



# MAURITIUS NATIONAL ASSEMBLY

## BIDDING DOCUMENTS

**Issued on: 28 December 2021**

**for the**

**Refurbishment of HVAC in Lunch Room  
of the  
Mauritius National Assembly**

**Procurement Reference No:  
NA/OAB 04 /21-22**

**(Open National Bidding)**

## **Section I: Instruction to Bidders**

### **1. Introduction**

The Mauritius National Assembly also referred as the Employer, invites eligible local contractors to submit their bid for the works described in detail hereunder. Any resulting contract shall be subject to the terms and conditions referred to in this document.

The Works are: **Refurbishment of HVAC in Lunch Room of the Mauritius National Assembly**

**Participation is limited to citizens of Mauritius or entities incorporated in Mauritius. Joint Ventures should be among entities incorporated in Mauritius**

- 1.1 Clarifications, if any, should be addressed to: **Clerk of the National Assembly, Attn. Mr S.Peyan, Level 3, New Government Centre, Royal Street, Port Louis.**  
The Employer will respond in writing to any request for clarification, provided that such request is received 14 days prior to the deadline for submission of bids.  
The Employer shall respond to such request at latest 7 days prior to the deadline set for submission of bids.
- 1.2 Bidders are advised to carefully read the complete bidding document, including the Particular Conditions of Contract in Section IV, before preparing their bids. The standard forms in this document may be retyped for completion but the Bidder is responsible for their accurate reproduction.

### **2. Validity of Bids**

The bid validity period shall be **90 days** from the date of bid submission deadline.

### **3. Works Completion Period**

The Intended Completion period is **190 days** from start date of works.

### **4. Site Visit**

Bidders or their designated representatives are invited to attend a pre-bid meeting on **Tuesday 11 January 2022 at 10.30 hours in the Committee Room of the National Assembly**. The purpose of the pre-bid meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

### **5. Sealing and Marking of Bids**

Bids should be sealed in a single envelope, clearly marked with the Procurement Reference Number, addressed to the **Clerk of the National Assembly** with the Bidder's name at the back of the envelope.

### **6. Submission of Bids**

Bids should be deposited in the Bid Box located at the **Mauritius National Assembly, Level 3, New Government Centre, Royal Street, Port Louis not later than Thursday 27 January 2022 at 13 00 hours**. Bids by post or hand delivered should reach the above-

mentioned address by the same date and time at latest. Late bids will be rejected. Bids received by e-mail will not be considered.

## 7. **Bid Opening**

Bids will be opened by the “Public body” at the **Committee Room of the National Assembly, Level 3, New Government Centre, Royal Street, Port Louis on Thursday 27 January 2022 at 13 15 hours**. Bidders or their representatives may attend the Bid Opening if they choose to do so.

## 8. **Evaluation of Bids**

The Public Body shall have the right to request for clarification during evaluation. Offers that are substantially responsive shall be compared on the basis of evaluated cost to determine the lowest evaluated bid.

## 9. **Eligibility Criteria**

To be eligible to participate in this bidding exercise, Bidder should:

- (a) have the legal capacity to enter into a contract to execute the works;
- (b) be duly registered with the CIDB under the grade that would allow him to perform the value of works for which he is submitting his bid;
- (c) not be insolvent, in receivership, bankrupt, subject to legal proceedings for any of these circumstances or in the process of being wound up;
- (d) not have had your business activities suspended;
- (e) not be under a declaration of ineligibility by the Government of Mauritius in accordance with applicable laws at the date of the deadline for bid submission or appearing on the ineligibility lists of African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank Group and World Bank Group;
- (f) not have a conflict of interest in relation to this procurement requirement; and
- (g) have a Business Registration Card.

## 10. **Qualification and Experience Criteria**

Bidders should have the following minimum qualifications and experience:

- (a) valid registration certificate with the CIDB under the grade that will enable the contractor to perform the works quoted for, under the following class(es): F and specialization: Air Conditioning and Ventilation System.
- (b) experience in two works of a similar nature over the last 5 years, each of value not less than MUR 4.0 M
- (c) Contract Manager having as minimum qualification: A diploma in construction related field and 5 years experience in the construction sector; or any equivalent qualifications acceptable to the Public body.
- (d) minimum amount of liquid assets and/or credit facilities net of other contractual commitments of the Bidder of MUR 7.0 M (Note 1)

## 11. Contents of bid

The Bid shall comprise the following:

- (a) duly filled Bid Submission Form;
- (b) duly filled Priced Bill of Quantities/Activity Schedule;
- (c) duly filled Qualification Information Form and attachments required
- (d) report on the financial standing of the Bidder for the last three years, such as certified copies of Financial Statements or Audited Accounts as filed at the Registrar of Companies before the deadline set for submission of bids
- (e) Valid Registration certificate with the CIDB, as applicable
- (f) Signed C.V of Contract Manager;
- (g) Documentary evidence of liquid assets and/or credit facilities (Note 1);
- (h) Any other documents deemed necessary as per the requirements of this bidding document

### Note 1

**Bidders to demonstrate access to, or availability of, financial resources such as liquid assets, lines of credit, and other financial means, other than any contractual advance payments to meet the overall cash flow requirements for the contract and its current commitments. Documentary evidence may comprise but not limited to Bank certificate, Certificate from Auditors, Certificate from a Professional Accountant registered with MIPA, Certificate from Insurance companies.**

## 12. Joint Venture

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

- i. the Bid shall include all the information required as per the Qualification Information form for each joint venture partner;
- ii. the Bid shall be signed so as to be legally binding on all partners;
- iii. the Bid shall include a copy of the agreement entered into by the joint venture partners defining the division of assignments to each partner and establishing that all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms; **alternatively**, a Letter of Intent to execute a joint venture agreement in the event of a successful bid shall be signed by all partners and submitted with the bid, together with a copy of the proposed agreement;
- iv. one of the partners shall 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
- v. the execution of the entire Contract, including payment, shall be done exclusively with the partner in charge.

## 13. Prices and Currency of Payment

Bidders should quote for the whole works. Prices for the execution of works shall be quoted and fixed in Mauritian Rupees. Items for which no rate or price is entered by Bidders, shall

not be paid for by the Public Body when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities.

Bids shall cover all costs of labour, materials, equipment, overheads, profits and all associated costs for performing the works, and shall include all duties. The whole cost of performing the works shall be included in the items stated, and the cost of any incidental works shall be deemed to be included in the prices quoted. Bidders are required to submit their bid prices **exclusive of VAT**.

#### **14. Bid Securing Declaration**

Bidders are required to subscribe to a Bid Securing Declaration in the Bid Submission Form.

#### **15. Margin of Preference**

Margin of Preference shall not apply.

