



**KENYA INDUSTRIAL RESEARCH AND DEVELOPMENT INSTITUTE**

**THE**

**PROPOSED PHASE 2 WORKS FOR THE PROPOSED  
RESEARCH, TECHNOLOGY AND INNOVATION  
LABORATORIES AND RELATED INFRASTRUCTURE ON  
PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B',  
NAIROBI**

**TENDER FOR AIR CONDITIONING , VENTILATION AND  
WASTE CHUTE SYSTEM**

**TENDER REF NO: KIRDI 05/1/2025/2026**

**(FINANCIAL PROPOSAL)**

**Client**

Kenya Industrial Research and Development Institute (KIRDI)  
Popo Road, Off Mombasa Road,  
O. Box 30650-00100, Nairobi, Kenya  
Tel. +254-724 214 092  
Email: [directorgeneral@kirdi.go.ke](mailto:directorgeneral@kirdi.go.ke)  
Website: [www.kirdi.go.ke](http://www.kirdi.go.ke)

**Architects and Project Managers**

Habitech Consultants  
P.O.Box 66495 – 00800  
Nairobi, Kenya

**Quantity Surveyors**

M and M Construction Consultants  
P.O.Box 4677 – 00506  
Nairobi

**Structural / Civil Engineers**

Multiscope Consulting Engineers Ltd  
P.O.Box 12012 – 00100  
Nairobi

**Mechanical services Engineer**

EMS Consultants Ltd  
P.O.Box 11743 – 00100  
Nairobi

**Electrical Services Engineer**

Gedox Associates Ltd  
P.O.Box 64441 – 00620  
Nairobi

**Environment management & physical planners**

Prof. George N. Njuguna & associates  
P.O.Box 26442-00504,  
Nairobi

**SUBMISSION DATE: On or before 6<sup>th</sup> March, 2026 at 11.00 AM  
(East African Time)**

**TENDER DOCUMENTS FOR THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI –**

**AIR CONDITIONING , VENTILATION AND WASTE CHUTE SYSTEM**

**1) NAME AND CONTACT ADDRESSES OF PROCURING ENTITY**

Kenya Industrial Research and Development Institute (KIRDI)  
Popo Road, Off Mombasa Road,  
P. O. Box 30650-00100, Nairobi, Kenya  
Tel. +254-724 214 092  
Email: [directorgeneral@kirdi.go.ke](mailto:directorgeneral@kirdi.go.ke)  
Website: [www.kirdi.go.ke](http://www.kirdi.go.ke)

**2) Invitation to Tender (ITT) No: **KIRDI 05/1/2025/2026****

**3. Tender Name: THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI  
- AIR CONDITIONING , VENTILATION AND WASTE CHUTE SYSTEM**

**PROCURING ENTITY: KENYA INDUSTRIAL RESEARCH AND DEVELOPMENT INSTITUTE (KIRDI)**

**CONTRACT NAME AND DESCRIPTION:** THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI –

**AIR CONDITIONING, VENTILATION AND WASTE CHUTE SYSTEM**

1. Tendering will be conducted under open competitive method using a standardized tender document. Tendering is open to Contractors Registered in the appropriate Category for Builders Works (**NCA category 2and above**). The tender is open to those who meet the requirements of eligibility as contained in this invitation and the tender documents
2. A complete set of tender documents may be obtained, downloaded and viewed by interested tenderers for free from the website [www.kirdi.go.ke](http://www.kirdi.go.ke) or Public Procurement Information Portal [www.tenders.go.ke](http://www.tenders.go.ke). Tenderers who download the tender document **MUST** forward their particulars immediately to the [directorgeneral@kirdi.go.ke](mailto:directorgeneral@kirdi.go.ke) to facilitate any further clarifications or addendum that may be issued.

Note that failure to email the contract information will lead to automatic disqualification at the preliminary stage. Further clarifications and Addendum shall be posted at [www.kirdi.go.ke](http://www.kirdi.go.ke) and Public Procurement Information Portal [www.tenders.go.ke](http://www.tenders.go.ke).

3. Tenders shall be quoted be in Kenya Shillings and shall include all taxes. Tenders shall remain valid **for 180 days** from the date of opening of tenders.
4. All Tenders must be accompanied by a by a **Tender Security as specified in the Tender Data Sheet Clause ITT 19.1**.
5. The Tenderer **shall** chronologically serialize all pages of the tender documents submitted in the numerical format i.e., 1, 2, 3, 4 ..... including the cover page. Tender Document must be tape bound and not Spiral bound. Spiral bound documents shall be automatically disqualified.
6. Completed tenders must be delivered to the address below on or before **6<sup>th</sup> March, 2026 at 11.00 AM. (East African Time)**. Electronic Tenders **will not** be permitted.
7. Tenders will be opened immediately after the deadline date and time specified above or any deadline date and times specified later. Tenders will be publicly opened in the presence of the Tenderers' designated representatives who choose to attend at the address below.
8. Late tenders will be rejected.

9. The addresses referred to above are:

**A. Address for obtaining further information**

**Kenya Industrial Research and Development Institute (KIRDI)**  
Popo Road, Off Mombasa Road,  
P. O. Box 30650-00100, Nairobi, Kenya  
Tel. +254-724 214 092  
Email: [directorgeneral@kirdi.go.ke](mailto:directorgeneral@kirdi.go.ke)  
Website: [www.kirdi.go.ke](http://www.kirdi.go.ke)

**B. Address for Submission of Tenders.**

**Kenya Industrial Research and Development Institute (KIRDI)**  
Popo Road, Off Mombasa Road,  
P.O. Box 30650-0100,  
Nairobi, Kenya  
Tel. +254-724 214 092  
Email: [directorgeneral@kirdi.go.ke](mailto:directorgeneral@kirdi.go.ke)  
Website: [www.kirdi.go.ke](http://www.kirdi.go.ke)

**C. Address for Opening of Tenders.**

**Kenya Industrial Research and Development Institute (KIRDI)**  
**Popo Road, Off**  
**Mombasa Road**

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**Name: Designation: Director General**

**Signature**

**Date**

## 6. **FORM OF TENDER**

### **INSTRUCTIONS TO TENDERERS**

- i) *All italicized text is to help the Tenderer in preparing this form.*
- ii) *The Tenderer must prepare this Form of Tender on stationery with its letterhead clearly showing the Tenderer's complete name and business address. Tenderers are reminded that this is a mandatory requirement.*
- iii) *Tenderer must complete and sign CERTIFICATE OF INDEPENDENT TENDER DETERMINATION and the SELF DECLARATION FORMS OF THE TENDERER as listed under (xxii) below.*

**Date of this Tender submission:**.....[insert date (as day, month and year) of Tender submission] **Tender**

**Name** and **Identification:**.....[insert identification] **Alternative**

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

**To:** ..... [Insert complete name of Procuring Entity]

**Date of this Tender submission:** [insert date (as day, month and year) of Tender submission] **Request**  
**for Tender No.:** [insert identification] **Name and description of Tender** [Insert as per ITT] **Alternative No.:**  
[insert identification No if this is a Tender for an alternative]

