps shall meet all applicable codes for hospital use and shall be so certified.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories in accordance with manufacturer's instructions.
- B. Provide balancing dampers at points on supply, return and exhaust systems where branches are taken from larger ducts as required for air balancing. Use splitter dampers only where indicated.
- C. Provide combination fire and smoke dampers and smoke dampers at locations indicated, where ducts and outlets pass through fire rated components, and where required by authorities having jurisdiction. Install with required perimeter mounting angles, sleeves, breakaway duct connections, corrosion resistant springs, bearings, bushings and hinges.
- D. Demonstrate re-setting of combination fire and smoke dampers and smoke dampers to authorities having jurisdiction and Owner's representative.
- E. Provide back draft dampers on all exhaust fans and where indicated on drawings.
- F. Provide flexible connections immediately adjacent to equipment in ducts associated with fans and motorized equipment except for fans or equipment equipped with internal Spring Isolators.

*Proposed KEMSA warehouse and office- Mechanical Ventillation, Smoke Vents & Air Conditioning Installations
Particular specifications*

- G. Provide duct access doors for inspection and cleaning before and after filters, coils, fans, automatic dampers, at fire dampers, and elsewhere as indicated. Provide minimum 8 x 8 inch size for hand access, 18 x 18 inch size for shoulder access, and as indicated.
- H. Provide duct instrument test ports where indicated and required for testing and balancing purposes.

SECTION 15920 - ISOLATION ROOM PRESSURE MONITORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions if the contract, including general and supplementary conditions and Division 1 specification sections apply to this section.
- B. Provide a room pressure monitoring system of Isolation Room.
- C. System shall include, but not be limited to, control panels, sensing stations and alarm modules.
- D. Total system shall be installed and commissioned by, or under the direct supervision of, factory trained and authorized field engineers.

1.2 DESCRIPTION

- A. An Isolation Room pressure monitoring system shall be furnished and installed to monitor the airflow into and out of Isolation Rooms.
- B. The system shall include a room pressure controller, a pressure sensor, a low voltage control transformer, low voltage control wiring, and a damper/actuator assembly. All components of the room pressure controller shall be part of a completely designed, tested, catalogued, and factory coordinated package by a single manufacturer, for single point responsibility.

1.3 SUBMITTALS

- A. Submit under provisions of Section 01330.
- B. Submit shop drawings indicating configuration, general assembly and materials used in fabrication.
- C. Submit product data indicating configuration, general assembly, and materials used in fabrication. Include catalog performance ratings.
- D. Submit manufacturer's installation instructions.
- E. Furnish shop drawings on all equipment provided under this Section, including but not limited to:
 - 1. Hardware and devices
 - 2. Installation control drawings
 - 3. Sequence of Operation
 - 4. Operating and Maintenance manuals

1.4 OPERATION AND MAINTENANCE DATA

- A. Submit operation and maintenance data.
- B. Include manufacturer's descriptive literature, operating instructions, maintenance and repair data and parts lists.

1.5 WARRANTY

- A. Provide two year manufacturer's warranty for all parts.

- B. Equipment and materials: Equipment and materials shall be catalogued products of manufacturers regularly engaged in the production of laboratory airflow control systems. Products shall be manufacturer's latest standard design and shall have been tested and proven as a complete laboratory airflow system in actual use for a period of over three years..
- C. Warranty shall commence upon the date of owner acceptance and extend for a period of twenty-four months, whereupon, any defects in materials or system performance shall be repaired b the manufacturer at no cost to the owner.
- D. During the warranty period, if a service contract for the routing care, calibration, parts replacement, or upgrade of the system is required or recommended by the manufacturer, or such a contract is to be offered to the owner during or after the warranty period, such contract and services shall also be included during the warranty period at no cost to the owner.

PART 2 - PRODUCTS

- 2.1 Manufacturer: TSI Incorporated Model 8630-SC Bi-directional pressure sensor, Triatek or equal.
- 2.2 Pressure Controller:
 - A. The room pressure controller shall measure, display and control room pressure. It shall provide access to menu driven programming options via a keypad. The keypad shall be a smooth spill-proof membrane switch.
 - B. The case shall be an aesthetically pleasing molded case manufactured with industrial grade plastic. Case shall mount to a double gang electrical box (4" wide x 4" tall x 2.5" deep). The room pressure controller shall be capable of being mounted where convenient for the user (within 250 feet of pressure sensor).
 - C. Two indicator lights shall be on the front of the monitor to indicate the following conditions:
 - a. Red – ALARM conditions.
 - b. Green – NORMAL or safe pressure condition.
 - D. The controller must have a sliding outer cover that gives an aesthetic appearance while protecting the display and membrane switch. The cover provides the capability of concealing the display while still having the safe (green light) and alarm (red light) visible.
 - E. There shall be a two-line alphanumeric digital display indicating the measured room pressure in inches of H₂O. The display shall have a range of -0.20000 to +0.20000 with a resolution of 5% of reading and shall be updated every one half second.
 - F. There shall be low and high alarms for negative pressure and low and high alarms for positive pressure. Each alarm shall be capable of having a unique set point.
 - G. The controller shall have an audible alarm that sounds when the room is in alarm condition. In addition, an alarm contact for low pressure alarm shall be SPST (N.O.) The contact shall close in a low alarm condition.
 - H. An analog pressure output that via a keypad allows the user to select either a 0-10 VDC or 4-20 mA linear analog output. In addition the output pressure range shall be selectable, either -0.1 to +0.1 inches H₂O or -0.01 to +0.01 inches H₂O.
 - I. A negative pressure, positive pressure, no isolation input contact shall initiate the room pressure monitor to enable negative pressure alarms, positive pressure alarms or when in no isolation mode, disable all alarms.
 - J. An analog flow station input.

- K. RS-485 communications with field selectable Modbus or Cimetrics communications protocol. The RS-485 wiring shall be daisy chained from unit to unit and has the capability to send to the building management system.
- L. Monitor wiring shall be to a terminal strip which plugs into the back of the monitor.

2.3 Pressure Sensor:

- A. The pressure sensor shall consist of two velocity sensing elements mounted in-line with each other and a temperature compensating element as described in U.S. Patent #4, 787,251. The velocity sensing elements shall be ceramic coated platinum RTD for corrosion resistance and easy cleaning. Constant temperature thermal anemometry shall be used to make the air velocity measurement. Pressure transducers are not acceptable.
- B. The pressure sensor shall be temperature compensated over a range of 55°F to 95°F.
- C. The pressure assembly shall consist of a molded plastic sensor, PVC tubing, an intumescent ring, and a matching sensor housing. The pressure sensor is mounted on one side of the wall, the matching sensor housing on the other side of the wall, with the PVC tubing penetrating the wall.
- D. The pressure sensor assembly shall be ANSI/UL 1479 listed for “Fire Tests of Through-Penetration Firestops”. The unit shall have a two-hour fire rating.
- E. The pressure sensor shall accurately measure room pressure from -0.20000 to +0.20000 inches H₂O. The sensor shall be bi-directional to determine the proper direction of pressure. Uni-directional sensors are not acceptable.
- F. The pressure sensor shall be capable of being mounted on either side of the wall (i.e. in the controlled space or in the reference space). A dip switch shall be provided to select which side of the wall the pressure sensor is mounted.
- G. A 25-foot, 6-conductor, 22 AWG cable shall be provided for the wiring connection between the sensors and the pressure monitor.

2.4 Transformer:

- A. The transformer shall have a primary-side voltage of 120 VAC and a secondary-side voltage of 24 VAC. The transformer shall have a rating of 20 VA with a 0.5 amps maximum.
- B. The transformer shall be UL and CSA listed.
- C. A 25-foot, 2-conductor, 22 AWG cable shall be provided as the electrical interface between the transformer and the pressure monitor.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. The room pressure controller shall be installed as recommended by the manufacturer's installation instructions.
- B. Start-up shall be performed by the control system manufacturer or a factory authorized representative.
- C. Start-up shall include verifying the control of each specified room. Ceilings and door shall be installed and the HVAC systems (exhaust and supply fans) shall be properly air balanced before start-up shall occur.
- D. The manufacturer shall include a thermal anemometer based air velocity meter with the room pressure control system. The equipment shall be given to permanent building personnel who shall be responsible for periodically maintaining and verifying proper pressure in each specified room.