#### **16. Award of Contract**

The Bidder having submitted the lowest evaluated responsive bid and qualified to perform the works shall be selected for award of contract. Award of contract shall be by issue of a Letter of Acceptance in accordance with terms and conditions contained in Section IV: General Conditions of Contract and Particular Conditions of Contract.

#### **17. Performance Security and signing of contract**

Within twenty-eight (28) days of the receipt of the Letter of Acceptance from the Employer, the successful Bidder shall furnish a Performance Security, in the amount equal to 10% of the Bid price (exclusive of VAT), in accordance with the conditions of contract, using for that purpose the Performance Security Form included in Section V Contract Forms.

The contract agreement shall be signed within 28 days after the successful bidder receives the letter of acceptance unless the parties agree otherwise.

Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the contract within the required time may constitute sufficient grounds for the annulment of the award.

#### **18. Notification of Award and Debriefing**

Prior to the expiration of the period of bid validity, the Employer shall, for contract amount above Rs 15 million, notify the selected bidder of the proposed award and accordingly notify unsuccessful bidders. Subject to Challenge and Appeal, the Employer shall notify the selected Bidder, in writing, by a Letter of Acceptance for award of contract. Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract.

The Public Body shall after award of contract, exceeding Rs 1 million and up to Rs 15 million, promptly inform all unsuccessful bidders in writing of the name and address of the successful bidder and the contract amount.

Furthermore, the Public Body shall attend to all requests for debriefing for contract exceeding Rs 1 million, made in writing within 30 days the unsuccessful bidders are informed of the award.

## **19. Advance Payment**

The Public Body shall provide an Advance Payment on the Contract Price as stipulated in the General Conditions of Contract. The Advance Payment shall be guaranteed by an Advance Payment Security as per the format contained in Section V.

The Advance Payment shall be limited to 10% percent of the Contract Price, less any provisional and contingencies sums.

## **20. Integrity Clause**

The Public Body commits itself to take all measures necessary to prevent corruption and ensures that none of its staff, personally or through his/her close relatives or through a third party, will in connection with the bid for, or the execution of a contract, demand, take a promise for or accept, for him/herself or third person, any material or immaterial benefit which he/she is not legally entitled to.

## **21. Rights of Public Body**

The Mauritius National Assembly reserves the right:

- (a) to split the contract as per the lowest evaluated cost per lot; and
- (b) to accept or reject any bid or to cancel the bidding process and reject all bids at any time prior to contract award without incurring any liability to the Public body.

## **22. Challenge and Appeal**

Unsatisfied bidders shall follow procedures prescribed in Regulations 48, 49 and 50 of the Public Procurement Regulations 2008 to challenge procurement proceedings and award of procurement contracts or to file application for review at the Independent Review Panel.

- (a) The address, Tel. & Fax No... & Email address to file Challenges in respect of this procurement is:

**Clerk of the National Assembly**

**1<sup>st</sup> Floor,**

**Parliament House,**

**Royal Street,**

**Port Louis**

**Tel: 201 1414**

**Email: [clerk@govmu.org](mailto:clerk@govmu.org)**

- (b) The Address to file Application for Review is:

**The Chairperson  
Independent Review Panel,  
5<sup>th</sup> Floor,  
Belmont House  
Intendance Street  
Port Louis**

**Tel : +230 2602228**

**Emal : [irp@govmu.org](mailto:irp@govmu.org)**

## Section II: Bidding Forms

**Note: Bidders are required to fill all the forms in this section and submit as part of their bid. Non-submission of any form may lead to rejection of the bid**

### Bid Submission Form

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

Bid's Reference No.: \_\_\_\_\_

Procurement Reference No: NA/OAB 04 /21-22

To:

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda issued;
- (b) We offer to execute in conformity with the Bidding Documents the following Works: \_\_\_\_\_;
- (c) The total price of our Bid excluding VAT is: \_\_\_\_\_ (MUR):
- (d) Our bid shall be valid for a period of **90 days** from the date fixed for the bid submission deadline in accordance with the Bidding Documents and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (e) We hereby confirm that we have read and understood the content of the Bid Securing Declaration attached hereto and subscribe fully to the terms and conditions contained therein, if required. We understand that non-compliance to the conditions mentioned may lead to disqualification.
- (f) If our bid is accepted, we commit to obtain a Performance Security in accordance with the Bidding Document;
- (g) We, including any subcontractors or suppliers for any part of the contract, do not have any conflict of interest in accordance with ITB 8;
- (h) We are not participating, as a Bidder in more than one bid in this bidding process;
- (i) Our firm, its affiliates or subsidiaries, including any Subcontractors or Suppliers for any part of the contract, has not been declared ineligible under the laws of Mauritius;
- (j) We have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption as per the principles described hereunder, during the bidding process and contract execution:
  - i. We shall not, directly or through any other person or firm, offer, promise or give to any of the Public Body's employees involved in the bidding process or the execution of the contract or to any third person any material or immaterial benefit which he/she is not

legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

- ii. We shall not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelisation in the bidding process.
- iii. We shall not use falsified documents, erroneous data or deliberately not disclose requested facts to obtain a benefit in a procurement proceeding.

We understand that transgression of the above is a serious offence and appropriate actions will be taken against such bidders.

- (k) We understand that this bid, together with your written acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;
- (l) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive; and
- (m) If awarded the contract, the person named below shall act as Contractor's Representative:

Name: \_\_\_\_\_

In the capacity of: \_\_\_\_\_

Signed: \_\_\_\_\_

Duly authorized to  
sign the Bid for and  
on behalf of: \_\_\_\_\_

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

Seal of Company \_\_\_\_\_

**BID SECURING DECLARATION**

By subscribing to the undertaking in the Bid Submission Form:

I/We accept that I/we may be disqualified from bidding for any contract with any Public Body for the period of time that may be determined by the Procurement Policy Office under section 35 of the Public Procurement Act, if I am/we are in breach of any obligation under the Bid conditions, because I/we:

- (a) have modified or withdrawn my/our bid after the deadline for submission of bids during the period of bid validity specified by the Bidder in the Bid Submission Form; or
- (b) have refused to accept a correction of an error appearing on the face of the bid; or
- (c) having been notified of the acceptance of our bid during the period of bid validity, (i) have failed or refused to execute the Contract, if required, or (ii) have failed or refused to furnish the Performance Security, in accordance with the Instructions to Quote.

I/We understand this Bid Securing Declaration shall cease to be valid (a) in case I/we am/are the successful bidder, upon our receipt of copies of the contract signed by you and the Performance Security issued to you by me/us ; or (b) if I am/we are not the successful Bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder; or (ii) thirty days after the expiration of the validity of my/our bid.