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

Dear Sirs,

1. In accordance with the Conditions of Contract, Specifications, Drawings and Bills of Quantities for the execution of the above named Works, we, the undersigned offer to construct and complete the Works and remedy any defects therein for the sum<sup>1</sup> of Kenya Shillings [/Amount in figures] \_\_\_\_\_ Kenya Shillings [amount in words] \_\_\_\_\_

The above amount includes foreign currency<sup>2</sup> amount (s) of [state figure or a percentage and currency]  
[figures] \_\_\_\_\_ [words] \_\_\_\_\_

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2. We undertake, if our tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Architect notice to commence, and to complete the whole of the Works comprised in the Contract within the time stated in the Special Conditions of Contract.
3. We agree to adhere by this tender until \_\_\_\_\_ [Insert date], and it shall remain binding upon us and may be accepted at any time before that date.
4. We understand that you are not bound to accept the lowest or any tender you may receive.
5. We, the undersigned, further declare that:
  - i) No reservations: We have examined and have no reservations to the tender document, including Addenda issued in accordance with ITT 28;
  - ii) Eligibility: We meet the eligibility requirements and have no conflict of interest in accordance with ITT 3 and 4;

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<sup>1</sup> This sum should be carried forward from the Summary of the Bills of Quantities.

<sup>2</sup> The percentage quoted above should not include provisional sums, and not more than two foreign currencies are allowed.

iii) Tender - Securing Declaration: We have not been suspended nor declared ineligible by the Procuring Entity based on execution of a Tender-Securing or Proposal-Securing Declaration in the Procuring Entity's Country in accordance with ITT 19.8;

iv) Conformity: We offer to execute in conformity with the tendering documents and in accordance with the implementation and completion specified in the construction schedule, the following Works: *[insert a brief description of the Works]*;

v) Tender Price: The total price of our Tender, excluding any discounts offered in item 1 above is: *[Insert one of the options below as appropriate]*

vi) Option 1, in case of one lot: Total price is: *[insert the total price of the Tender in words and figures, indicating the various amounts and the respective currencies]*; or

Option2, in case of multiple lots:

(a) Total price of each lot *[insert the total price of each lot in words and figures, indicating the various amounts and the respective currencies]*; and

(b) Total price of all lots (sum of all lots) *[insert the total price of all lots in words and figures, indicating the various amounts and the respective currencies]*;

vii) Discounts: The discounts offered and the methodology for their application are:

viii) The discounts offered are: *[Specify in detail each discount offered.]*

ix) The exact method of calculations to determine the net price after application of discounts is shown below: *[Specify in detail the method that shall be used to apply the discounts]*;

x) Tender Validity Period: Our Tender shall be valid for the period specified in TDS 18.1 (as amended, if applicable) from the date fixed for the Tender submission deadline specified in TDS 22.1 (as amended, if applicable), and it shall remain binding upon us and may be accepted at any time before the expiration of that period;

xi) Performance Security: If our Tender is accepted, we commit to obtain a Performance Security in accordance with the Tendering document;

xii) One Tender Per Tender: We are not submitting any other Tender(s) as an individual Tender, and we are not participating in any other Tender(s) as a Joint Venture member or as a sub-contractor, and meet the requirements of ITT 3.4, other than alternative Tenders submitted in accordance with ITT 13.3;

xiii) Suspension and Debarment: We, along with any of our subcontractors, suppliers, Engineer, manufacturers, or service providers for any part of the contract, are not subject to, and not controlled by any entity or individual that is subject to, a temporary suspension or a debarment imposed by the Public Procurement Regulatory Authority or any other entity of the Government of Kenya, or any international organization.

xiv) State-owned enterprise or institution: *[select the appropriate option and delete the other]* *[We are not a state-owned enterprise or institution]/[We are a state-owned enterprise or institution but meet the requirements of ITT3.8]*;

xv) Commissions, gratuities, fees: We have paid, or will pay the following commissions, gratuities, or fees with respect to the tender process or execution of the Contract: *[insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity]*.

Name of Recipient	Address	Reason	Amount

*(If none has been paid or is to be paid, indicate "none.")*

xvi) Binding Contract: We understand that this Tender, together with your written acceptance there of included in your Letter of Acceptance, shall constitute a binding contract between us, until a formal contract is

prepared and executed;

- xvii) **Not Bound to Accept:** We understand that you are not bound to accept the lowest evaluated cost Tender, the Most Advantageous Tender or any other Tender that you may receive;
- xviii) **Fraud and Corruption:** We here by certify that we have taken steps to ensure that no person acting for us or on our behalf engages in any type of Fraud and Corruption; and
- xix) **Collusive practices:** We hereby certify and confirm that the tender is genuine, non-collusive and made with the intention of accepting the contract if awarded. To this effect we have signed the "Certificate of Independent Tender Determination" attached below.
- xx) We undertake to adhere by the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal, copy available from \_\_\_\_\_ (*specify website*) during the procurement process and the execution of any resulting contract.
- xxi) **Beneficial Ownership Information:** We commit to provide to the procuring entity the Beneficial Ownership Information in conformity with the Beneficial Ownership Disclosure Form upon receipt of notification of intention to enter into a contract in the event we are the successful tenderer in this subject procurement proceeding.

xxii) We, the Tenderer, have duly completed, signed and stamped the following Forms as part of our Tender:

- a) Tenderer's Eligibility; Confidential Business Questionnaire - to establish we are no tin any conflict to interest.
- b) Certificate of Independent Tender Determination - to declare that we completed the tender without colluding with other tenderers.
- c) Self-Declaration of the Tenderer - to declare that we will, if awarded a contract, not engage in any form of fraud and corruption.
- d) Declaration and commitment to the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal.

Further, we confirm that we have read and understood the full content and scope of fraud and corruption as informed in "**Appendix 1 - Fraud and Corruption**" attached to the Form of Tender.

**Name of the Tenderer:** \*[*insert complete name of person signing the Tender*]

**Name of the person duly authorized to sign the Tender on behalf of the Tenderer:** \*\*[*insert complete name of person duly authorized to sign the Tender*]

**Title of the person signing the Tender:** [*insert complete title of the person signing the Tender*]

**Signature of the person named above:** [*insert signature of person whose name and capacity are shown above*]

**Date signed** [*insert date of signing*] day of [*insert month*], [*insert year*]

Date signed \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_

Notes

\* *In the case of the Tender submitted by joint venture specify the name of the Joint Venture as Tenderer.*

\*\**Person signing the Tender shall have the power of attorney given by the Tenderer to be attached with the Tender.*

**SECTION F**

**SCHEDULE OF UNIT RATES**

## SCHEDULE OF UNIT RATES

1. The tenderer shall insert unit rates against the items in the following schedules and may add such other items as he considers appropriate.
2. The unit rates shall include for supply, transport, insurance, delivery to site, storage as necessary, assembling, cleaning, installing, connecting, profit and maintenance in defects liability and any other obligation under this contract.
3. The unit rates will be used to assess the value of additions or omissions arising from authorized variations to the contract works.
4. Where trade names or manufacturer's catalogue numbers are mentioned in the specification, the reference is intended as a guide to the type of article or quality of material required. Alternative brands of **equal** and **approved** quality will be accepted.
5. The prices quoted shall be deemed to include for all obligations under the sub-contract including but not limited to supply of materials, labour, delivery to site, storage on site, installation, testing, commissioning and all taxes (including **16% V.A.T and 3% Withholding tax**).