3.2 ISOLATION ROOM PRESSURE MONITORING SYSTEM DOCUMENTATION AND TRAINING

- A. The supplier shall provide all the documentation and training necessary so that the owner can be capable of operating and maintaining the control system.
- B. Provide 4 hours of training for Hospital personnel. Training is to include: systems operation, troubleshooting, instrument calibration, alarm handling, and system reconfiguration.

SECTION 15930 - AIR TERMINAL UNITS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- E. Drawings and general provisions if the contract, including general and supplementary conditions and Division 1 specification sections apply to this section.
- F. Provide a complete system for the constant air volume control in the spaces.
- G. System shall include, but not be limited to, control panels, supply constant air volume boxes, sensing stations, reheat and recool coils.
- H. Total system shall be installed and commissioned by, or under the direct supervision of, factory trained and authorized field engineers.

1.2 SECTION INCLUDES

- A. Constant air volume terminal units.
- B. Constant air volume terminal units with reheat coils.
- C. Integral sound attenuator.
- D. Integral heating coils.

1.3 SUBMITTALS

- A. Submit under provisions of Section 01330.
- B. Submit shop drawings indicating configuration, general assembly and materials used in fabrication.
- C. Submit product data indicating configuration, general assembly, and materials used in fabrication. Include catalog performance ratings which indicate air flow, static pressure and NC designation.
- D. Include schedules listing discharge and radiated sound power level for each of second through sixth octave bands at inlet static pressures of one to 4 inch wg.
- I. Submit manufacturer's installation instructions.
- J. Coordinate exact sizes and locations of components with the contractor installing the ductwork, temperature controls, and Division 16 work.
- K. Furnish shop drawings on all equipment provided under this Section, including but not limited to:
 - 5. Hardware and devices
 - 6. Installation control drawings
 - 7. Sequence of Operation
 - 8. Operating and Maintenance manuals

1.4 OPERATION AND MAINTENANCE DATA

- A. Submit operation and maintenance data.

- B. Include manufacturer's descriptive literature, operating instructions, maintenance and repair data and parts lists.
- C. Include directions for resetting constant volume regulators.

1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the products specified in this Section with minimum eight years experience.
- B. Supplier of this section's system shall be regularly engaged in the production, assembly, and installation of laboratory fume hood control systems and have a proven track record of a minimum of five years.
- C. Supplier of this section's system s shall assume single source responsibility for the complete installation, calibration, and startup of the fume hood tracking systems. Systems shall be left in a completely automated, fully functioning mode of operation.

1.6 WARRANTY

- A. Provide one year manufacturer's warranty.
- B. Warranty: Include coverage of system powered control systems and operating controls, see Section 13810,

1.7 EXTRA MATERIALS

- A. Provide one additional motor of each size, see Section 13810.

PART 2 - PRODUCTS

2.1 AIR TERMINAL UNITS

- A. Description: Provide completely factory assembled and calibrated pressure independent DDC air terminal controllers, consisting of electronic controls, digitally addressable capability air volume damper, control actuator, air volume regulator, velocity sensors, sound attenuator, and hot water reheat coil.
- B. Manufacturer: Enviro-Tec or equivalent by Anemostat, Nailor or Titus.
- C. Construction and Dampers: 24 gauge minimum galvanized steel outer casing, 1" thick, 1 ½" pcf fiberglass insulation and 26 gauge solid inner surface for double wall construction. 20 gauge minimum galvanized steel controller housing, and damper. Seal all seams to form an air tight to maximum air leakage 2% at 3" w.g. All controllers shall be factory checked and calibrated for airflow limits.
- D. Hot water reheat coils shall be 2 row, with copper tubes and aluminum fins. Provide ½" tube diameter with minimum 0.20" wall thickness. Coil rows, fins and sizes shall be as scheduled. Face areas indicated are minimum. On unit with reheat, rectangular end of transition set up for slip and drive connection.
- E. The Digital Terminal Control Unit (TCU) for each zone terminal shall be of the electronic distributed digital application specific addressable type furnished by the zone terminal manufacturer as a complete system, including zone temperature sensor, interface relays, heating coils, disconnects, 120/24 VAC transformers and the like.
- F. The controls subcontractor will be responsible for he control wiring, zone terminal control addressing, inclusion in the host computer data base, heating hot water control valve with actuator, and related testing. The zone terminal manufacturer shall be responsible for the code acceptance, noise generation and air delivery

performance. The HVAC contractor shall be responsible for zone terminal installation, ductwork connections, start-up and testing and balancing.

- G. The HVAC contractor shall provide complete adjustment, calibration and tuning of the zone terminal control systems throughout the period of testing and balancing fo the air conditioning systems and shall instruct the hospital facility Engineer on maintenance and operation of this control equipment.
- H. The zone terminal manufacturer shall provide composite, electric, direct-digital control and building control system diagrams showing interconnection and addressing of all equipment and controls.
- I. Controls: Actuators, space temperature sensors, and wiring shall be furnished sunder Section 15975 “Building Management System”. Terminal manufacturer shall accept and factory insttall controllers provided by controls subcontractor.
- J. Terminal units shall be sized such that at nominal terminal design flow, the pressure drop through the assembly shall be not more than 0.3 water column.
- K. Each unit shall be shipped with appropriate identification including model, size, maximum and minimum rated air flow within the limits of the control system and velocity vs. cfm chart for validating performance.
- L. Acoustics: Unit shall be acoustically treated and tested for unit discharge sound power level (LW). Sound power levels in 2nd – 7th octave bands at inlet pressure from minimum 3” w.g. shall be submitted for approval.
- M. Units shall be sized to produce noise levels NC-26 discharge sound criteria in accordance with ARI-885-98, at design cfm and 1.5” w.g. pressure drops through the terminal. Noise levels must be based on all air from a given terminal going into space tested.

Room Noise Criteria

<u>SPACE TYPE</u>	<u>ROOM NOISE CRITERIA</u>
Public Corridors and Rooms	NC-45
restaurant and other public areas	NC-40
General Open Office Areas	NC-35
Private Office	NC-30
Conference Rooms	NC-25
Interview Rooms	NC 25-30
Meeting Rooms	NC 25-30
Security Control	NC 30-35
Large Conference Rooms	NC-25
Open Office	NC-35

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Provide ceiling access doors or locate units above easily removable ceiling components.
- C. Support units individually from structure. Do not support from adjacent ductwork.

*Proposed KEMSA warehouse and office- Mechanical Ventillation, Smoke Vents & Air Conditioning Installations
Particular specifications*

- D. Connect to ductwork in accordance with Section 15890.
- E. Install heating coils in accordance with Section 15790.

SECTION 15940 - AIR DISTRIBUTION DEVICES

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Devices shall provide the required air throw and spread with no apparent drafts or noise within the ventilated or air conditioned area.
- B. All air distribution accessories required to effect these conditions shall be provided and installed by this Contractor.
- C. Diffusers and registers causing excessive air movement, drafts or objectionable noise, shall be replaced at no cost to the Owner.

1.2 SUBMITTALS

- A. Submit under the provisions of Section 01330.
- B. Complete submittals shall be provided to the Mechanical Engineer for approval.
- C. Submittals shall include the following information:
 - 1. Submit complete directory showing manufacturer's product number, technical cut-sheet providing complete application information, all trim and appurtenance data for each Air Distribution Device proposed for use on the Project.
 - 2. Manufacturer's Data: Submit maintenance data and replacement material lists for each type of product. Include this data in maintenance manual.
 - 3. Submit manufacturer's installation instructions.

1.3 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in the manufacturer's original, unopened, labeled containers and protect all products against moisture, tampering or damage from improper handling or storage.
- B. Do not deliver materials to the Project Site before they are ready for installation, unless adequate security is provided. The security and protection of all jobsite materials is the responsibility of the installing Contractor.
- C. All materials and products shall be new and in perfect condition when received, of the best grade and of the same manufacturer throughout for each class or group of materials or products.
- D. Provide standard products of a manufacturer regularly engaged in the manufacturer of the product indicated. Where more than one (1) unit of any product or material is required, provide products by the same manufacturer.
- E. Protect all equipment and specialties from entry of contaminating material by leaving end caps and plugs in place until installation.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Anemostat
- B. Titus.
- C. Nailor.