In case of a Joint Venture, all the partners of the Joint Venture shall be jointly and severally liable.

## Qualification Information

*[The information to be filled in by **bidders** in the following pages shall be used for purposes of post-qualification or for verification of prequalification as provided for in ITB Clause 6. This information shall not be incorporated in the Contract. Attach additional pages as necessary. Pertinent sections of attached documents should be translated into English. If used for prequalification verification, the Bidder should fill in updated information only.]*

<b>1. Individual Bidders or Individual Members of Joint Ventures</b>	1.1 Constitution or legal status of Bidder: <i>[attach copy]</i> Place of registration: <i>[insert]</i> Principal place of business: <i>[insert]</i>
	1.2 Bidder shall provide <i>[insert number]</i> of works of a nature and amount similar to the Works performed as Contractor over the last 5 years.

Project/Contract name and country	Name of client and contact person	Type of work performed and year of completion	Value of contract (national currency )
(a)			
(b)			

1.3 Proposed subcontracts and firms involved. Refer to General Conditions of Contract Clause 7.
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Sections of the Works	Value of subcontract	Subcontractor (name and address)	Experience in similar work
(a)			
(b)			

*[Bidders have to ascertain that sub-contractors executing works are duly registered with the CIDB in accordance with CIDB Act 2008.]*

1.4 Name, address, and telephone, telex, and facsimile numbers of banks that may provide references if contacted by the Public Body.
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<b>2. Additional</b>	2.1 Bidders should provide any additional information Requirements requested in the Bidding Document.
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## **Section III: Statement of Requirements**

### **SPECIFICATION FOR**

**Refurbishment of HVAC in Lunch Room of the National  
Assembly,**

**New Government Centre**

## 1.0 Scope of works

The scope of works shall consist of the following but not limited to:-

- a) Removal of existing Package Air Conditioner, AHU and accessories;
- b) Supply, install, test and commission of control panels, distribution boards, & accessories, etc.;
- c) Supply, install, test and commission of sockets commission of L.T. cables in conduit;
- d) Supply, install, test and commission of ducting for the VRVs.;
- e) Supply, install, test and commission of Split ACs;
- f) Supply, install, test and commission of Air Treatment standalone equipment;
- g) Civil works as required.

## 2.0 Instruction to tenderers

### 2.1 Makes

Equipment/materials for this project shall be as per specifications/schedules or as indicated on the drawings. Tenderers shall specify clearly the makes of various equipment/materials they propose to use. These shall be accompanied by documentation (preferably in original) to enable the Director (or designated representative) of Energy Services Division (ESD) to approve or otherwise.

The decision of the Director (or representative) shall always be final and no materials/equipment shall be supplied or installed in the project without his approval or that of his representative.

### 2.2 Manner of Execution

The works shall be executed in the manner set out in the specifications or where not set out, to the satisfaction of the ESD Engineer and all reasonable variations on site shall be carried out in accordance with such directives as the Engineer may give.

Electrical installations shall be carried out to good standards of workmanship and all equipment, materials and fittings shall be new and according to specifications. Where no details have been provided, products shall be manufactured to the British Standards applicable to the particular product. All items given in drawings are indicative only. Exact positions shall be finalised with the Engineer prior execution of works.

### 2.3 Site Exigencies

The selected contractor shall respect security arrangements in force and shall seek necessary permission and security pass for yard access, if any for execution of the work. The contractor shall carry out works outside normal office hours where deemed necessary and authorised by ESD Engineer without any increase in contract cost. Claims for overtime works shall not be entertained. The site shall be kept tidy and no materials/refuse shall be kept which may cause obstructions.

For any information, please contact Mr. R.Khedan, Electrical Engineer/ Senior Electrical Engineer, Energy Services Division, 2<sup>nd</sup> Floor, New Government Centre, Port Louis, Tel No: 201 1021 or 201 3636.

## **3.0 Conditions of Contract**

### **3.1 Site Visit**

Bidders are advised to visit the sites before submission of tender so as to be fully acquainted with the nature of the site and extent of work involved. Bidders shall contact Client Ministry and ESD Engineer for site visit arrangement.

### **3.2 Price Activity Schedule, Schedule of Rates & Schedule of Materials**

The bidders shall fill in the, Priced Activity Schedule, and Schedule of Materials, and submit same together with the bid documents.

This schedule has been prepared with a view to provide a common basis for tendering. Before submission of tender, it is deemed that the bidder has acquainted himself with all conditions prevailing on site. All the drawings, specifications and Priced Activity Schedule are complementary and should be read accordingly. The tenderers are advised to carry out measurement and check the quantities of materials.

In case of discrepancies, omissions or errors, the tenderer shall inform the Director of the ESD prior to submission of the tender. No extra claim shall be entertained afterwards on this issue.

### **3.3 Warranty Period**

The installation shall be guaranteed against manufacturing defects, bad workmanship and other defects not related to normal wear and tear for a period of **one year** from date of successful commissioning in presence of representatives of ESD, except otherwise stated below. In the event of

a defect, the Contractor shall at his own expense, within 48 hours, make good such defects as instructed to the satisfaction of the Engineer.

### **3.4 Provisional /Contingency Sum**

Provisional/ Contingency sum included in the contract price shall be expended or used as the Engineer may in writing direct and not otherwise. In so far as the provisional/contingency sum included in the contract price is not expended or used, it shall be deducted from the contract price.

### **3.5 Programme of Work**

The tenderer shall clearly indicate in the offer the time period for the execution and completion of the installations for the whole project.

### **3.6 Permanent site staff**

The electrical contractor shall have within its company the following qualified staff:

- (a) One experienced Electrical Engineer registered with the Council of Registered Engineers of Mauritius to attend all site meetings and to act as the representative of the electrical contractor (which can be employed on a part-time basis).
- (b) One experienced Electrical Technician holding the Part II Electrical Engineering Technician's Certificate 280 or 803 of the City and Guilds of London.

All test certificates and as fitted drawings shall be approved and signed by the Electrical Engineer before submission to the Client.

The contractor shall provide:-

- (i) all details including C.V., experience and qualifications of the above staff and
- (ii) 0
- (iii) (ii) signed agreements from the persons to be deployed on site in this respect.

### **3.7 Retention Money**

The Employer shall be entitled to retain **10%** of each payment of the contract price until the issue of the last taking over certificate in respect of the works.

The Employer shall release **5%** of the retained amount to the Contractor after issue of **Commissioning Certificate** by ESD.

The remainder of the retention money shall not be paid until the **Performance Certificate** has been issued by ESD.