## **SECTION G**

### **BILL OF QUANTITIES**

<b>THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI</b>					
<b>BILL OF QUANTITIES FOR AIR CONDITIONING AND MECHANICAL VENTILATION</b>					
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
1.00	<b>PRELIMINARIES AND GENERAL CONDITIONS:</b> <b>Please specify extendable items and the pertinent rates</b>				
1.01	Provide bond as stated in the published conditions of subcontract	sum			
1.02	Provide insurance as required in the subcontract conditions	sum			
1.03	Prepare "As-built" drawings and manuals – 2 sets each . Scales to be 1:100 and 1:50 -soft copy to be issued in flash disk	sum			
1.04	Printing of copies of item 1.03 above.	sum			
1.05	Any other preliminaries not included above	sum			
	<b>NOTE:</b> <b>Vendor to visit the site and confirm materials available and condition.</b>				
<b>M1</b>	<b>TOTAL CARRIED FORWARD TO FORM OF TENDER</b>				

<b>THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI</b>					
<b>BILL OF QUANTITIES FOR AIR CONDITIONING AND MECHANICAL VENTILATION</b>					
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
	<b>RESTAURANT KITCHEN</b>				
1.00	<b>KITCHEN HOOD</b> Supply install and commission an exhaust hood as detailed below:  The extract hood size shall be 2000mm wide by 4500mm long by 600mm deep and shall be constructed out of Grade 304 stainless steel sheets and stiffened by a frame of 50 x 50mm stainless steel square tubes The hood shall have a 75mm wide by 25mm deep grease drainage channel all round.	NO.	2		
1.01	<b>EXTRACT FAN</b> Supply and install "woods" Aerofoil fume handling fan. Fan code No. 24 GJ fan speed, 1440 RPM or equal and approved . Capacity , 3.4 cu. M. per second at a static pressure of 20mm W.G. Complete with electrical controls and a variable speed drive	NO.	1		
1.02	<b>Allow for installation and commissioning of the extract fan</b>	NO.	1		
1.03	500 mm diameter Silencer type "ca" as WOODS or equal and approved.	NO.	0		
1.04	<b>Allow for installation and commissioning of the silencer</b>	NO.	1		
1.05	<b>DUCTWORK</b>				
1.06	Ductwork shall be made from galvanised sheet steel to HVCA specifications				
1.07	Ductwork of the following dimensions shall be supplied and installed:				
1.08	a) <b>STRAIGHT DUCT (LINEAR)</b>	M	60		
1.09	450 x 400 mm duct				
1.10	b) <b>REDUCERS / TRANSFORMATION PIECES</b>				
1.11	450 mm diameter /603 mm diameter	NO	4		
1.12	d) <b>COWL:</b> 450x 500 mm diameter	NO	2		
1.13					
1.14	<b>GREASE FILTERS</b>				
1.15	Supply and install "VOKES" washable grease filter , double sided , vee bank unit . Code No. DS20/GW or equal and approved.	NO.	8		
1.16	<b>WEATHERING SLATE</b>				
1.17	Galvanised steel sheet weathering slate or equal and approved to ensure no rain water leakage.	NO	1		
1.18	Allow for "Canvas" flexible connection between fan and duct	NO.	2		
1.19	450mm x 500mm Rectangular blade type fire damper as "SAFID" Model FD-100 with a UL Listed fusible link to release at 70 °C or equal and approved	NO.	2		
1.20	Allow for all other accessories including brackets	Item	1		
	<b>Integrated cooker hood for kitchen facility 3rd floor Lab tower</b>				
1.21	Supply and install integrated cooker hood as "FABER PB BK A60 Strip chimney BI Hood, 60CM BLACK" containing the following: 2 x 28 w lamps, Dishwasher safe cassettes, 3 speeds, 380m³/h, 60cm black hood complete with filters or equal and approved.	Item	1		
1.22	Allow for testing & commissioning	Item	1		
M1	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
2.00	<b>PLENARY HALL / EXHIBITION-GROUND/MEZZANNINE FLOOR PACKAGED UNIT.</b>				
2.01	Packaged air conditioning Unit as "DAIKIN Model UATYQ550Y1"cooling capacity: 55.69kw and power input of 16.75kw ; EER /COP: 3.33/ 3.47 , Refrigerant -R410A, Air flow rate -3160l/s (3.16m <sup>3</sup> /s) , Dimensions: 1048mm high x 2789 mm wide x 2230mm deep or "TOSHIBA equivalent or equal and approved comprising of the following: Convertible return and supply air:fan mounted in two directions. Smoke detector contact Electric heater connection Coil with anticorrosion treatment Scroll compressors and R-410A refrigerant	no	0		
2.02	<b>Allow for commissioning of the packaged air conditioning unit for plenary hall</b> <b>FRESH AIR SUPPLY AND RETURN DUCT:</b> Supply, install and commission Ductwork conforming to the specifications below and as per the guidelines of the Association of heating and ventilating contractors DW/142:Latest edition	NO.	2		
2.03	<b>Linear Duct</b>				
2.04	400x1750	M	8		
2.05	400x1425	M	8		
2.06	400x1175	M	8		
2.07	400x1100	M	8		
2.08	400x900	M	10		
2.09	400x775	M	10		
2.10	400x750	M	3		
2.11	400x595	M	3		
2.12	400x450	M	3		
2.13	400x425	M	3		
2.14	350x1050	M	10		
2.15	300x350	M	10		
2.16	<b>Tees</b>				
2.17	595x350x750	No	5		
2.18	900x350x1050	No	5		
2.19	350x350x425	No	5		
2.20	<b>90°Bends</b>				
2.21	350x350	No	9		
2.22	400x750	No	8		
2.23	400x595	No	8		
2.24	400x450	No	8		
2.25	1425x450	No	9		
2.26	1175X1050	No	7		
2.27	1425X1150	No	7		
2.28	<b>Reducers</b>				
2.29	400x1750 by 400x1425	No	8		
2.30	400x1425 by 400x1175	No	8		
2.31	400x1175 by 400x1100	No	8		
2.32	400x1100 by 400x900	No	8		
2.33	400x900 by 400x775	No	8		
2.34	400x775 by 400x750	No	7		
2.35	400x750 by 400x595	No	6		
2.36	400x 595 by 400x450	No	5		
2.37	400x 550 by 400x425	No	5		
2.38	<b>Supply Grilles/ Diffusers:</b>				
2.39	400 x 300 Adjustable grilles as "WATERLOO" or equal	No	20		
2.40	1m long , Strip Air diffuser as "WESTERN AIR DUCTS" Model FK-LD size 25; Neck size (A)- 78.5mm; Outside size (B)- 113.5mm; Horizontal throw- 7m ; vertical throw- 6m ; rated Maximum flow for 2.5m - 76l/s; Noise rating <20NC. Or equal and approved.	No	10		
2.41	<b>Extract Grilles:</b>				
2.42	400 x 300 Adjustable grilles as "WATERLOO" or equal	No	20		
2.43	Allow for steel hangers, fasteners and all accessories necessary for satisfactory completion of the works.	item	1		
2.44	400mm x 900mm Rectangular blade type fire damper as "SYSTEMAIR" Model FS-3G with a UL Listed fusible link to release at 70°C or equal and approved	NO.	6		
2.45	400mm x 900mm Manually adjusted Rectangular Volume Damper as "SYSTEMAIR" Model TUNE-S or equal and approved.	NO.	6		
2.45	<b>Supply, Install and commission</b> 10 mm thick insulation as "Jumbolene" or equal and approved	M <sup>2</sup>	30		
2.46	<b>Install and commission</b> 10 mm thick insulation as " Jumbolene" or equal and approved	M <sup>2</sup>	20		
2.47	Supply, Install and commission 1 mm thick aluminium cladding on the entire length of the duct	M <sup>2</sup>	60		
M2	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
3.00	Install and commission Ductwork conforming to the specifications below and as per the guidelines of the Association of heating and ventilating contractors DW/142:Latest edition (Ducts Available on site)				
	<b>Linear Duct</b>				
3.01	400x750	M	9		
3.02	400x595	M	9		
3.03	400x450	M	9		
3.04	400x425	M	9		
3.05	<b>AUDITORIA (2 NO. -SEATING CAPACITY 438 EACH)-2ND FLOOR</b>				
3.06	<b>PACKAGED UNIT.</b>				
3.07	Packaged air conditioning Unit as "DAIKIN Model UATYQ550Y1"cooling capacity: 55.69kw and power input of 16.75kw ; EER /COP: 3.33/ 3.47 , Refrigerant -R410A, Air flow rate -3160l/s (3.16m <sup>3</sup> /s) , Dimensions: 1048mm high x 2789 mm wide x 2230mm deep or "TOSHIBA" equivalent or equal and approved,Comprising of the following:	No.	0		
3.08	Convertible return and supply air:fan mounted in two directions.				
3.09	Smoke detector contact				
3.10	Coil with anticorrosion treatment				
3.11	Scroll compressors and R-410A refrigerant				
3.12	<b>Allow for installation and commissioning of the packaged air conditioning units for the auditoria</b>	NO.	4		
3.13	Supply, install and commission Ductwork conforming to the specifications below and as per the guidelines of the Association of heating and ventilating contractors DW/142:1982. Note: all dimensions are in mm unless noted otherwise				
3.14	<b>Linear duct</b>				
3.15	400x1750	M	8		
3.16	400x1425	M	8		
3.17	400x1175	M	8		
3.18	400x1100	M	8		