2.2 RECTANGULAR CEILING DIFFUSERS

- A. Diffusers shall be modular removable core type with adjustable volume control dampers as manufactured by "Anemostat Model RMD".
- B. Furnish all diffusers in a factory applied baked enamel finish. Color as selected by Architect.
- C. Verify all frame types prior to ordering. Submit shop drawings, including color samples, for approval.
- D. Provide in the neck of each diffuser at duct take-off from main duct, an adjustable type air extractor and volume controller. Submit shop drawings for approval.
- E. Where air distribution devices are installed in lay-in ceilings, twenty four inches by twenty four inches (24x24") filler panel shall be provided.

2.3 RETURN AND EXHAUST REGISTERS

- A. Registers shall be aluminum construction with key operated $\frac{3}{4}$ " spacing on centers, opposed blade, volume control dampers as manufactured by "Anemostat Model 3HOD".
- B. Furnish all registers in a factory applied baked enamel finish. Color as selected by the Architect.
- C. Verify all frame types prior to ordering. Submit shop drawings, including color samples, for approval.
- D. Where air distribution devices are installed in lay-in ceilings twenty four inches by twenty four inches (24"x24") filler panel shall be provided.

2.4 SIDEWALL SUPPLY REGISTERS

- A. Face bars shall be seven thirty seconds of an inch ($\frac{7}{32}$ ") thick, $\frac{3}{4}$ " spacing on centers and shall be permanently fixed in position. Borders shall be one inch (1") wide. Auxiliary subframes shall be furnished as required to fit wall finish.
- B. Opposed blade key operated volume control dampers, extractors, and equalizing grids shall be provided for each register shown on plans.
- C. All registers shall have baked enamel finish, color as selected by the Architect.
- D. It shall be the responsibility of the Mechanical Contractor to verify all required frame types as they relate to ceiling construction prior to ordering all air distribution devices. Submit shop drawings, including color samples, for approval.
- E. All sidewall supply and return registers shall be as manufactured by "Anemostat Model S2VO".

2.5 LAMINAR FLOW PANEL DIFFUSERS FOR TREATMENT/TRUMA ROOMS 1002, 1003, 1006, 1114, 1115, AND 1118.

- A. Description: Special perforated panel diffusers to be laminar flow type. Diffuser is to utilize two separate plenums to deliver air to the space with zero aspiration at the face of the perforated plate with velocities in the plane of the perforated plate to vary not more than 10%.
- B. Manufacturer: Precision Air Products or equivalent by Anemostat.
- C. Air shall be admitted to the initial plenum through an inlet collar, then the filter assembly and balancing mechanism. Perforated air diffusion devices, V or U shaped, of not more than 25% open area are to redistribute air into the secondary plenum. The balancing valve mechanism is to be adjustable through a screw arrangement. Plenum and frame assembly is to be constructed of 14 Ga. white baked epoxy aluminum.
- D. Perforated distributed plate to be anodized aluminum. Perforations in plate are to be 32" diameter giving 16% open area. Plate is to be retained to the module frame through the use of quarter-turn fasteners. Safety retainers of vinyl-coated stainless steel cable or chains to prevent accidental dropping of plate during disassembly. The distribution plate shall be installed in aluminum
- E. Border trim and all exposed parts to be white baked epoxy.
- F. Panel manufacturer shall furnish an extruded anodized aluminum tee and angle frame assembly suspension system to support panel diffusers, blank-off panels and light fixtures. Minimum wall thickness of tees and angles shall be 0.125": with a minimum weight of 0.43 lbs. per linear foot. The face of the tee shall be 1-1/2" by 1-7/16" high. The basic module size 2' 1/2" X 4' 1/2", see drawings for entire module size.
- G. The suspension system shall be Healiarc welded at all intersection points in assemblies not larger than 6' X 18'. Where sub-assemblies butt together for field assembly the butting angles shall be half tees fastened with "U" clips.
- H. All tees and angles shall be pre-punches on 6' centers for hanger wires. Systems shall be designed for minimum weight of 10 lbs. per sq. foot.
- I. Panel manufacturer shall furnish perforated blank-off panels identical in appearance to the panel diffusers where indicated on the drawings. Panel to have solid panel installed behind perforate plate.

2.6 LAMINAR FLOW PANEL DIFFUSERS WITH HEPA FILTERS FOR CATH-LAB 1297 AND 1299

- A. Description: Special perforated panel diffusers with HEPA filters.
- B. Manufactures: Precision Air Products or equivalent by Anemostat.
- C. The entire laminar flow unit shall be suspended from the structure above. Provide an extruded aluminum tee and angle frame assembly to support air distribution modules, lighting fixtures around the perimeter of the "clean zone" and fill-in panels. Minimum wall thickness of aluminum tee shall be 0.125 inches, minimum weight shall be 0.43 lbs./ft. The frame shall be assembled and mechanically fastened together by the manufacturer into sub-assemblies. All members shall be pre-punched on 6" centers for attachment of support hangers. Hangers shall be attached on 2'0" centers in two directions. The completed ceiling frame shall be capable of supporting a load of 10 lbs./ft. The complete frame shall be finished with a white baked epoxy enamel or clear anodized finish.
- E. Construct a frame to support standard size laminar air flow diffusers with HEPA filters. Except for the mounting base for the surgical light, the complete area within the perimeter of the unit is to be active laminar flow diffusers with HEPA filters. Each laminar air diffuser, fill-in panel, and fluorescent light fixture shall be gasketed to form an airtight seal against support frame. Furnish fill-in panels for all surgical lights and gas columns (where shown

on the drawings). The laminar flow panel diffusers supplier shall coordinate exact diffuser sizes with the C-channels support for Cath-Lab equipment.

- F. Specialized Perforated Rectangular Panel Diffusers: Shall be laminar flow type: Diffuser shall utilize two separate plenums to deliver air to the space with zero aspiration at the face of the perforated plate with velocities in the plane of the perforated plate to vary no more than 10%.
 - 1. Panel diffuser initial plenum to serve as a common plenum for one or two adjacent panel diffusers. A flexible interconnecting duct between panel diffusers modules shall attach to an internal panel diffusers flange.
 - 2. Terminal HEPA filter shall be mounted within final plenum. HEPA filter shall be accessible and removable from the room.
 - 3. The “knife edge” of the retainer frame and the filter’s gel seal shall form an airtight union.
 - 4. Perforated distribution plate shall be 0.050” aluminum. Perforation to be 16% open area for 25 or less CFM per square ft. of module or 23% open area for higher velocities. The plate shall be retained to the module frame by means of quarter-turn fasteners. Safety retainers of vinyl-coated stainless steel cable or chain shall be provided to prevent accidental dropping of plate. Distribution plate shall be installed within aluminum mounting frame with mitered back-welded corners.
- G. HEPA Filter: The HEPA filter shall be laminar flow grade. The HEPA filter shall have a minimum efficiency of 99.99% on 0.3 micron particles. Each filter installed shall be factory laser scanned and certified by the filter manufacturer.
- H. Fill-In Panels: Panels identical in appearance to the active air distribution modules shall be furnished where shown on the drawings to accommodate surgical lights and gas columns.

2.7 LAMINAR FLOW PANEL DIFFUSERS FOR SPECIAL TRAUMA, ORTHO NEURO, AND CARDIOVASCULAR OPERATING ROOMS

- A. Furnish and install vertical flow surgical clean area system configured as a recirculatory system. Supply air from a central air handling unit (AHU) shall be mixed with the recirculated return air thru the booster fan coil unit. The booster fan coil unit shall discharge HEPA filtered air in a true constant pressure/constant velocity unidirectional laminar airflow pattern from eh ceiling filter units downward across the surgical work area to the peripherally located return air grilles. The laminar flow pattern shall be created in the work area by utilization of laminar flow diffusers and fixed containment panels at the perimeter of the work area. The containment panels shall decrease the induction of impure air into the clean zone.
- B. Manufactures: Precision Air Products or equivalent.
- C. The system shall have a modular ceiling-mounted booster fan coil unit with chilled water coil, hot water coil. The system shall have the capacity of providing temperatures between 62°F to 85°F in 15 minutes. Set point and operation mode shall be controlled from a control panel within the room.
- D. The entire laminar flow unit shall be suspended from the structure above. Provide an extruded aluminum tee and angle frame assembly to support air distribution modules, lighting fixtures around the perimeter of the “clean zone” and fill-in panels. Minimum wall thickness of aluminum tee shall be 0.125 inches, minimum weight shall be 0.43 lbs./ft. The frame shall be assembled and mechanically fastened together by the manufacturer into sub-assemblies. All members shall be pre-punched on 6” centers for attachment of support hangers. Hangers shall be attached on 2’0” centers in two directions. The completed ceiling frame shall be capable of supporting a load of 10 lbs./ft. The complete frame shall be finished with a white baked epoxy enamel or clear anodized finish.