### **3.8 Working Hours**

The normal working hours are:

1. as from 08 00 to 22 00 on weekdays. No work shall be permitted on Monday and Tuesday when there is Parliament session and for days where access will be restricted due to important functions.
2. on Weekends and Public Holidays as from 08 00 to 21 00.

Delivery of material shall be either during weekdays as from 19 00 hours or during Sundays as from 11 00.

## **4.0 Technical Specifications**

### **4.1 Electrical Installations**

This section provides a brief description of the electrical/air-conditioning works related to this contract. The selected Electrical Contractor shall carry out the works to the full satisfaction of the Director or Engineer of ESD or his representatives.

### **4.2 Regulations**

The installations shall conform in all respects to the Institution of Engineering and Technology (IET), 18<sup>th</sup> Edition Wiring Regulations (BS 7671-2008) with subsequent amendments and that of ASHRAE latest edition regarding HVAC installation regulations.

### **4.3 Electrical Supply**

The new installation shall be a three-phase 400V, 50Hz power supply derived from the existing three phase power supply found in the building.

### **4.4 Electrical Panels**

The distribution boards (DBs) shall be to IP 559 and shall be of polyester or galvanised steel with polyester paint finish, hinged lockable door. The panel shall be big enough to accommodate incoming and outgoing feeders and the following:

1. MCBs, and RCBOs as per schematic layouts.

2. Copper Earth Bar Terminal with suitable number of outlets & sizes.
3. All accessories to make a complete panel.

The distribution boards shall be wall mounting. All switchgears shall be of **minimum 16 kA** breaking capacity. Lower kA ratings shall not be acceptable.

All circuits and instrument in the board shall be properly labelled with perspex and danger notices fixed on panels. Plasticised schematic layout shall be fixed in respective Distribution Boards.

Panels shall be located as shown in drawings or as instructed by the Engineer and shall be properly earthed. 30% of spare capacity shall be allowed. There shall be ample space in the panel to allow for easy access when required for manual work.

## 4.5 Energy Meters

The energy meters shall be able to read the minimum parameters as follows:-

- Voltages
- Currents
- Power
- Power factor
- Frequency  Peak Load
- Transient Load
- Power Consumption

and logging of data for at least one year.

## 4.6 Switchgears

### 4.6.1 Miniature Circuit Breakers (MCB)

MCB's shall be of reputed make and break type with trip free mechanism to BS 3871/ IEC 60947-2. They shall be equipped with non-adjustable thermal overload and magnetic short circuit release with a minimum breaking capacity of 16 kA.

### 4.6.2 Residual Current Circuit Breaker (RCCB)

Residual Current Circuit Breaker (RCCBs) shall be associated with MCBs on all final circuits. They shall provide protection against earth leakages. The RCCBs shall be of sensitivity 30mA.

### 4.6.3 Residual Current Operated Circuit Breaker with Overload Protection (RCBO)

This shall be a single unit having the properties of both a RCCB and a MCB, as described above.

#### 4.7 Type of Installations

The installation is designated to be of ***Surface Type***. Fire retardant white pvc trunking of appropriate size shall be used for surface installation. PVC conduit pipes of yellow or orange colour complying with the relevant British Standard shall be used for outdoor installation. The conduit shall provide adequate mechanical protection for the enclosed cables. Cut ends of conduits shall have no burrs left to avoid damage to the insulation of conductors while pulling them through. Conduits shall be installed from point to point using suitable drawing-in or loopin boxes. Joints shall not be allowed. The laying of conduits shall be such that any condensation inside the conduit is drained out. The conduit shall be securely tied. The conduit shall terminate into end and loop-in boxes which shall also be tied securely and these shall be so positioned that after the wooden partitioning is placed and the shuttering removed, the boxes are flush with the wooden boards.

#### 4.8 Inspection Boxes

Suitable inspection boxes to the nearest minimum requirements shall be provided to permit periodical inspection and to facilitate replacement of wires if necessary. The inspection/junction boxes shall be mounted flush with the wall. Suitable ventilating holes shall be provided in the inspection where required.

#### 4.9 Fish Wire

To facilitate drawing of cables in the conduits fish wire 18 swg shall be provided along with laying of recess conduit, the entire conduit system including those for outlets and boxes shall be thoroughly cleaned after completion of erection and before drawing of cables.

#### 4.10 Cabling & Wiring Works

Single core PVC insulated 600V grade copper conductor manufactured in accordance with BS 6004, shall be used for wiring inside conduits for internal wiring.

Main and sub-main cables shall be generally of 1 kV grade conductor of high conductivity copper wires insulated with PVC.

They shall run in continuous lengths; no cable joint shall be permitted. Conduit of adequate dimension shall be used where necessary in order to satisfy cable space factor.

Latest IET standard colour code shall be observed.

#### 4.11 Switches & Sockets

Switches (10 A rated) and sockets (13 A rated) shall be to relevant British or European standards (BS 3676) and shall be of the metal clad. They shall be flush mounted in suitable boxes. The number of gang and ways shall be as indicated in the drawings. The lighting switches and sockets shall be fixed at 1500mm and 450mm respectively above the finished floor level or as instructed. They shall be of reputed make. All sockets should be with neon indicator

Floor mounted socket to be installed as indicated in the layout. It shall have a lid cover to prevent accidental ingress of dirt in the socket.

All accessories for wet area shall be weatherproof.

#### **4.12 PVC Conduits/Pipes**

Wherever specified on the drawings (site plans) yellow or orange PVC pipes pressure type of the size specified shall be provided for cabling.

#### **4.13 Labels and Danger Notices**

All main circuits and sub-circuits shall be clearly and neatly labelled for quick circuits' identification.

A schematic layout for each distribution shall be displayed in each distribution Board.

Suitable warning notices in red lettering on white background shall be provided on each distribution boards. Label shall bear identifications on drawings and voltage also.

Suitable "Danger" plates shall be securely affixed on the distribution boards and mounted in prominent position. Each danger notice shall be fabricated in enamel sheet steel. Symbols shall be in red on white background and shall be to British Standard.

#### **4.14 Earthing System**

The main distribution board shall be connected with the existing earthing system. This shall done using a single core 16mm<sup>2</sup> green/yellow to be connected to the main earth bar of the building.

#### **4.15 Removal of Existing Air Conditioning Units**

The successful bidder shall remove the existing package type air condition units along with its piping, cable, etc... The removed items shall be discarded following appropriate procedure. All the cost related for removal shall be borne by the contractor.

The Contractor shall remove the existing AHU found in the false of the Lunch Room. The remove equipment shall be cart-away by the contractor. Note: All the existing split AC units shall **also** be removed.

## 4.16 Air Conditioning Work

There shall be four separate VRV systems with four indoor units (high static ducted type) and five split AC units.

a) VRV No. 1

The main units shall be **1 x 40kW** minimum cooling capacity.