3.19	400x900	M	3		
3.20	400x775	M	3		
3.21	400x750	M	3		
3.22	400x595	M	3		
3.23	400x450	M	3		
3.24	400x425	M	10		
3.25	350x1050	M	10		
3.26	300x350	M	10		
3.27	<b>Tees</b>				
3.28	595x350x750	No	5		
3.29	900x350x1050	No	5		
3.30	350x350x425	No	5		
3.31	<b>90°Bends</b>				
3.32	350x350	No	10		
3.33	1425x450	No	10		
3.34	1175X1050	No	10		
3.35	1425X1150	No	10		
3.36	<b>Reducers</b>				
3.37	400x1750 by 400x1425	No	8		
3.38	400x1425 by 400x1175	No	8		
3.39	400x1175 by 400x1100	No	8		
3.40	400x1100 by 400x900	No	5		
3.41	400x900 by 400x775	No	5		
3.42	400x775 by 400x750	No	5		
3.43	400x750 by 400x595	No	5		
3.44	400x 595 by 400x450	No	5		
3.45	400x 550 by 400x425	No	5		
3.46	<b>Supply Grilles:</b>				
3.47	400 x 300 Adjustable grilles as "WATERLOO" or equal	No	20		
3.48	1m long ,Strip Air diffuser as "WESTERN AIR DUCTS" Model FK-LD size 25; Neck size (A)- 78.5mm; Outside size (B)- 113.5mm; Horizontal throw- 7m ; vertical throw- 6m ; rated Maximum flow for 2.5m - 76l/s; Noise rating <20NC. Or equal and approved.	No	10		
3.49	<b>Extract Grilles:</b>				
3.49	400 x 300 Adjustable grilles as "WATERLOO" or equal	No	20		
3.50	Allow for steel hangers, fasteners and all accessories necessary for satisfactory completion of the works.	item	1		
3.51	400mm x 900mm Rectangular blade type fire damper as "SYSTEMAIR" Model FS-3G with a UL Listed fusible link to release at 70°C or equal and approved	NO.	4		
3.52	400mm x 900mm Manually adjusted Rectangular Volume Damper as "SYSTEMAIR" Model TUNE-S or equal and approved.	NO.	4		
3.52	<b>Supply, Install and commission</b> 10 mm thick insulation as "Jumbolene" or equal and approved	M <sup>2</sup>	20		
3.53	<b>Install and commission</b> 10 mm thick insulation as " Jumbolene" or equal and approved	M <sup>2</sup>	50		
3.54	Supply, Install and commission 50 mm thick insulation as " Expanded Polystyrene" or equal and approved to cover entire length of duct.	M <sup>2</sup>	20		
3.55		M <sup>2</sup>	20		
<b>M3</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
4.00	<b>Install and commission Ductwork conforming to the specifications below and as per the guidelines of the Association of heating and ventilating contractors DW/142:Latest edition (Ducts Available on site)</b> <b>Linear duct</b> 4.01 400x900 4.02 400x750 4.03 400x595 4.04 400x450 4.05 <b>Reducers</b> 4.06 400x1100 by 400x900 4.07 400x900 by 400x775 4.08 400x750 by 400x595 4.09 400x 550by 400x425 4.10 <b>TRAINING ROOMS-FIRST AND SECOND FLOOR</b> 4.11 <b>OUTDOOR UNITS</b> 4.12 VRV111 COOLING ONLY AS "DAIKIN MODEL RXQ5P7W1B" with cooling capacity of 14kw, power input 3.52kw and EER/COP = 3.98 or "TOSHIBA Equivalent" or equal and approved suitable for air conditioning for boardroom with the following specifications: Capacity Range-5HP; Dimensions-1680 x 635 x 765mm; Weight - 159kg; Air Flow rate: Cooling :95m³/min Heating:95m³/min; Piping connections: Liquid-9.52mm, Gas-15.9mm <b>Control System</b> Unified Control system providing simultaneous and individual control of 16 groups A maximum of 16 groups (128 indoor Units) 2 remote controls in separate locations. Operating status indicator, Centralised control indication Maximum Wiring 1000m(Total 2000m)				
4.14	<b>Allow for installation and commissioning of the outdoor VRV air conditioning units for the Training rooms</b> <b>INDOOR UNITS</b> 4.15 4 Way blow ceiling mounted cassette as "Daikin" Model NO FXZQ-M8 with a cooling capacity of 3.6kW. or "TOSHIBA Equivalent" or equal and approved <b>Accessories</b> Wired remote control as 'Daikin' model No.BRC1E51A or equal and approved Infrared remote control. cooling:BRC767 ,Heat pump:BRC7C62 Decoration panel & High efficiency filter	NO.	12		
4.16	4 Way blow ceiling mounted cassette as "Daikin" Model NO FXZQ-M8 with a cooling capacity of 5.6kW or "TOSHIBA Equivalent" <b>Accessories</b> Wired remote control as 'Daikin' model No.BRC1E51A or equal and approved Infrared remote control. cooling:BRC767 ,Heat pump:BRC7C62 Decoration panel & High efficiency filter	No	0		
4.17	<b>Allow for commissioning of the indoor air conditioning units for the Training rooms</b> <b>MAIN RESTAURANT-FIRST FLOOR</b> <b>OUTDOOR UNITS</b> 4.18 " VRV-III cooling only model RXQ18P7W1BA"Nominal cooling capacity- 49 KW Power input 16.2kw COP-3.02 or "TOSHIBA Equivalent" or equal and approved with the following specifications: Capacity Range-5HP; Dimensions-1680 x 635 x 765; Weight - 159kg; Air Flow rate: Cooling :95m³/min Heating:95m³/min; Piping connections: Liquid-9.52mm, Gas-15.9mm <b>Control System</b> Unified Control system providing simultaneous and individual control of 16 groups A maximum of 16 groups (128 indoor Units) Operating status indicator & Centralised control indication Maximum Wiring 1000m(Total 2000m)	No	0		
4.19	<b>Allow for Installation &amp; commissioning of the outdoor air conditioning unit for the main restaurant</b> <b>INDOOR UNITS</b> 4.20 4-way Ceiling mounted cassette as "Daikin" Model NO FXFQ-M8 with a cooling capacity of 2.8kW or "TOSHIBA Equivalent" or equal and approved. <b>Accessories</b> Wired remote control as 'Daikin' model No.BRC1E51A or "TOSHIBA Equivalent" or equal and approved. Infrared remote control. cooling:BRC767 ,Heat pump:BRC7C62 Decoration panel & High efficiency filter	No.	1		
4.21	<b>Allow for installation &amp; commissioning of the indoor air conditioning units for the main restaurant</b> <b>FRESH AIR PROCESSOR:</b> 4.22 Single packaged type air conditioner with provision for fresh air intake on return ducts as "LG Model LK-0380CH";cooling capacity of 34,500Btu/hr;power supply-4.4kw, 3 phase,415v/50Hz;29.7M³/Min ; dimensions: 1265mm wide x595mm high x 710mm wide or "TOSHIBA Equivalent" or equal and approved..	No.	14		
4.23	<b>Allow for commissioning of the fresh air processor for the main restaurant</b>	No.	0		
M4	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
5.00	<p><b>ACCOMODATION UNITS-3RD TO 10TH FLOOR</b></p> <p><b>OUTDOOR UNITS</b> VRV III COOLING ONLY "DAIKIN MODEL RXQ10P7W1B" with cooling capacity of 28kw, power input 7.42kw and EER/COP = 3.77 suitable for air conditioning or equal and approved.</p> <p>Capacity Range-5HP; Weight - 159kg Dimensions-1680 x 635 x 765 Air Flow rate: Cooling :95m³/min Heating:95m³/min Piping connections: Liquid-9.52mm, Gas-15.9mm</p> <p><b>Control System</b> Unified Control system providing simultaneous and individual control of 16 groups A maximum of 16 groups (128 indoor Units) Operating status indicator &amp; Centralised control indication Maximum Wiring 1000m(Total 2000m)</p>	No	0		
5.01	<b>Allow for connection and commissioning of the outdoor air conditioning units for the accommodation units</b>	NO.	9		
5.02	<b>INDOOR UNITS</b> Concealed ceiling unit as "Daikin Model FXSQ-M8" rated at 2.8kW.	No	0		
5.03	<p><b>Accessories</b> Wired remote control as 'Daikin' model No.BRC1E51A Infrared remote control. cooling:BRC767 ,Heat pump:BRC7C62 Decoration panel &amp; High efficiency filter</p> <p><b>Allow for commissioning of the indoor air conditioning units for the accommodation units</b></p> <p><b>BOARD ROOMS(6th and 10th FLOOR)</b></p>	NO.	88		
5.04	<p><b>OUTDOOR UNITS</b> VRV111 COOLING ONLY AS"DAIKIN MODEL RXQ5P7W1B" with cooling capacity of 14kw, power input 3.52kw and EER/COP = 3.98 or equal and approved suitable for air conditioning for boardroom-1</p> <p>Capacity Range-5HP Dimensions-1680 x 635 x 765 Weight - 159kg Air Flow rate: Cooling :95m³/min Heating:95m³/min Piping connections: Liquid-9.52mm, Gas-15.9mm</p> <p><b>Control System</b> Unified Control system providing simultaneous and individual control of 16 groups A maximum of 16 groups (128 indoor Units) Operating status indicator &amp; Centralised control indication Maximum Wiring 1000m(Total 2000m)</p>	No	0		
5.05	VRV111 COOLING ONLY AS"DAIKIN MODEL RXQ12P7W1B" with cooling capacity of 28.0kw, power input 9.62kw and EER/COP = 3.77 or equal and approved	No	0		
5.06	<b>Allow for installation and commissioning of the 14 kw outdoor air conditioning units for the boardrooms</b>	NO.	3		