- E. Construct a frame to support standard size laminar air flow diffusers with HEPA filters. Except for the mounting base for the surgical light, the complete area within the perimeter of the unit is to be active laminar flow diffusers with HEPA filters. Each laminar air diffuser, fill-in panel, and fluorescent light fixture shall be gasketed to form an airtight seal against support frame. Furnish fill-in panels for all surgical lights and gas columns (where shown on the drawings).
- F. Specialized Perforated Rectangular Panel Diffusers: Shall be laminar flow type: Diffuser shall utilize two separate plenums to deliver air to the space with zero aspiration at the face of the perforated plate with velocities in the plane of the perforated plate to vary no more than 10%.
 - 1. Panel diffuser initial plenum to serve as a common plenum for one or two adjacent panel diffusers. A flexible interconnecting duct between panel diffusers modules shall attach to an internal panel diffusers flange.
 - 2. Terminal HEPA filter shall be mounted within final plenum. HEPA filter shall be accessible and removable from the room.
 - 3. The “knife edge” of the retainer frame and the filter’s gel seal shall form an airtight union.
 - 4. Perforated distribution plate shall be 0.050” aluminum. Perforation to be 16% open area for 25 or less CFM per square ft. of module or 23% open area for higher velocities. The plate shall be retained to the module frame by means of quarter-turn fasteners. Safety retainers of vinyl-coated stainless steel cable or chain shall be provided to prevent accidental dropping of plate. Distribution plate shall be installed within aluminum mounting frame with mitered back-welded corners.
- G. HEPA Filter: The HEPA filter shall be laminar flow grade. The HEPA filter shall have a minimum efficiency of 99.99% on 0.3 micron particles. Each filter installed shall be factory laser scanned and certified by the filter manufacturer.
 - 1. The extruded aluminum filter frame shall be 3 inches deep and shall be furnished with a silicone gel seal upstream on flange cup.
- H. Fill-In Panels: Panels identical in appearance to the active air distribution modules shall be furnished where shown on the drawings to accommodate surgical lights and gas columns.
- I. Booster Fan Coil Unit: Shall be specified in Section 15855 “Air Handling Units”. Unit shall consist of direct driven, centrifugal fan, chilled water cooling coil, hot water reheat coil, and VSD. Unit shall have capacities and performance characteristics as specified on the drawings.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install items in accordance with manufacturers' instructions.
- B. Check location of outlets and inlets and make necessary adjustments in position to conform with architectural features, symmetry and lighting arrangement.
- C. Install diffusers to ductwork with air tight connection.
- D. Provide balancing dampers on duct take-off to diffusers, grilles and registers, regardless of whether dampers are specified as part of the diffuser or grille and register assembly.

*Proposed KEMSA warehouse and office- Mechanical Ventillation, Smoke Vents & Air Conditioning Installations
Particular specifications*

E. Paint ductwork visible behind air outlets and inlets matte black.

F. Provide filter gauges across the HEPA filters bank.

END OF SECTION 15940

SECTION 15950 - HUMIDIFIER

PART 1 - GENERAL

1.1 WORK INCLUDES

- A. Steam humidifiers

1.2 GENERAL

- A. Humidification systems shall be factory engineered and assembled with all components as scheduled, specified, or required by the contract documents.
- B. Capacity and performance shall be as scheduled. Each system shall be selected in accordance with principals set forth in the ASHRAE Guide and the manufacturer's literature.
- C. The manufacturer shall be responsible for examining the application of each system to assure each will operate properly in the intended application.
- D. All items of a given type shall be products of the same manufacturer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Dri-Steem Humidifier
- B. Armstrong
- C. Spirak Sarco

2.2 STEAM HUMIDIFIERS

- A. Description: Steam jacketed distribution manifold with separating chamber, quiet operating capable of delivering moisture free steam without condensate drip.
- B. Features: Provide electric operated normally closed modulating steam control valve with pilot positioner. Provide an interlocked temperature switch to keep humidifier valve closed until temperature in the condensate discharge piping approaches steam temperature. Coordinate with Section 15975 BUILDING MANAGEMENT SYSTEMS.
- C. Separating Chamber and Manifolds: Stainless steel or cast iron separating chamber with re-evaporation or drying chamber. Stainless steel steam jacketed dispersing manifolds with internal noise attenuator.
- D. Humidifier shall achieve total absorption of the steam at 90% relative humidity of supply air in a steam travel of 3'.
- E. Provide inverted bucket traps and strainers.
- F. Humidifiers in air handling units shall be furnished and installed by the air handling unit manufacturer.

PART 3 - EXECUTION

- A. The humidifiers shall be installed in accordance to the manufacturer's installation instructions. The contractor shall be responsible for providing a weatherproof cover over the humidifier if the unit is installed outside.

PARTICULAR SPECIFICATIONS MECHANICAL VENTILATION

GENERAL

This section specifies the general requirement for mechanical ventilation and air conditioning plant, equipment and materials forming part of the sub-contract works and shall apply except where specifically stated elsewhere in the specification or on the contract drawings.

INSTALLATION

Installation of all ductwork, plant and equipment shall be carried out under adequate supervision from skilled staff to relevant codes and standards specified herein.

The sub-contractor shall be responsible for ensuring that sufficient provision is made to prevent the transmission of vibration from equipment to the supporting structure. In the case of fans, this shall be done by rot and vermin proof flexible connections and anti-vibration mounting of an approved type.

The sub-contractor shall ensure that all ducting systems are provided with sufficient access hatches complete with covers, for maintenance purposes.

Damper and other user equipment shall be installed with adequate access for operation and maintenance. Where dampers and other operational equipment are unavoidably installed beyond normal reach and in such a position as to be difficult to reach from a short stepladder, extension spindles shall be provided

The variety and type of supports of ducts and fans shall be kept to a minimum and their design shall be such as to facilitate quick and secure fixing to both metal, concrete, brickwork and wood. Where the design of the structure is in reinforced concrete, supports shall be secured to the structure by means of redheads, raw bolts and other approved means.

Where the sub-contractor proposes to secure his supports by other means than to the main structural concrete, he shall consult with the Engineer before proceeding.

TESTING INSPECTION

Site Tests

The sub-contractor shall supply all instruments and equipment necessary to carry out site tests and shall arrange with other sub-contractors for the testing of other associated equipment which may affect the performance of the plant installed under these sub-contract works.

Site Test Fans

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

Completion of Works – Balancing and commissioning

Following the site tests and prior hand over, mechanical ventilation or air conditioning systems shall be balanced by means of grilles, dampers and other special controls installed, so as to give the required air flow rates and where applicable the desired temperatures, pressures and humidity conditions in all areas served by the said systems.

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

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

When the system has been balanced to the satisfaction of the Engineer it shall be run under complete automatic mode for 72 hours continuous operation to ascertain any faults in operations before acceptance and hand-over. Any faults discovered during this time shall be corrected and a further test of 72 hours duration shall be carried out to ensure satisfactory operation, all at the expense of the sub-contractor.

DUCT WORK

The sub-contractor shall supply, deliver and erect all ductwork shown on the contract drawing.

All duct work shall be manufactured in accordance with Heating and Ventilation Contractor's Association (H.V.C.A.) specification DW/121,1969 except where stated otherwise.

Ductwork shall be manufactured from galvanized mild steel sheet unless otherwise specified. All external ductwork shall be manufactured from black mild steel sheet and galvanized after manufacture. All seams shall of lockform type. All ductwork systems shall be complete with all necessary dampers, bends, tees, tapers, transformation and special pieces.

Where removal is required for access or maintenance, ducting shall be provided with steel angle flange joints suitably painted and protected.

Only bend type 1-7 inclusive as detailed in the H.V.C.A. specification will be permitted.

Only duct connection type 41-44 inclusive, 53 and 54 as detailed in the H.V.C.A. specification will be permitted. All joints shall be fixed as to be suitable for the direction of airflow.

Transformation and taper pieces shall wherever possible, be constructed so that the included angle does not exceed 30 degrees.