Item	Type	Quantity	Minimum Capacity (kWc)
AC A	High static Pressure ducted type	1	40
	TOTAL	1	40

b) VRV No. 2

The main units shall be **1 x 35kW** minimum cooling capacity.

Item	Type	Quantity	Minimum Capacity (kWc)
AC B	High static Pressure ducted type	1	35
	Total	1	35

c) VRV No. 3

The main units shall be **1 x 56kW** minimum cooling capacity.

Item	Type	Quantity	Minimum Capacity (kWc)
AC C	High static Pressure ducted type	1	56
	Total	1	56

d) VRV No. 4

The main units shall be **1 x 35kW** minimum cooling capacity.

Item	Type	Quantity	Minimum Capacity (kWc)
AC D	High static Pressure ducted type	1	35
	Total	1	35

a) Capacity / Load Calculation

1. The equipment selected shall be able to provide a room temperature of 18°C - 22°C & 50% relative humidity for an average exterior temperature of 32°C and relative humidity of 80%.

2. The tenderer shall carry out a complete load calculation to check the specified cooling capacity of the room is adequate;
3. If required, equipment of greater size shall be installed to achieve the above requirement.
4. The specified cooling loads is only for reference.

**b)      Outdoor Unit**

<b>Outdoor Unit</b>	Compressor Type	Inverter Technology
	Warranty	Unconditional Warranty: 5 years on compressor and 2 year on other parts.
	Condenser Fins	Protected against corrosion
	Casing	Suitable for use in tropical climate
	Mounting Brackets/Slab	<b>Reinforced concrete slab of 300mm</b>
	Refrigerant Isolation	Valve
	Mounting Base	Reinforced Concrete slab
	Refrigerant	R410a – Ozone friendly
Power	Phase	Three phase
Requirement	Voltage	400 V 50 Hz

- 1) DC Inverter VRV cooling unit with at least two compressor units on a master/slave mode.
- 2) The units shall be tropicalized models, Corrosion resistance materials on both metal and electronic parts suitable for external use in marine atmosphere and exposed to salt sprays.
- 3) The outdoor unit shall be placed on a reinforced concrete slab base (300mm height) if the unit is to be mounted on the roof.
- 4) The unit shall have anti-vibration mountings.
- 5) High efficiency full DC Inverter compressors.
- 6) Internal thermal protection of the fan and compressor winding
- 7) Liquid line filter drier
- 8) Low noise DC fan motor
- 9) The refrigerant employed shall be ozone friendly and shall be in line with the Montreal Protocol
- 10) High and low pressure cut-outs
- 11) Stop valves (gas and liquid) with brazed connections
- 12) Aluminium blue fin coil of high corrosion resistance and copper tubes
- 13) Noise level for outdoor unit shall clearly be given
- 14) Thermal, overload and phase imbalance protection for compressor motor
- 15) Any other items not listed above but required for the commissioning and proper functioning of the condensing unit. This shall also include all pipe works

**16) Communication module to be installed for allowing the VRVs to be connected to a PC/laptop. All communication cables shall also be submitted.**

**Note: A surge arrester (minimum 16 KA) for each unit shall be installed to protect the equipment.**

**c) Indoor Unit High Static Pressure Duct (HSPD)**

- i.High Static Pressure Duct Convertible Cabinet, horizontal, complete with connecting ductwork and all necessary accessories
- ii.The noise level must be clearly indicated by the supplier
- iii.Aluminium fin coil with copper tubes
- iv.Galvanised steel panels
- v.Removable condensate drain pan
- vi.Washable filters, easily accessible
- vii.Thermal protection of the fan motor winding
- viii.Refrigerant lines to braze onto copper tubes
- ix.Horizontal or vertical discharge as found appropriate on site
- x.Thermo-magnetic unit circuit-breaker
- xi.The unit shall have stamped louvers for entry of return air
- xii.Panels shall be fully removable and it shall be possible to have access to the internal components without affecting the normal operation of the unit.
- xiii.Internal paneling are to be sound insulated with sponge/foam.

**d) Noise Level**

The Noise level of the air conditioning equipment measured at 1 m from unit on **low-speed** setting shall be as per table below:-

Cooling Capacity/kW	Maximum Noise Level (dBA) in the room
AC A	60
AC B	60
AC C	60
AC D	60

**The contractor shall install additional insulating material to damp the noise level to the specified one, if required, at his own cost.**

**e) Equipment Installation**

- 1) The Contractor shall have to undertake the electrical installations from the Air conditioners to the SDB via the control switches. The electrical wiring and control wiring from the indoor unit to the outdoor unit shall be enclosed within a separate white trunking of suitable dimensions and securely fixed to the wall or through the false ceiling on cable tray.
- 2) The Contractor is expected to execute a very good trunking work by making use of any trunking accessories such as internal angle, end cap, junction and others.
- 3) All the refrigerant pipes (which be vapour sealed) shall be thermally insulated inside and outside the building.
- 4) The Air-Conditioner shall be provided with suitable drain pipes, with sufficient slope for perfect drain. The drainpipes shall be leak proof and be securely fixed as and where required on the wall inside and outside the building the drainpipes shall be brought to

200mm from ground level or connected to the new main drain pipe as per drawing. U-trap shall be used for each unit.

- 5) The Air-Conditioner shall be equipped with **wired control** by means of which the Air-Conditioners may be switched on and off, the temperature and fan speed may be controlled and from which one may read the room, office temperature via a LCD display. The controls shall be password protected. The control shall be located next to the SDB AC2. The controls shall be enclosed in a box and the door be secured by padlock.
- 6) The Air-Conditioner shall be equipped with appropriate service valves along the refrigerant pipes so as to allow isolating and separating the indoor unit from the outdoor unit without any loss of refrigerant.
- 7) Tenderers are hereby requested to indicate clearly in their quotations whether or not the Air-conditioner they will be proposing will be equipped with the said valves or some other devices which will do the same work.

#### Civil and Associated Works

- 1) The Contractor shall provide inline supply fans for fresh air intake. The total required air exchange is around 5,000m<sup>3</sup>/hr. The fans shall be regulated by variable speed drive.
- 2) The installation of the Air-Conditioners necessitates civil works including painting and masonry works (drilling of a hole in order to pass the pipes) and/or modification of window panes/frames/metal work which shall be undertaken by the successful tenderer.
- 3) Any opening shall be properly sealed in order to avoid leakage or loss of cool air. All broken surfaces for installation of air conditioner must be made good by the Contractor including paint and decorative works.
- 4) Any supports, mounting brackets, cable tray etc... shall be supplied and installed by the Contractor.
- 5) The outdoor unit of the Air-Conditioner shall be fixed on a reinforced concrete slab base (300mm height) if the unit is to be mounted on the roof.
- 6) All necessary plumbing works shall be included in the quotation, and shall be undertaken by the Contractor.
- 7) Any support, ladder, scaffolding, tools and equipment required for installation must be provided by the Contractor.