5.07	<b>Allow for installation and commissioning of the 28 kw outdoor air conditioning units for the boardrooms</b>	NO.	1		
5.08	<b>INDOOR UNITS</b> 4 Way blow ceiling mounted cassette as "Daikin" Model NO FXZQ-M8 with a cooling capacity of 3.6kW.	No	0		
5.09	<p><b>Accessories</b> Wired remote control as 'Daikin' model No.BRC1E51A Infrared remote control. cooling:BRC767 ,Heat pump:BRC7C62 Decoration panel &amp; High efficiency filter</p> <p>4 Way blow ceiling mounted cassette as "Daikin" Model NO FXZQ-M8 with a cooling capacity of 5.6kW.</p> <p><b>Accessories</b> Wired remote control as 'Daikin' model No.BRC1E51A Infrared remote control. cooling:BRC767 ,Heat pump:BRC7C62 Decoration panel &amp; High efficiency filter</p>	No	0		
5.10	<b>Allow for installation and commissioning of the 3.6kw indoor air conditioning units for the boardrooms</b>	NO.	6		
5.11	<b>Allow for installation and commissioning of the 5.6kw indoor air conditioning units for the boardrooms</b>	NO.	6		
5.12	<b>Refrigeration Pipework</b> Allow for refrigeration pipework, fittings and Amaflex insulation for both the liquid and gas lines.	Item	1		
5.13	<b>Drain</b> Allow for UPVC condensate drainage pipework including bends, clips, joints and tees in the running lengths of the pipe to the nearest waste water point.	Item	1		
<b>M5</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
	<b>BASEMENT 4 AIR CONDITIONING OUTDOOR UNITS</b>				
6.00	VRV III COOLING ONLY "DAIKIN MODEL RXQ10P7W1B" with cooling capacity of 28kw, power input 7.42kw and EER/COP = 3.77 or equal and approved suitable for air conditioning or equal and approved.	No	0		
6.01	<b>Allow for installation and commissioning of the 7.42 kw outdoor air conditioning unit for basement 4</b>	NO.	1		
6.02	<b>INDOOR UNITS</b>				
6.03	4 Way blow ceiling mounted cassette as "Daikin" Model NO FXFQ-M8 with a cooling capacity of 2.8kW or equal and approved.	No	0		
6.04					
6.05					
6.06	<b>Allow for installation and commissioning of the 2.8 kw indoor air conditioning units for basement 4</b>	NO.	10		
6.07	<b>FRESH AIR PROCESSOR:</b>				
6.08	Single packaged type air conditioner with provision for fresh air intake on return ducts as "LG Model LK-0380CH"; cooling capacity of 34,500Btu/hr; power supply-4.4kw, 3 phase, 415v/50Hz; 29.7M <sup>3</sup> /Min ; dimensions; 1265mm wide x 595mm high x 710mm wide or equal and approved.	No.	0		
6.09					
6.10	<b>Allow for installation and commissioning of the Fresh air processor</b>	NO.	1		
6.11					
6.12	<b>DUCTING:</b>				
6.13					
6.14	Supply, install and commission Ductwork conforming to the specifications below and as per the guidelines of the				
6.15	Association of heating and ventilating contractors				
6.16					
6.17	DW/142:1982.				
6.18	<u>Note: all dimensions are in mm unless noted otherwise</u>				
6.19					
6.20	300 x 400	LM	20		
6.21	300 x 325	LM	40		
6.22	300 x 250	LM	60		
6.23	<b>Supply Grilles:</b>				
6.24	200 x 300 Adjustable grilles as "WATERLOO" or equal	No	10		
6.25	1m long , Strip Air diffuser as "WESTERN AIR DUCTS" Model FK-LD size 2S; Neck size (A)- 78.5mm; Outside size (B)- 113.5mm; Horizontal throw- 7m ; vertical throw- 6m ; rated Maximum flow for 2.5m - 76l/s; Noise rating <20NC. Or equal and approved.	No	4		
6.26					
6.27	<b>Extract Grilles:</b> 200 x 300 Adjustable grilles as "WATERLOO" or equal	No	10		
6.28	Allow for steel hangers, fasteners and all accessories necessary for satisfactory completion of the works.	item	1		
6.29	400mm x 900mm Rectangular blade type fire damper as "SYSEMAIR" Model FS-3G with a UL Listed fusible link to release at 70°C or equal and approved	NO.	2		
6.30	400mm x 900mm Manually adjusted Rectangular Volume Damper as "SYSEMAIR" Model TUNE-S or equal and approved.	NO.	2		
6.31	<b>Supply, Install and commission</b> 10 mm thick insulation as "Jumbolene" or equal and approved	M <sup>2</sup>	20		
6.32	<b>Install and commission</b> 10 mm thick insulation as " Jumbolene" or equal and approved	M <sup>2</sup>	10		
6.33	Supply, Install and commission 1 mm thick aluminium cladding on the entire length of the duct	M <sup>2</sup>	20		
M6	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
<b>BASEMENT VENTILATION</b>					
<b>Supply, install and commission the following complete with electrical controls and accessories as necessary:</b>					
7.00	<b>EXTRACT FAN:</b>				
7.01	Centrifugal fan as 'Flaktwoods' with an air capacity of 17m <sup>3</sup> /s at 1000pa and rated at 33kW model No.GXLB-5-090 or equal and approved.	No	0		
7.01a	supply and install a 33 kw rated variable speed drive as "SCHNEIDER" or equal on the Flaktwoods fan	NO.	6		
7.02	<b>Allow for installation and commissioning of the 33kw fan</b>	NO.	6		
7.03	Circular Silencer as "WOODS" Type CA rated at 17m <sup>3</sup> /s at 0.1 kPa pressure drop, size 1250mm Diameter or equal and approved.	No	0		
7.04	<b>Allow for installation and commissioning of the woods type CA silencer</b>	NO.	6		
7.05					
7.06	<b>DUCTING:</b>				
7.07					
7.08	<b>Supply, install and commission</b> Ductwork conforming to the				
7.09	specifications below and as per the guidelines of the				
7.10	Association of heating and ventilating contractors				
7.11	DW/142:1982.				
7.12	<u>Note: all dimensions are in mm unless noted otherwise</u>				
7.13					
7.14	<b>Linear duct</b>				
7.15					
7.16	400 x 1150	LM	5		
7.17	400 x 1125	LM	5		
7.18	400 x 1025	LM	10		
7.19	400 x 1000	LM	5		
7.20	400 x 900	LM	5		
7.21	400 x 300	LM	3		
7.22	300 x 800	LM	5		
7.23	300 x 700	LM	5		
7.24	300 x 625	LM	10		
7.25	300 x 500	LM	10		
7.26	300 x 400	LM	5		
7.27	300 x 325	LM	10		
7.28	300 x 250	LM	20		
7.29	400x800	LM	10		
7.30	350x900	LM	10		
7.31	<b>Riser duct</b>				
7.32	800x 650	LM	10		
M7	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
	<p><b>Install and commission</b> Ductwork conforming to the specifications below and as per the guidelines of the Association of heating and ventilating contractors DW/142:1982.</p> <p><u>Note: all dimensions are in mm unless noted otherwise</u></p> <p><b>DUCTS ON SITE:</b></p> <p>8.40 <b>Linear duct</b></p> <p>8.41 400 x 1150 LM 10</p> <p>8.42 400 x 1125 LM 12</p> <p>8.43 400 x 1025 LM 9</p> <p>8.44 400 x 1000 LM 35</p> <p>8.45 400 x 900 LM 11</p> <p>8.46 400 x 300 LM 5</p> <p>8.47 300 x 800 LM 13</p> <p>8.48 300 x 700 LM 20</p> <p>8.49 300 x 625 LM 6</p> <p>8.50 300 x 500 LM 12</p> <p>8.51 300 x 400 LM 10</p> <p>8.52 300 x 325 LM 10</p> <p>8.53 300 x 250 LM 11</p> <p>8.54 400x800 LM 5</p> <p>8.55 350x900 LM 13</p>				
M8	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
	<b>Supply, install and commission</b> fittings as detailed below:				
	<b>Reducers</b>				
	<u>Note: all dimensions are in mm unless noted otherwise</u>				
9.20	400x1150 by 400x1125	No	5		
9.21	400 x 1125 by 400x1025	No	5		
9.22	400 x 1025 by 400x1000	No	6		
9.23	400x1000 by 400x900	No	7		
9.24	400x900 by 400x300	No	10		
9.25	400x300 by 300x800	No	10		
9.26	300x800 by 300x700	No	45		
9.27	300x700 by 300x625	No	45		
9.28	300x500 by 300x400	No	10		
9.29	300x400 by 300x325	No	5		
9.30	300x325 by 300x250	No	45		
9.31	800X1000 by 1000X1375	No	15		
9.32	1000X1375 by 1200X1500	No	15		
	<b>Radius Bends</b>				
	<u>Note: all dimensions are in mm unless noted otherwise</u>				
9.33	400 x 1125	No	3		
9.34	400 x 1025	No	3		
9.35	400 x 1000	No	5		
9.36	300 x 700	No	3		
9.37	400 x 400	NO	3		
9.38	500 x500	NO	3		
9.39	<u>Extract Grills:</u>				
	<u>Note: all dimensions are in mm unless noted otherwise</u>				
9.41	200 x 400 Adjustable grilles as "WATERLOO" or equal	No	10		
9.42	Allow for steel hangers, fasteners and all accessories necessary for satisfactory completion of the works.	item	1		
9.43	400mm x 900mm Rectangular blade type fire damper as "SYSTEMAIR" Model FS-3G with a UL Listed fusible link to release at 70°C or equal and approved	NO.	2		
9.44	400mm x 900mm Manually adjusted Rectangular Volume Damper as "SYSTEMAIR" Model TUNE-S or equal and approved.	NO.	2		
9.45	Allow for air plenums	item	6		