All flanged joints shall be sealed by use of asbestos string, compressed between the flanges, and where slip joints occur, these shall be sealed by 'Prestick' or other similar suitable jointing compound and adhesive tape 40mm wide. Exposed sheet metal edges shall be painted with galvatite before sealing.

Dampers shall be of aerofoil section and manufactured from galvanized mild steel sheet. Damper blades shall be sealed with a 3mm thick felt or rubber seal to minimize leakage. Operating quadrants shall be provided with locknuts and the quadrant shall be clearly marked with 'open' and 'closed' positions. Multileaf damper blades shall be operated by one arm through a linkage external to the duct.

The sub-contractor shall provide sufficient access doors and handholes in the ductwork the purpose of maintenance and inspection. Access doors shall be of the hinged type and soar opening s in the duct shall be adequately stiffened, and made air tight with purpose made rubber around the door perimeter.

All support and brackets shall be wire brushed and painted one coat of red oxide paint prior to and after erection. All nuts and bolts shall be sheradized. The fastening of electrical cables to ductwork will not be permitted.

Where ductwork has installation incorporating an external vapour seal, the ductwork shall be insulated from the support by a rot – proof softwood, hardwood or other suitable closed cell insulator of not less than 25mm greater thickness than the insulation to be applied so the vapour seal may be bounded to the face of the timber, all as detailed in Clause DW/121, 1969.

Where ductwork passes through floors and walls, etc. galvanized sheet sleeves or builders work timber frames shall be provided. The space between duct and sleeve or frame shall be packed with asbestos rope or mastic to prevent air movement or noise transmission from one space to another. Ducts must not come into direct contact with the building fabric.

Hangers and brackets shall be manufactured from rolled mild steel angle or channel sections and shall generally be of the drop rod hanger or cantilever type. The hangers shall be spaced to ensure adequate support and where practicable shall be fitted at each ductwork joint.

The sub-contractor shall supply and install, where called for, louvred inlets and outlets with insect proof screens. The louvred shall be constructed throughout from extruded aluminium sections and shall have lacquered and anodized finish to prevent corrosion. The louvres shall be weather proof and have free area of not less than 50%.

The sub-contractor shall ensure that wherever fan or similar equipment are connected to the ductwork system, the connections are made with a heavy duty rot and vermin proof neoprene, or similar material, flexible connection to prevent vibration transmission to the duct work or building fabric. Flexible connections shall be secured by a pre-drilled mating flange, or when fixing to a spigot, the spigot should beaded and a jubilee clip or split flat iron ring should be used.

The sub-contractor shall provide test holes in all branch ducts and in the main duct on the discharge of the fan. The holes shall be suitable spaced in accordance B.S. 848, shall be situated on a straight length of ductwork and where possible not less than 2m down stream of any bends or dampers. After the completion of testing the sub-contractor shall provide and fix propriety metal or plastic plugs to all test holes. The use of rubber or cork bungs will not be permitted.

INSULATION

General Description

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

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

Ductwork in Plant Rooms

The insulation described above shall be finished by the application of 15mm thick layer of hard setting plastic compound trowelled to a smooth finish. All corners shall be protected by setting in a 1mm thick aluminum angle strip into the hard setting finish. Insulation shall be bevelled to an angle of 45 degrees at all connecting flanges, access hatches and all other places where operation or maintenance is likely to cause the breaking of the insulation.

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

Ductwork External to Plant Rooms

The insulations described above in clause 5.01 above shall be finished by the application of two coats of bitumastic paint.

FINISH PAINTING

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

Plant or equipment, ductwork, etc, which is to be insulated, shall have had the priming paint protection made good before the application of the insulation.

After the above procedures have been carried our to the satisfaction of the Engineer various surfaces shall be given the necessary preparation as recommended by the paint and the sub-contractor and Engineer at a later date.

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

Qualification Information

QUALIFICATION INFORMATION

INDIVIDUAL BIDDERS OR INDIVIDUAL MEMBERS OF JOINT VENTURES			
Item	Feature	Minimum Requirements	Bidder's Response / Comment (or X)
<u>GENERAL</u>			
1.1	Registration with Relevant Bodies & Category as applicable (Note: For Any Document Listed, Documentary Evidence of the Certificate should be Attached)	NCA	
		CCK	
		ERC	
		LOCAL AUTHORITY	
		PLUMBING / DRAIN LAYER	
		OTHER (Fill in Pen)	
1.2	Principal place of business:		
1.3	Power of attorney of signatory of Bid	Attach Copy	
1.4	Company Registration Status [Tick Appropriately & Attach Copy]	Limited Liability Company	
		Partnership	
		Sole Proprietorship	
		Joint Venture	
1.5	Total Annual Revenue of Construction work performed in the last 3 years in KShs.	2014	
		2015	
		2016	
1.6	Financial reports: Indicate for the last three years: Also List here as appropriate (Note: Proof in Documentary Evidence of balance sheets, profit and loss statements, auditors' reports, proof that they have fulfilled their obligations to pay taxes and social security contributions, etc. may be require to be provided upon request)	2014	
		2015	
		2016	
1.7	Financial Resources Access: Evidence of access to Financial Resources to meet the qualification requirements: cash in hand, lines of credit, etc. List here as appropriate & Note that Proof in Documentary Evidence may be require to be provided upon request		
1.8	Bank Contacts: Name, address, and telephone, telex, and facsimile numbers of banks that may provide references if contacted by the Employer.		

- 1.9 Work of a similar nature and volume performed as Prime Contractor over the last five years. The values should be indicated in the same currency used for Item 1.5 above. Also list details of work under way or committed, including expected completion date.

Project name and country	Name of client & contact person	Lead Consultant	Type of work performed and year of completion	Value of contract (KShs)
[etc.]				

- 1.10 Qualification and experience of key personnel proposed for administration and execution of the Contract. Attach biographical data.

Position	Name	Qualifications	Years of experience in proposed position
Project Manager			
Site Foreman			
[etc.]			

- 1.11 Proposed contracts and firms involved.

Sections of the Works	Value of contract	Contractor (name and address)	Experience in similar work
[etc.]			

1.12 Information on current litigation in which the Bidder is involved.

Other party(ies)	Cause of dispute	Amount involved

Proposed program (work method and schedule), Descriptions, drawings, and charts, as necessary, which show a thorough understanding of the task to be carried out should be attached.

2. Additional Requirements

2.1 Bidders should provide any additional information required in these documents to fulfill the requirements thereof if applicable

NOTE: A detailed soft company profile **MUST** be attached to the Bid (in CD format / In USB Flash drive)

TENDER COMPLIANCE

MECHANICAL VENTILLATION INSTALLATIONS

All Bidders must fill and attach required documentary evidence as requested below:

A. CERTIFICATES

Item	Requirement	Instruction to bidders	Filling by Bidders	Remarks
A1.01	Incorporation Certificate	<ul style="list-style-type: none"> Attach copy of certificate and fill in Number 		
A1.02	Trader License	<ul style="list-style-type: none"> Attach copy of Trade License and fill in Number 		
A1.03	PIN Certificate	<ul style="list-style-type: none"> Attach copy of PIN Certificate and fill in Number 		
A1.04	VAT Compliance Certificate	<ul style="list-style-type: none"> Attach copy of VAT Compliance Certificate and fill in Number 		
A1.05	Energy Regulatory Authority Certificate (ERC In Kenya)	<ul style="list-style-type: none"> Attach copy of Energy Regulatory Authority Certificate and fill in Number 		
A1.06	Other Certifications	<ul style="list-style-type: none"> List here & Attach copies of any other certificates that the company might have achieved e.g. ISO, etc. 		