#### f) **Warranty Period**

1. The compressor of the Air-Conditioner shall be warranty for a period of **5 years** and all other parts (including electronics card) shall be warranty for a period of **1 years**. These warranty periods shall be effective only as from the date of successful commissioning of the Air Conditioner.
2. Free servicing on a **quarterly basis** shall be provided during for a period of one year. Repair works to the equipment during Warranty/Maintenance period shall be completely free of charge or included in the rate of the air conditioner and shall include spare parts, labour, gas charging, tools, transport, and any other items required. Quarterly report must be submitted to the client and copy to Director, Energy Services Division.

3. No claim whatsoever for servicing, maintenance, repair works, spare parts, labour, gas charging, tools, transport, or any other items will be considered during the Warranty /Maintenance period.

4. **The bidders shall submit a five years maintenance contract (including the spare part list prices) along the bid which shall be considered after the warranty period. The Client Ministry may consider the maintenance contract if found reasonable.**

**g) Transportation of the unit**

The attention of tenderers is drawn to the fact that one unit has to be installed on the roof of the Government House. The installation site shall be inspected by the tenderer to ensure that they are suitable for their proposal.

The successful tenderer shall be responsible for all accidents and damage arising out of the transfer of the units, (which may require lifting equipment like a crane) and tenderers shall be deemed to have taken into consideration in their offers any expenditures (insurance, renting of crane, etc.) in this connection. On award of the contract the successful tenderer shall have to submit proof of this coverage.

**The installation of the outdoor units to its installation position shall be carried out when there is little vehicular traffic, preferably on Sunday. The successful tenderer shall be responsible for making any necessary arrangements with the police regarding any special dispositions on public roads that may be required.**

**h) Maintenance**

The tenderer shall carry out maintenance on the whole system as follows:

**Three quarterly servicing (after each three months)** This shall include and not limited to the following:

- I.Cleaning of air filters, drains etc...
- II.Checking of amperage, refrigerant charge, overall performance of units, insulation and vapour seal.
- III.Curing of excessive noises as required by client
- IV.Attending leakages
- V.Any other item not mentioned above but recommended by the manufacturer in the maintenance manual.

**One annual general servicing**

This shall include the quarterly servicing and not limited to the following:

- I.Cleaning of air filters, evaporators, condenser coils by pressure water jets.
- II.Lubricate moving parts
- III.Cleaning, repainting of outdoor units, metal bases and supporting brackets (one coat of primer, one coat of undercoat and one of cold galvanized paint.)
- IV.Recharging of refrigerant where necessary.
- V.Check operation of all valves
- VI.Check operation of all measuring instruments.
- VII.Any other item not mentioned above but recommended by the manufacturer in the maintenance manual.

#### 4.17 Factory Inspection

The successful bidder shall organize a comprehensive training by an **air-conditioning expert** who is responsible for the construction of the VRV at the manufacturer's place. The visit shall be divided into categories as listed below:-

1. Factory inspection (Main Objective)
  - Meeting/discussion with employees
  - Testing of the system on test bench/centres
  - Viewing of test result
  - Acknowledge the good operation of the system
  - Provide required changes if result is not good
2. Construction of the VRV
  - Visit of the factories where the equipment is being manufactured
  - Quality Assurance of the material used at Factory
  - Meeting/discussion with employees
  - Viewing of special tool/method used during construction
  - Viewing of new technologies in this field for the near future such as new ozone and global warming friendly refrigerant to replace the EXISTING REFRIGERANT since Mauritius agreed with the resolutions of COP21.
3. Maintenance of the VRV
  - Tutoring by the expert for the maintenance
  - Effective step for replacing of consumable such as oil, filter, refrigerant
  - Steps for Pump down of UNITS
  - Maintenance of associated services/equipment
4. Operation of the VRV
  - Detail explanation on the electronic control system
  - Start and stop of the system
  - Setting of parameters for different configuration and weather conditions
  - Connection of external laptop/computer to the control system for viewing the parameters
  - Reprograming of the system (**Very Important**)
  - Reviewing overall settings to check system is operating efficiently
5. Troubleshooting of the arising faults in the AC system
  - Debugging
  - Tutoring about alarm and critical faults
  - Resetting procedures
  - Diagnosis of the alarms/faults and action to be taken
6. After Sale service
  - Introduction with the team who is responsible for spare part
  - Provide list of available spare parts and lead time for availability of same

The guided factory visit shall be for a minimum of **two ESD Officers** who is conversant with project / system as follows: - **2 technical staffs** (preferably one Engineer and one Technician) to be designated by the client for the equipment on manufacturer's site including, return air fares, lodging, boarding and recommended government daily expenses. Certificate, Documentation with photos and videos of the visit shall be submitted to each participant at the end of the visit which shall be well programmed with sufficient time between the transits.

The local training program shall consist of **operating, diagnosis, maintenance and repair** for each system and shall be equally distributed between theory and practical. The contractor shall make provision for at least 10 persons for each program with all required tools, such as laptop, projector, notepad, hand-outs, table, chairs, etc... and an appropriate training space.

The tenderer shall quote all related costs in the schedules of prices under item 'Factory Inspection for VRVs'.

#### 4.18 Piping Works

For the installation of the new pipes, the following aspects shall be respected by the contractor: **○**  
The material to be used shall be hard copper.

- Minimum thickness of the pipes to be used for the installation shall be 1 mm.
- There shall be no leakage while the refrigerant passes through the pipes.
- Wherever bends need to be done, no crack shall be observed all along the pipes.
- Appropriate saddles shall be used to fix the pipes on the wall.
- Insulation of the pipes shall be done with a minimum thickness of 25 mm.
- Refrigerant lines to brass onto copper tubes on joints.
- The entire refrigerant pipes inside the building shall be enclosed within trunkings of suitable dimension and the said trunkings shall be securely fixed to the wall.
- The Contractor shall execute a very good trunking work by making use of all required accompanying accessories. That is interior angle, exterior angle, end cap, joint, etc...
- Cable tray shall be used outside the building to securely fix the pipes.
- Each Indoor shall be equipped with appropriate service valves on low and high pressure side of the refrigerant pipes so as to allow isolating and separating the indoor units from the outdoor unit without any loss of refrigerant.
- The system shall be provided with suitable drain pipes, with sufficient slope for perfect drain. The drain pipes shall be leak proof and be securely fixed as and where required on the wall inside and outside the building the drain pipes shall be brought to 200 mm from ground level or connected to the service drain of the building.