9.46	Allow for steel hangers, fasteners, bird screens and all accessories necessary for satisfactory completion of the works.	item	1		
M9	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
	<b>Install and commission</b> fittings as detailed below: (Available on site)				
	<b>Reducers</b>				
10.20	400x1150 by 400x1125	No	11		
10.21	400 x 1125 by 400x1025	No	23		
10.22	400 x 1025 by 400x1000	No	0		
10.23	400x1000 by 400x900	No	30		
10.24	400x900 by 400x300	No	18		
10.25	400x300 by 300x800	No	25		
10.26	300x800 by 300x700	No	0		
10.27	300x700 by 300x625	No	0		
10.28	300x500 by 300x400	No	45		
10.29	300x400 by 300x325	No	47		
10.30	300x325 by 300x250	No	0		
10.31	800X1000 by 1000X1375	No	0		
10.32	1000X1375 by 1200X1500	No	0		
10.33					
10.34	<b>Radius Bends</b>				
10.35	<u>Note: all dimensions are in mm unless noted otherwise.</u>				
10.36	400 x 1125	No	5		
10.37	400 x 1025	No	7		
10.38	400 x 1000	No	5		
10.39	300 x 700	No	6		
10.40	400 x 400	NO	20		
10.41	500 x500	NO	15		
10.42					
10.43					
10.44	<b>Extract Grills:</b>				
10.45	<u>Note: all dimensions are in mm unless noted otherwise.</u>				
10.46	200 x 400 Adjustable grilles as "WATERLOO" or equal	No	135		
<b>M10</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
	<b>WASHROOM VENTILATION</b>				
11.00	Supply, install and commission the following complete with electrical controls and accessories .				
11.01	Axial roof fans as 'Systemair' model DHS 1400DV with a flow rate of 2112m <sup>3</sup> /hr and a static pressure of 320 Pa or equal and approved.	NO	0		
11.02		NO.	5		
11.03	Allow for installation and commissioning of the "DHS1400DV" axial roof fan.				
11.04					
11.05	Axial fan with capacity of 2.0 cubic meters per second at a static pressure of 500 pa. as " VENT AXIA ref. RBH 560-34"	NO	0		
11.06					
11.07	or equal and approved				
11.08	Allow for installation and commissioning of the "RBH 560-34" axial roof fan.	NO.	2		
11.09					
11.10	<b>DUCTING:</b>				
11.11	Supply, install and commission Ductwork conforming to the specifications below and as per the guidelines of the				
11.12	Association of heating and ventilating contractors				
11.13	DW/142:1982.				
11.15					
11.16	<b>Linear Duct.</b>				
11.17	400 x 400	LM	220		
11.18	300 X 250	LM	60		
11.19	150 X 200	LM	230		
11.20	500 x500	LM	50		
11.21	<b>Radius Bends:</b>				
11.22	150 x 200	NO	25		
11.23	300 x 250	NO	0		
11.24	400 x 400	NO	17		
11.25	500 x500	NO	25		
11.26					
11.27	<b>Transition piece</b>				
11.28	(150 x 200) x ( 200 x 200)	NO	35		
11.29	(150 x 200) x ( 400 x 400)	NO	25		
11.30	(400 x 400) x (200 x 200)	NO	35		
11.31	(500 x 500) x (300 x 250)	NO	10		
11.32					
11.33	<b>Extract Grilles:</b>				
11.34	150 x 200 Adjustable grilles as "WATERLOO" or equal	NO	40		
11.35					
11.36	<b>LABBORATORY TOWER VENTILATION</b>				
11.37					
11.38	<b>Linear Duct.</b>				
11.39	400 x 400	LM	42		
11.40	300 X 250	LM	18		
11.41	150 X 200	LM	50		
11.42	500 x500	LM	50		
11.43	<b>Radius Bends:</b>				
11.44	150 x 200	NO	5		
11.45	300 x 250	NO	0		
11.46	400 x 400	NO	15		
11.47	500 x500	NO	10		
11.48					
11.49	<b>Transition piece</b>				
11.50	(150 x 200) x ( 200 x 200)	NO	10		
11.51	(150 x 200) x ( 400 x 400)	NO	18		
11.52	(400 x 400) x (200 x 200)	NO	33		
11.53	(500 x 500) x (300 x 250)	NO	10		
11.54					
11.55	<b>Extract Grilles:</b>				
11.56	200 x 200 Adjustable grilles as "WATERLOO" or equal	No item	20		
11.57	Allow for steel hangers, fasteners and all accessories necessary for satisfactory completion of the works.		1		
11.58	200mm x 400mm Rectangular blade type fire damper as "SYSTEMAIR" Model FS-3G with a UL Listed fusible link to release at 70°C or equal and approved	NO.	2		
M11	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
12.01	<b>DUCTING:</b> <b>Install and commission</b> Ductwork conforming to the specifications below and as per the guidelines of the Association of heating and ventilating contractors DW/142:1982.  <b>DUCTS AND FITTINGS ON SITE:</b>				
12.02	<b>Washroom Extract Grilles:</b> 150 x 200 mm	NO	88		
12.03	<b>LABBORATORY TOWER VENTILATION</b>	LM	8		
12.04	Linear Duct. 400 x 400	LM	42		
12.05	300 X 250	NO	38		
12.06	<b>Radius Bends:</b> 150 x 200	NO	7		
12.07	<b>Transition piece</b> (150 x 200) x ( 400 x 400) (400 x 400) x (200 x 200)	NO	2		
M12	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
13.01	<b>AC FOR WASTE STORAGE ROOM</b>				
13.02	Supply and install a split air-conditioning system with a cooling capacity of 3.51kW as "CARRIER" using refrigerant R410a or equal and approved.	No	1		
13.03	<b>The indoor unit</b> shall be high wall mounted as "CARRIER Model 42QHA012VS" with a rated cooling capacity of 3.51kw and a power input of 0.87 kw or equal and approved				
13.04	<b>The outdoor unit</b> shall be as " CARRIER Model 38QHA012VS" mounted on the outside wall to match the indoor unit or equal and approved.				
	<b>COLD ROOMS:</b> <b>Supply, Install ,Test and Commission the following:</b> <b>CHILLER &amp; FREEZER (COLD ROOMS)</b> Supply, install and commission a modular type of cold room consisting of polyurethane insulation, galvanised steel cladding and equipped with the following equipment with all accessories and controls for commissioning: size 3m wide X 4m long.	NO	4		
13.05	i) <b>Panels (For walls and ceiling) shall have the following features:</b> a)To be prefabricated sandwich type high density injected polyurethane foam panels to EN 14509 ; Thickness of panel to be 75mm; b) Skin sheet to be galvanized steel 0.8mm thick, pre-lacquered with polyester (25μ) with a peelable protective film/ white in colour and of food safety quality. c) The panel to be CFC Free; with polyurethane foam density of 43+-2 kg/m <sup>3</sup> and a fire proofing grade B1 to DIN Norm 4102. d) The panel shall have a maximum length of 4,000mm and suitable to operate between -40 and +75°C. ii) <b>Insulation panel</b> thickness shall be 75mm with overall heat transfer coefficient U(W/m <sup>2</sup> of 0.31 . iii) <b>Type of jointing:</b> The jointing shall be in male- female format made of polyurethane with inserted boxes. The assembly of the panels shall be carried out through an eccentric hook (cam-lock) made of stainless steel to AISI 430. iv) <b>Floor:</b> to be constructed using 75mm thick polyurethane foam panels with 1.5mm thick checkered aluminium sheet on top. v) <b>Doors:</b> These shall be Single left/ right hinged manual doors with all fittings including rubber gasket & internal safety handles. vi) <b>Lighting:</b> shall consist of heavy duty , water proof , low energy, 600mm long LED lamps				
13.06	<b>Freezer:</b>				
13.07	Condensing unit as " Bitzer LH /2CC-4.2-40S" suitable for a cooling capacity of 4 kw or equal and approved	No	2		
13.08	cooling coil unit as " Guntrner GHF 031.1 C/27-EF" with a cooling capacity of 4kw or equal and approved	No	2		
13.09	<b>Chiller:</b>				
13.10	Condensing unit as " Bitzer LH 33 /2HC-1.2-40S" suitable for a cooling capacity of 3 kw or equal and approved	No	2		
13.11	cooling coil unit as " Guntrner GSF 031.K/17-EW, VT 03104" with a cooling capacity of 4kw or equal and approved	No	2		
13.12	Supply install and commission 1 m wide Air curtain as "OPTIMA" Model OPT1000A rated at 750/1100 m <sup>3</sup> /h or equal and approved	No	1		
13.13	Supply install and commission 1.5m wide Air curtain as "OPTIMA" Model OPT1500A rated at 1100/1600 m <sup>3</sup> /h or equal and approved	No	1		
M13	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
M1	KITCHEN HOOD & VENTILATION	ITEM	1		
M2	PLENNARY HALL AIR CONDITIONING	ITEM	1		
M3	AUDITORIUM AIR CONDITIONING	ITEM	1		
M4	TRAINING ROOMS & MAIN RESTAURANT AC	ITEM	1		
M5	ACCOMODATION AND BOARD ROOMS AC	ITEM	1		
M6	BASEMENT 4 AIR CONDITIONING	ITEM	1		
M7	BASEMENT1,2,3 VENTILATION	ITEM	1		
M8	BASEMENT1,2,3 VENTILATION	ITEM	1		
M9	BASEMENT1,2,3 VENTILATION	ITEM	1		
M10	BASEMENT1,2,3 VENTILATION	ITEM	1		
M11	WASHROOM VENTILATION	ITEM	1		
M12	WASHROOM VENTILATION	ITEM	1		
M13	LABORATORY COLD ROOMS	ITEM	1		
A1	TOTAL ESTIMATES AC & VENTILATION TO SUMMARY PAGE				