B. COMPANY ORGANIZATION

Item	Requirement	Instruction to bidders	Filling by Bidders	Remarks
B1.01	Company Organization Structure	<ul style="list-style-type: none"> Attach Organogram showing the different levels of the company structure complete with names 		
B1.02	Company Directors	<ul style="list-style-type: none"> Fill in Names of Directors indicating their citizenship, shareholding and their role in Project if Any 		
		1.		
		2.		
		3.		
		4.		
		5.		
B1.03	Staffing	<ul style="list-style-type: none"> Fill in Number of Staff in organization 		

		and attach PROOF		
		1. Administration		
		2. Finance		
		3. Technical		
		4. Project Managers		
		5. Site Agents		
		6. Engineers		
		7. Technicians		
		8. Artisans		
		9. Support Staff		
B1.01	Credentials for Staff Proposed for this Particular Project	1. Company CEO		
		2. Project Manager(s)		
		3. Project Site Agent(s)		
		4. Project Site Foremen		

C. FINANCES

Item	Requirement	Instruction to bidders	Filling by Bidders	Remarks
	Fill in the details below and attach PROOF of the same			
C1.01	Company Bankers	<ul style="list-style-type: none"> Attach copy 		
C1.02	Turnover (Last 3 Years)	<ul style="list-style-type: none"> Year 2016 		
		<ul style="list-style-type: none"> Year 2015 		
		<ul style="list-style-type: none"> Year 2014 		

D. PROJECTS

Item	Requirement	Project (Filling By Bidder)	Details Filling by Bidders	Remarks
	Bidder to list Similar projects done in the last 5 years listing client name, award sums, Final Account sums, Award letters and Completion certificates (if completed). Attach PROOF .			
D1.01	Completed Projects	1.		
		2.		
		3.		
		4.		
		5.		
D1.02	Ongoing Projects	1.		
		2.		
		3.		
		4.		
		5.		
D1.03	References – Names & Contacts	1.		
		2.		
		3.		
		4.		
		5.		

Signatories:

Name: Designation..... Date: Sign:

Name: Designation..... Date: Sign:

Name: Designation..... Date: Sign:

1A: SPECIAL NOTES TO ALL TENDERERS

1. **Pages in Document:** The tenderer is required to check the number of pages in this document and should any be found to be missing or the figures indistinct, he/she must inform the Engineers at once and have the same rectified. Should the tenderer be in doubt the precise meaning of any item, word or figures or for any reason whatsoever observe any apparent omission of words or figures, he must inform the Engineers in order that the correct meaning may be decided upon before the date for the submission of the tenders.
2. **Errors:** No liability whatsoever will be admitted nor claim allowed in respect of errors in the completed tender due to mistakes in this document which should have been rectified in the manner described above.
3. **Qualification:** The tenderer shall not otherwise qualify the text of this specification. Any alteration or qualification made without authority will be ignored and the text of the specification as printed adhered to.
4. **Price Allowances:** The tenderer shall be deemed to have made allowances in his unit prices generally to cover items of preliminaries or additions to prime cost Sums or other items priced against the respective items.
5. **Taxes:** The tenderer's price shall include all government taxes including duties, VAT, etc. No claims whatsoever will be allowed if the tenderer does not price them as aforementioned. VAT must be calculated for all sums as filled in the document which includes contingencies, PC Sums etc.
6. **Tender Expenses:** In no case will expense incurred by the tenderer in preparation of this tender be reimbursed.
7. **Copyright:** The copyright of this specification is vested in the Engineers and no part thereof may be reproduced without their express permission, given in writing.
8. **Materials Ordering:** The Contractors shall be solely responsible for the accurate ordering of materials in accordance with the drawings and these specifications.
9. **Contract Type:** This is a fixed price Contract and no claims shall be entertained on whatever ground. The Contractor is advised to include all such costs as he projects may arise in his unit rates. Any variations in the exchange rate will also be no excuse for any variations in the contract sum.
10. **Domestic contract:** For domestic contract, this document shall be read together with the Main Contract document. In event there is a conflict, then the main contract document shall suffice.
11. **Currency:** The specifications must be priced in Kenya Currency i.e. Shillings and Cents.

Signed (As in form of Tender) _____

Official Stamp & Date _____

FORM OF AGREEMENT

FORM OF AGREEMENT

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

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

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

_____ of [or whose registered office is situated at] _____

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

WHEREAS THE Employer is desirous that the Contractor executes

PROPOSED CONSTRUCTION OF KEMSA MODERN WAREHOUSE & OFFICE BLOCK, TENDER

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

9042/176 Embakasi, Nairobi and the Employer has accepted the tender submitted by the Contractor for the execution and completion of such Works and the remedying of any defects therein for the Contract Price of

Kenya Shillings _____ (Amount in figures),

Kenya Shillings _____ (Amount in figures),

NOW THIS AGREEMENT WITNESSETH as follows:

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

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

The common Seal of _____

Was hereunto affixed in the presence of _____

Signed Sealed, and Delivered by the said_____

Binding Signature of Kenya Medical Supplies Authority_____

Binding Signature of Contractor_____

In the presence of

(i) Name_____

Address_____

Signature_____

(ii) Name_____

Address_____

Signature_____

FORM OF TENDER

FORM OF TENDER

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

Date_____

To: Kenya Medical Supplies Authority

P. O. Box 47715 - 00100

NAIROBI.

Dear Sirs,

RE: PROPOSED CONSTRUCTION OF KEMSA MODERN WAREHOUSE & OFFICE BLOCK

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

Kenya Shillings_____

_____ [Amount in words].

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

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

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

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

for and on behalf of _____

Tenderer’s Name: _____

Tenderer’s Address: _____

Tenderer’s Signature: _____

Witness’s Name: _____

Witness’s Address: _____

Witness’s Signature: _____ Date _____

BILLS OF QUANTITIES

BILL 1

WAREHOUSE

**HVAC
INSTALLATIONS**

SMOKE VENTILATION - WAREHOUSE

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

Item	Description	Unit	Qty	Rates (Kshs.)	Costs (Kshs.)
1.01	<p>Automatic Roof Door Vents utilize gas spring operators with integral dampers for controlled opening of the doors to prevent damage to the doors or building. The doors are held closed by a latching mechanism which utilizes a separate latching point for each door. The latch is held in place by a UL Listed 165 °F (74 °C) fusible link and releases automatically when the fusible link melts or is disengaged by a hydraulic cylinder operated by sprinkler system start operating . The latching mechanism can also be released manually using interior or exterior pull cables. Once open, the door covers are locked in place by the hold open feature of the gas spring operators.</p> <p>Assembly Materials</p> <p>The covers and frame are available in either 14 gauge G-90 galvanized steel or 11 gauge aluminum. The door covers utilize a hollow design with 1 in. of fiberglass installation and are internally reinforced to support up to a maximum 40 psf (195 kg/m2) live load. 010288</p>	No.	36		-

Item	Description	Unit	Qty	Rates (Kshs.)	Costs (Kshs.)
	<p>Roof Curb Overall Height: 12 in. (305 mm) Flange: 3 1/2 in. (89 mm) with 7/16 in. (11 mm) mounting holes Insulation: 1 in. (25 mm) fiberboard insulation Gasket: Extruded EPDM, permanently adhered</p> <p>Finish Galvanized steel assemblies are provided with an alkyd base red oxide primer. Aluminum assemblies are provided with a mill finish.</p> <p>Latching Mechanism and Automatic Operation The latching mechanism may be automatically operated either by release of a UL Listed 165 °F (74 °C) fusible link or operation of the hydraulic cylinder. The hydraulic cylinder requires a minimum of 40 psi (2.8 bar) to disengage the fusible link. The latching mechanism may also be manually released by operation of either the internal or external manual pull cables. The latching mechanism is designed to hold the covers closed against a maximum 90 psf (438 kg/m²) wind uplift force.</p> <p>Operational Loading Limits Automatic Roof Door Vents are designed to open against a maximum 10 psf (49 kg/m²) wind load.</p> <p>Hardware Automatic Roof Door Vents open utilizing gas spring operators with integral dampers to control the speed of the opening doors. The gas spring operators are provided with a powder coated body and chromate plated inner rod. All other components are either zinc plated/chromate sealed or galvanized.</p> <p>Approvals Automatic Roof Door Vents Must be : UL Listed by the manufacturer as an automatic smoke vent (UL 793 and UL 790 Class A). FM Approved</p>				

Item	Description	Unit	Qty	Rates (Kshs.)	Costs (Kshs.)
1.02	Operation control System (Control Panel): This shall receive input signal from individual fan and trigger the operation of roof extract fans on demand. The Main fan (roof extract fan) should Automatically run when one or more of the individual fans (in item B1.02 above) is in operation. Otherwise the fan should be off. The control system shall also perform the duty/standby cyclic control functions of the roof fans as described in item K1.01 above.	No.	1		
1.03	Allow for the factory material inspection and approvals (the Fire Pumps Equipment and the Insulation panel) for 2No Project managers 2No Client and 2No Engineers. The cost shall cover Air Flight, accomodation and meal and subsistence allowance as per SRC guidelines	Item	1		
1.04	Testing and commissioning Allow for setting work, balancing, testing and commissioning of the system.	Item	1		
1.05	Allow for Generation of "As Built Drawings"	Item	1		
1.06	Contingency sum	item	1		1,300,000
1.07	Total for Smoke Ventilation c/f to summary page				