#### 4.19 Ducting work

The existing duct shall be removed before the installation of new ducts. The contractor has to ensure that the new ducts shall be securely constructed and fixed with respect of the following:

- The finishing work of the new ducts shall look aesthetically pleasant. Timber finish is recommended.
- The type of insulation that shall be corrosion resistant, sound proof and fireretardant.
- The minimum thickness of the insulation shall be 25 mm.
- The ducts shall be fixed using threaded rod. Angle bars shall be used where appropriate to securely hold them.
- Within the duct system, dampers shall be used to reduce the noise level.
- The fresh air intake Louvers shall be adjustable and at least 50 mm deep shall be made of powder extruded aluminium construction, the blade shall be inclined at 45 degree on a 40mm blade pitch to minimize water ingress. The lowest blade of the assembly shall be extended out slightly to facilitate disposal of rain water without falling on wall where it is mount.
- The complete duct system shall be tested for air leakage & complete air distribution system shall be balance in accordance with air quantities.
- The Contractor may propose the alignment of the new ducting. The final decision shall remain with the ESD Engineer.
- The AC4 unit shall be properly fitted with new wooden box including louvers for air intake. It shall look aesthetic.

#### Supply outlet

- The supply air outlet shall have an aesthetic look and rectangular in shape.
- The orientation of the louvres has to be adjustable from 0 to 60 degrees.

#### 4.20 GENERAL NOTES

1. The position of the indoor/outdoor units may be subject to changes, if any, and this shall be considered by the tenderer when quoting. Note that no variation will be accepted upon this item after award of this contract. A site visit must be made before quoting. The contractor has to liaise with the Energy Services Division (ESD) before execution of work to finalise and confirm the exact position of the Air conditioning units.
2. Original leaflet containing technical data shall be attached to the quotation as proof of compliance with specification.

3. Make and country of origin of the Air-Conditioner shall be specified in addition to the country of assembly.
4. Testing shall be carried out by the contractor in the presence of the ESD representative in two phases:

Pre-Test: After successful completion of installation & One week trial run Final Test: Two week after Pre-Test.

The equipment has to operational for a minimum of two week (test run period) without any issues to be considered successfully commissioned.

5. Bidder is advised that the equipment should be made available earliest possible.

#### 4.21 SPARE PARTS For VRVs

The bidder shall provide the following spare parts for each unit:

Description	Qty	Rate	Amount (Excl. VAT)
Indoor PCB	1 each		
Outdoor PCB	1 each		
Pipe temperature sensor	1		
Gas pipe temperature sensor	1		
Ambient temperature sensor	1		
Fan Motor	1		
Electronic Exp. Valve	1		
<b>Amount to be included in Air Conditioning Part of Priced Activity Schedule</b>			

#### 4.22 Split Air Conditioners

The Contractor shall also install 5 Split ACs in this contract. Each ACs shall be: -

Description	Specified	Proposed
Capacity	36,000 Btu/hr	
Type	Split	
Mounting	Floor Mounted	
Make of unit	XXXXXXXX	
Model number of unit	XXXXXXXX	

Country of origin of unit	xxxxxxxx	
Guarantee on compressor	5 Years	
Guarantee on spare parts	1 Year	
Noise level at 1 m from unit	52dba	
Compressor type	Rotary	
Brackets	Hot dip galvanised	
Phase/Voltage/ (Running)	Current 230/400 V 50Hz	
EER	>3.0	
Compressor Type	Rotary Dc Inverter Technology	
Condenser Fins	Protected against corrosion	
Casing	Suitable for use in tropical climate	
<b>Description</b>	<b>Specified</b>	<b>Proposed</b>
Mounting	Hot dip galvanized	
Refrigerant	R410a	

**a) Capacity / Load Calculation:**

1. The equipment selected shall be able to provide a room temperature of 18°C - 22°C & 50% relative humidity for an average exterior temperature of 32°C and relative humidity of 80%.
2. The tenderer shall submit as part of the offer a complete load calculation to show the required capacity of the equipment being proposed based on the load calculation made by the tenderer; any deviation from the tender specifications shall be clearly brought out in the tender.
3. If required, equipment of greater size shall be installed to achieve the above requirement. The specified cooling loads is only for reference.

**b) Equipment Installation**

4. The Contractor shall have to undertake the electrical installations from the Air conditioners to the new control switches. The electrical wiring and control wiring from the indoor unit

to the outdoor unit shall be enclosed within a separate white trunking of suitable dimensions and securely fixed to the wall or through the false ceiling on cable tray.

5. The Contractor is expected to execute a very good trunking work by making use of any trunking accessories such as internal angle, end cap, junction and others.
6. All the refrigerant pipes (which be vapour sealed) shall be thermally insulated inside and outside the building.
7. The Air-Conditioner shall be provided with suitable drainpipes, with sufficient slope for perfect drain. The drainpipes shall be leak proof and be securely fixed as and where required on the wall inside and outside the building the drainpipes shall be brought to 200mm from ground level or connected to the new main drain pipe as per drawing. Utrap shall be used for each unit.
8. The Air-Conditioner shall be equipped with wireless remote control by means of which the Air-Conditioners may be switched on and off, the temperature and fan speed may be controlled and from which one may read the room, office temperature via a LCD display.
9. The Air-Conditioner shall be equipped with appropriate service valves along the refrigerant pipes so as to allow isolating and separating the indoor unit from the outdoor unit without any loss of refrigerant.
10. Tenderers are hereby requested to indicate clearly in their quotations whether or not the Air-conditioner they will be proposing will be equipped with the said valves or some other devices which will do the same work.

### c) Civil and Associated Works

1. The installation of the Air-Conditioners necessitates civil works including painting and masonry works (drilling of a hole in order to pass the pipes) and/or modification of window panes/frames/metal work which shall be undertaken by the successful tenderer.
2. Any opening shall be properly sealed in order to avoid leakage or loss of cool air. All broken surfaces for installation of air conditioner must be made good by the Contractor including paint and decorative works.
3. Any supports, mounting brackets, cable tray etc... shall be supplied and installed by the Contractor.
4. The outdoor unit of the Air-Conditioner shall be fixed on a reinforced concrete slab base (300mm height) if the unit is to be mounted on the roof.

5. All necessary plumbing works shall be included in the quotation, and shall be undertaken by the Contractor.
6. Any support, ladder, scaffolding, tools and equipment required for installation must be provided by the Contractor.