<b>THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI</b>					
<b>BILL OF QUANTITIES FOR CHUTES</b>					
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
2.01	<b>REFUSE CHUTE:</b> Supply , install and commission an indoor garbage / linen chute with an internal diameter of 600 mm as " SFSP" (www.sfsp_ikk.com) or equal and approved. Please refer to the particular specification for details. The unimetal chute to conform to BS1703:1977, BS 5906:2005 and VDI 2162 and to comprise: a 3 phase 50hz automatic chute cleaning system, sanitizing and disinfecting units and sound damping and automatic fire sprinkler system with automatic fire door. The material of the chute to be F. Austenitic stainless steel to AISI 304 and 316. Chute hoppers self closing stainless steel side doors to be provided on each floor and to conform to BS 476 and BS 5588 The chute to serve a 13 storey building	No	0		
2.01a	<b>Install and commission an indoor garbage / linen chute with an internal diameter of 600 mm as " SFSP" (www.sfsp_ikk.com) whose components are on site.</b>	No	8		
2.02	<b>Exhaust Fan</b> Supply and install exhaust fan with capacity of 200m <sup>3</sup> /hr at 500pa as "woods" or equal to be located at the top of the refuse chute.:	No	0		
2.02a	<b>Allow for installation and commissioning of the exhaust fan</b>	No	8		
2.03	Allow for sound damping of the chute	Item	0		
2.03a	<b>Allow for installation and commissioning of the sound damping system for each chute</b>	No	8		
2.05	Allow for all other accessories to complete , test and commission the installation to the satisfaction of the Engineer	Item	8		
A2					