Ventilation for office block summary

Item	Description	Cost (kshs)
1	Smoke ventilation	
2	Total for smoke ventilation Without VAT c/f to Grand Price Summary	

BILL 2

OFFICE BLOCK

HVAC

SHELL & CORE

INSTALLATIONS

2.00 **Basement Mechanical Ventilation**

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

Item	Description	Unit	Qty	Rates (Kshs.)	Costs (Kshs.)
2.01	Supply fan: Extract fan capable of a volume flow rate of 15 m ³ /s against a pressure drop of 150N/m ² with silencer. Fan to be an aerofoil axial flow fan complete with fan speed regulator, phase protection, overload protection, supports to be mounted in the return duct, with anti-vibrations mountings and all other accessories. Fan to be as wood 90JM/25/4/9 at 1440 rpm and 24°	No.	2		
2.02	Supply fan: Extract fan capable of a volume flow rate of 12m ³ /s against a pressure drop of 150N/m ² with silencer. Fan to be an aerofoil axial flow fan complete with fan speed regulator, phase protection, overload protection, supports to be mounted in the return duct, with anti-vibrations mountings and all other accessories. Fan to be as wood 80JM/25 at 1440 rpm and 26°	No.	2		
2.03	Control Panel: Carbon Monoxide detection and exhaust fan control shall be provided as Macurco SS103-10A system. This System shall use CS102A or SS102HC-1 carbon monoxide (CO) to voltage transducers that measure the level of CO and provide this information to the SS103-10A in an analog mode: voltage. This SS103-10A control panel shall provide three levels of fan or alarm control relays. These relays (N.O.) shall be for pilot duty only and capable ofswitching 10 A loads up to 240 VAC.	No.	1		

Item	Description	Unit	Qty	Rates (Kshs.)	Costs (Kshs.)
2.04	Carbon Monoxide detectors as Macurco CS102A. All power for the CS102A transducers shall be provided, via unshielded four conductor cable, from the SS103 control panel. The CS102A carbon monoxide (CO) to voltage transducers shall measure the the level of CO and provide this information to the SS103-10A in an analog mode: voltage. The CO to voltage transducers (CS102A) shall mount in standard electrical boxes (4S) and operate on low voltage..	No.	12		
2.05	SUPPLY REGISTERS: 500x250mm Aluminium Powder coated linear Diffusers with damper complete with adapter box to connect to 300mm flexible duct including 900mm Long Flexible duct and connectors	No.	25		
2.06	EXTRACT REGISTERS: 500x250mm Aluminium Powder coated linear Diffusers with damper complete with adapter box to connect to 300mm flexible duct including 900mm Long Flexible duct and connectors	No.	25		
2.07	External Lourves-supply: 2000x 850mm aluminium lourvers complete with insect proof gauze The Lourvers shall be as tecnalco or equal and approved	No.	4		
2.08	External Lourves-supply: 1500x 750mm aluminium lourvers complete with insect proof gauze The Lourvers shall be as tecnalco or equal and approved	No.	2		
2.09	External Lourves-supply: 1100x 500mm aluminium lourvers complete with insect proof gauze The Lourvers shall be as tecnalco or equal and approved	No.	2		

Item	Description	Unit	Qty	Rates (Kshs.)	Costs (Kshs.)
2.10	External Lourves-extract: 2000x 950mm aluminium lourvers complete with insect proof gauze The Lourvers shall be as tecnalco or equal and approved	No.	2		
2.11	External Lourves-extract: 1700x 850mm aluminium lourvers complete with insect proof gauze The Lourvers shall be as tecnalco or equal and approved	No.	2		
2.12	External Lourves-Extract: 1000x 650mm aluminium lourvers complete with insect proof gauze The Lourvers shall be as tecnalco or equal and approved	No.	2		
2.13	Air Pre-filters: 2000x 850mm x50mm aluminium washable air filters	No.	2		
2.14	Ductwork: Galvanised mild steel duct work 0.8mm thick (SWG 22) complete with bends, hangers, supports, sleeves, flexible connectors, branch duct take offs, flanges, access doors, test holes, stiffeners, expanders, reducers, splitters, turning vanes and accessories all painted both internally and externally with suitable walt black paint	M ²	140		
2.15	Balancing dampers: Control dampers size 1250 x 350 mm with a galvanised steel frame of 80 mm deep and blades of 50 mm pitch complete with operating gear wheels. As "FRANCE AIR".	No.	12		

Item	Description	Unit	Qty	Rates (Kshs.)	Costs (Kshs.)
2.16	Flexible connections: Allow for associated builders workflexible connections shall be rubber bellows or neoprene and not canvas to isolate vibrations from the air conditioning unit or fans from the inter-connecting ductwork	pairs	8		
2.17	Associated Electrical works	Item	1		
2.18	Testing and commissioning Allow for setting work, balancing, testing and commissioning of the system.	Item	1		
2.19	Allow for Generation of "As Built Drawings"	Item	1		
2.20	Contingency	Item	1		250,000
2.21	Total for Staircase Pressurerization c/f to price summary page				

3 MECHANICAL VENTILATION - TOILETS

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

Item	Description	Unit	Qty	Rates (Kshs.)	Costs (Kshs.)
3.01	<p>Extract fan: A set of Duty and standby Roof extract fan each capable of a volume flow rate of 1.25m³/s each. The fans to come on alternately such that any of the combination can act as the duty and non is purely standby. When any of the fan reaches 75% of its peak performance the other should come on automatically. Fan to as Xpelair XMP315 or equal and approved complete with cowl, with fan speed regulator, over voltage & phase protection, supports, anti-vibrations mountings and all ancillaries .</p>	set	1		
3.02	<p>Duct mounted fan of diameter 100mm with a flow rate of 9 l/s against a head of 25N/m. The fan shall come complete with a status sensing and monitoring circuitry for ON/OFF status monitoring with 15 minutes delay timer. The circuitry output signal shall then be relayed to the central control unit(in item B1.04 below) . The fan shall be complete with front cover, and self lubricating concealed water tight motor and 2.0meters 100mm flexible duct with all the necessary clipings etc. The fan shall be as Expelair fan DX100 or equivalent of Manrose or equal and approved</p>	No.	105		

Item	Description	Unit	Qty	Rates (Kshs.)	Costs (Kshs.)
3.03	<p>Ductwork Galvanised mild steel duct work 0.8mm thick (SWG 22) complete with bends, hangers, supports, sleeves, flexible connectors, branch duct take offs, flanges, access doors, test holes, stiffeners, expanders, reducers, splitters, turning vanes and accessories all painted both internally and externally with suitable walt black paint</p>	M ²	39		
3.04	<p>Operation control System (Control Panel): This shall receive input signal from individual fan and trigger the operation of roof extract fans on demand. The Main fan (roof extract fan) should Automatically run when one or more of the individual fans (in item B1.02 above) is in operation. Otherwise the fan should be off. The control system shall also perform the duty/standby cyclic control functions of the roof fans as described in item B1.01 above.</p>	No.	1		
3.05	Testing and commissioning Allow for setting work, balancing, testing and commissioning of the system.	Item	1		
3.06	Allow for Generation of "As Built Drawings"	Item	1		
3.07	Contingency sum	item	1		300,000
3.08	Total for Toilet Ventilation c/f to summary page				

4.00 **STAIRCASE PRESSURIZATION**

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

Item	Description	Unit	Qty	Rates (Kshs.)	Costs (Kshs.)
4.01	Supply fan: Extract fan capable of a volume flow rate of 5m ³ /s against a pressure drop of 150N/m ² . Fan to be an aerofoil axial flow fan complete with supports, to be mounted in the return duct, with anti-vibrations mountings and all accessories for integration with fire detection system such that the fan comes on when the fire is detected in the building otherwise it remain off. An override switch shall be incorporated. As wood 71JM/20 at 1420 rpm and 22°	No.	3		
4.02	SUPPLY REGISTERS: 500x250mm Aluminium Powder coated linear Diffusers with damper complete with adapter box to connect to 300mm flexible duct including 900mm Long Flexible duct and connectors	No.	54		
4.03	External Lourves-supply: 700 x 700mm aluminium lourvers complete with insect proof gauze The Lourvers shall be as tecnalco or equal and approved	No.	3		
4.04	Air Pre-filters: 650x 650mm x50mm aluminium washable air filters	No.	3		
4.05	Ductwork: Galvanised mild steel duct work 0.8mm thick (SWG 22) complete with bends, hangers, supports, sleeves, flexible connectors, branch duct take offs, flanges, access doors, test holes, stiffeners, expanders, reducers, splitters, turning vanes and accessories all painted both internally and externally with suitable walt black paint	M ²	540		

Item	Description	Unit	Qty	Rates (Kshs.)	Costs (Kshs.)
4.06	Flexible connections: Allow for associated builders workflexible connections shall be rubber bellows or neoprene and not canvas to isolate vibrations from the air conditioning unit or fans from the inter-connecting ductwork	pairs	3		
4.07	Associated Electrical works	Item	3		
4.08	Testing and commissioning Allow for setting work, balancing, testing and commissioning of the system.	Item	3		
4.09	Allow for Generation of "As Built Drawings"	Item	3		
4.10	Contingency	Item			250,000
4.11	Total for Staircase Pressurerization c/f to price summary page				

Mechanical Ventilation for office block summary shell and core

Item	Description	Cost (kshs)
1	Basement ventilation	
2	Toilet ventilation	
3	staircase pressurization	
4	Total for mechanical ventilation Without VAT c/f to Grand Price Summary	

BILL 3

OFFICE BLOCK

HVAC

FIT OUT

INSTALLATIONS

AIR CONDITIONING SCHEDULES

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

5.00 AIR CONDITIONING

Item	Description	Qty	Units	Rates (Kshs.)	Costs (Kshs.)
5.01	Multisplit Condensing unit of total cooling capacity 106.5 kw as in MAP3614HT8-E TOSHIBA or equivalent. placed at the roof void	set	1		
5.02	7.1kW Concealed duct type evaporator (indoor unit) size size320x1000x660mm as Toshiba Cat no. MMD-AP0271BH Complete with wired remote controls Key pad or equal and approved	No.	1		
5.03	AIR COOLING UNIT: 7.1Kw High Wall mounted or console air cooling unit as Samsung Cat no. NS071NDXEA and condensing unit as RCO71NDXEA. The unit shall be supplied complete with room thermometer, room thermostat and controls or remote control device. The unit shall be such that if the power supply goes off, it will restart automatically after the power is restored. Another model which is acceptable is Daikin, Samsung, Toshiba or equal and approved.	No.	2		
5.04	5.6 kW Slim duct type evaporator (indoor unit) size size 210x845x645mm as Toshiba Cat no. MMU-AP0184SPH-E Complete with wired remote controls Key pad or equal and approved	No.	13		
5.05	3.6 kW Slim duct type evaporator (indoor unit) size size 210x845x645mm as Toshiba Cat no. MMU-AP0121SPH Complete with wired remote controls Key pad or equal and approved	No.	9		

Item	Description	Qty	Units	Rates (Kshs.)	Costs (Kshs.)
5.06	Supply difusers 600x600mm Aluminium Perforated Powder coated swirl return grill complete with duct connectors.	No.	21		
5.07	Return difusers 600x600mm Aluminium Perforated Powder coated swirl return grill complete with duct connectors.	No.	21		
5.08	200mm flexible duct Complete with Fibre glass insulation and lined with aluminium foil.	No.	19		
5.09	Ductwork Galvanised mild steel duct work 0.8mm thick (SWG 22) complete with ,hangers, supports, sleeves, flexible connectors, duct take offs, flanges, access door, test holes, stiffeners, expanders, reducers, and accessories all painted both internally and externally with suitable paint . Should measure 250x300mm	No.	150		
5.1	Allow for the Refrigeration pipework complete with pipe insulation, connection kits, Headers, and T-connections anchored firmly as per schedule below(refer also to the attach analysis sheet using Toshiba program if there are descrapances due other models analysis program or any other reason, please attached a corrected appendix otherwise any cost which may arise due to this shall be borne by the contractor)		1		
5.11	Surge protector : Single phase Power surge protector rated 30A to march the AC Unit as SolatecAutomac Voltage Stabilizer to suite or equal and approved.	No.	1		
5.12	Refrigerant R410A Charging	Item	1		

Item	Description	Qty	Units	Rates (Kshs.)	Costs (Kshs.)
5.13	Refrigerant pipe and lagging (gas line) 3/8" diameter	LM	4		
5.14	25mm s-trap	No.	1		
5.15	Refrigerant pipe and lagging (liquid line) 5/8" diameter	LM	4		
5.16	40mm PVC HG Drainage pipe complete with all fittings	LM	7		
5.17	<p>Air Dehumidifier: Commercial 20 litres Dehumidifier capable of Removing up to 20 lts of moisture from the air every 24 hours with washable air filter, electronic controls, bucket-full indicator, Automatic shut-off, Adjustable humidistat Capable of operating in a wide range of teemperatures and all other necessary accesories for satisfactory functionality as LG , Carrier or equal and approved.</p>	No.	0		
5.18	Pipework for the above Installations.				
5.19	6.4mm	Lm	82		
5.2	9.5mm	Lm	292		
5.21	12.7mm	Lm	124		

Item	Description	Qty	Units	Rates (Kshs.)	Costs (Kshs.)
5.22	15.9mm	Lm	298		
5.23	19.1mm	Lm	30		
5.24	22.2mm	Lm	60		
5.25	28.6mm	Lm	25		
5.26	34.9mm	Lm	30		
5.27	41.3mm	Lm	23		
5.28	Header/branch pieces				
5.29	Toshiba model RMB-BY103E or equivalent	Lm	2		
5.3	Toshiba model RMB-BY53E or equivalent	Lm	2		
5.31	Refrigerant pipe trunking where they are exposed	Lm	166		
5.32	R410A Refrigerant	kg	44		

Item	Description	Qty	Units	Rates (Kshs.)	Costs (Kshs.)
5.33	Condensate Drain: 32mm pvc condensate drainage pipe complete with fittings/anchors and insulation.	Lm	32		
5.34	Electrical Connection: Electrical connection from the isolator/DP switch within a distance of 5metres to the A/C Indoor unit and from indoor unit to outdoor unit within a distance of 12 metres maximum.	Item	1		
5.35	Mounting bracket: Mounting brackets to suite the AC outdoor unit described above.	No.	2		
5.36	Contingency	Item	1		250,000
5.37	Total For Supply and Fix for Air conditioning Installations for Office block units without VAT c/f to ACMV price summary page				

Air conditioning for office block summary fit

Item	Description	Cost (kshs)
1	Air Conditioning	
2	Total for air conditioning Without VAT c/f to Grand Price Summary	

AIR CONDITIONING & MECHANICAL VENTILATION PRICE - SUMMARY PAGE

ITEM	DESCRIPTION	TOTAL (KSHS.)
0	Preliminaries and General Conditions	
1	Warehouse smoke ventilation	
2	Basement Mechanical Ventilation, toilet ventilation & staircase pressurization shell and core	
3	AC Office Block fit out	
4	Sum for Completion documents: Comprising workshop drawings, manufacturer's technical product catalogues, users manuals, maintenance manuals, as installed drawings, test certificates, etc. { NOTE: Penultimate Valuation will not be paid until these are fully availed & signed off by the engineer }	
5	Sum for testing, system configuration & commissioning of the entire installations set complete with all accessories, interconnections, controls, BMS link & activation and the necessary programing.	
6	Sum for training of client / user (At least 5 No. Users). The trained personnel must sign against the items they were trained on and this submitted to the engineer as part of completion document	500,000
7	Sum for 12 months comprehensive maintenance (Consumable, parts and labour) from date of practical completion.	
8	Total without VAT	
9	Add: 16% VAT including all PC sums & Contingencies	
10	Total For Air conditioning Installations and Mechanical Ventilation with VAT c/f to MECHANICAL RELATED WORKS SUMMARY	

Total amount in words: Kenya shillings _____

Name of firm / company _____

Official rubber-stamp _____

P.I.N. No.: _____ V.A.T. Reg. No. : _____

Signed by: _____ Date _____