## KIRDI SOUTH B LABORATORY TOWER AIR CONDITIONING REQUIREMENTS

**Note;** The air conditioning equipment is on site with specifications as detailed below:

Outdoor unit	VRV III COOLING ONLY "DAIKIN MODEL RXQ10P7W1B" or "TOSHIBA Equivalent" with cooling capacity of 28kw, power input 7.42kw and EER/COP = 3.77 suitable for air conditioning or equal and approved.
Indoor unit	High wall as " TOSHIBA MODEL APO183H" with a cooling capacity of 5.6kw or equal and

## **Tender for installation and commissioning on**

Item No.	Floor	Location	specification of wall hang indoor Ac units (kw)	specification of outdoor Ac units (kw)	Unit	Quantity	Unit cost (ksh)	Amount (ksh)
1	3rd Floor food technology Research labs	server room	5.6		No.	1		
2	Ditto	Labs	5.6		No.	4		
3	Ditto	roof		28	No.	1		
4	4th Advanced Microbiology research labs	Labs	5.6		No.	4		
5	Ditto	roof		28	No.	1		
6	5th floor bitotechnology & Bioengineering research labs	Labs	5.6		No.	5		
7	Ditto	roof		28	No.	1		
8	6th floor central core research labs	server room	5.6		No.	1		
9	Ditto	roof						
10	Ditto	Labs	5.6		No.	5		
11	Ditto	roof		28	No.	1		
12	7th Floor Natural product & Environment	Labs	5.6		No.	4		
13	Ditto	roof		28	No.	1		
14	8th floor textile research labs	Labs	5.6		No.	5		
15	Ditto	roof		28	No.	1		
16	9th Floor Mechanical, electrical & electronics research labs	server room	5.6		No.	1		
17	Ditto	Labs	5.6		No.	4		
18	Ditto	roof		28	No.	1		
19	10th floor material science research labs	Labs	5.6		No.	4		
20	Ditto	roof		28	No.	1		

<b><u>THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI</u></b>			
<b><u>SUMMARY OF BILL OF QUANTITIES</u></b>			
<b>ITEM No.</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>AMOUNT (Kshs)</b>
M1	PRELIMINARIES & GENERAL CONDITIONS	ITEM	
A1	AIR CONDITIONING AND VENTILATION	ITEM	
A2	WASTE CHUTE SYSTEM	ITEM	
A3	LABORATORY AIR CONDITIONERS	ITEM	
<b>SUBTOTAL</b>			
<b>ADD CONTINGENCY COSTS 10%</b>		10%	
<b>TOTAL CARRIED FORWARD TO FORM OF TENDER</b>			

Total in words: .....

Name of Contractor: .....

Address: .....

Telephone: .....

Pin No. ..... Vat Reg. No. ....

Signature: .....

Official Stamp/Date: .....