**d) Warranty Period**

1. The compressor of the Air-Conditioner shall be warranty for a period of **5 years** and all other parts (including electronics card) shall be warranty for a period of **2 years**. These warranty periods shall be effective only as from the date of successful commissioning of the Air Conditioner.
2. Free servicing on a **quarterly basis** shall be provided during the **one-year** warranty period. Repair works to the equipment during Warranty/Maintenance period shall be completely free of charge or included in the rate of the air conditioner and shall include spare parts, labour, gas charging, tools, transport, and any other items required. Quarterly report must be submitted to the client and copy to Director, Energy Services Division.
3. No claim whatsoever for servicing, maintenance, repair works, spare parts, labour, gas charging, tools, transport, or any other items will be considered during the Warranty /Maintenance period.
4. The bidders shall submit a five years maintenance contract (including the spare part list prices) along the bid which shall be considered after the warranty period.

**e) Maintenance**

The tenderer shall carry out maintenance on the whole system as follows:

**Three quarterly servicing (after each three months)** This shall

include and not limited to the following:

- I. Cleaning of air filters, drains etc...
- II. Checking of amperage, refrigerant charge, overall performance of units, insulation and vapour seal.
- III. Curing of excessive noises as required by client
- IV. Attending leakages
- V. Any other item not mentioned above but recommended by the manufacturer in the maintenance manual.

**One annual general servicing**

This shall include the quarterly servicing and not limited to the following:

- I. Cleaning of air filters, evaporators, condenser coils by pressure water jets.
- II. Lubricate moving parts

III. Cleaning, repainting of outdoor units, metal bases and supporting brackets (one coat of primer, one coat of undercoat and one of cold galvanized paint.)

IV. Recharging of refrigerant where necessary.

V. Check operation of all valves

VI. Check operation of all measuring instruments.

VII. Any other item not mentioned above but recommended by the manufacturer in the maintenance manual.

f) GENERAL NOTES:

1. The position of the indoor/outdoor units may be subject to changes, if any, and this shall be considered by the tenderer when quoting. Note that no variation will be accepted upon this item after award of this contract. A site visit must be made before quoting. The contractor has to liaise with the Energy Services Division (ESD) before execution of work to finalise and confirm the exact position of the Air conditioning units.
2. Original leaflet containing technical data shall be attached to the quotation as proof of compliance with specification.
3. Make and country of origin of the Air-Conditioner shall be specified in addition to the country of assembly.
4. Testing shall be carried out by the contractor in the presence of the ESD representative for one week after completion of installation works. The equipment has to operational for a minimum of one week (test run period) without any issues to be considered successfully commissioned.

#### 4.23 Air Treatment Equipment

The Contractor shall also supply **two** new Air Treatment/Sterilizer equipment to be installed in the Lunch Room.

The equipment shall be used to optimise sterilisation in the breathing space, remove at least 95% of all respiratory viruses and bacteria, effectively remove noxious gases and larger particles such as dust, dander and other allergens.

- The Unit shall be free standing tower type. It shall possess the following filter integrated in the unit: - ○ Pre-Filter ○ HEPA Filter ○ Carbon Filter
- Moreover, the unit shall be equipped with a compartment for sterilisation using UVc Lamps (at least 12 nos. of 5-6 Watt each).
- The airflow for the unit shall be around 500 m<sup>3</sup>/hr.
- The noise level shall be around 45 dba.

The location for the installation shall be as per the Engineer's instruction. The equipment shall have a warranty of 1 year. The contractor shall also carry out regular maintenance on the unit as per manufacturer's instruction.

### **Spare Parts for the Air Treatment Equipment**

- 5 filters for each type
- 5 UVc lamps
- Any other items recommended by Manufacturer

#### **4.24 Tools**

The contractor shall submit the following tools as part of the contract.

ITEM No.	TOOL DESCRIPTION	QTY
	FIVE LAYER TOOL-BOX _STEEL (Cantilever Type) [550mm.]	1
	PAD LOCK ( 40mm)	1
	BALL-PEIN HAMMER [300gm]	1
	<b>MEASURING EQUIPMENT:</b>	*
	Laser distance meter 50m	1
	ENGINEERING SQUARE - STEEL [100mm.]	1
	STEEL RULER [ 300m]	1
	DIVIDER [STEEL] 150m]	1
	SPIRIT LEVEL (MAGNETIC) [200mm.]	1
	<b>PLIERS:</b>	*
	PLIERS ENGINEER COMBINATION ELECTRIC(ISOLATED) [200mm.]	1
	ROUNDNOSE PLIERS (ISOLATED) [150mm.]	1
	WATERPUMP PLIERS (ADJUSTABLE) [300mm.]	1
	SIDE CUTTER (ISOLATED) [200mm.]	1
	<b>SPANNERS &amp; TOOLS:</b>	*
	COMBINATION SPANNERS (RING - FLAT) [6mm. to 24mm.]	1XSet
	HACKSAW (Square frame Professional plus) [300mm.]	1

	SCREW DRIVER SET (7 x Piece Set) [Insulated]	1
	<b>ELECTRICAL TOOLS &amp; EQUIPMENT</b>	*
	DIGITAL MULTIMETER DMM 600V - AC/DC	1
	Non-Contact LINE TESTER	1
<b>HVAC Tools</b>		
	IR Humidity and Temperature Tester/logger with all accessories	1
	Refrigerant R410a (or refrigerant used) Leak detector	1
	Air Quality Handheld meter for Oxygen, Carbon Dioxide & carbon monoxide.	1
	Handheld Thermographic Imager	1
	IT EQUIPMENT for interconnection with the VRVs with software	1

## 4.25 Testing and Commissioning

The contractor shall commission the system after implementation of the project has been completed with provision of all accessories, components, spares, training and tools. The commissioning process shall be as follows:-

1. Commissioning Plan.
2. Functional and Performance Testing.
3. Documentation and Training.
4. Commissioning Report.

### 4.25.1 Commissioning Plan

The Contractor shall submit a comprehensive commissioning plan how the project shall be commissioned. The plan shall comprise but not limited to:-

- a. General project information;
- b. Commissioning goals;
- c. System to be commissioned;
- d. The methodology to test the systems and individual components, which shall include the following:-

- i.Original Design Intent;
- ii.Scopes of the test;
- iii.Functions of the test;

- iv. Conditions under which the test shall be performed;
- v. Measurable criteria for acceptable performance;
- vi. Commissioning team information comprising of expert personnel/tools/equipment. Testing and measuring equipment shall be calibrated and shall be provided by the contractor in all cases;
- vii. Commissioning process activities, schedule and responsibilities.

#### **4.25.2 Functional and Performance Testing**

The contractor shall carry out functional performance tests in the presence of ESD Engineer or his representatives to demonstrate the correct installation and operation of each component, system and system-to-system interface. The test shall include:

- i. Insulation test
- ii. Continuity test
- iii. Earth loop impedance test
- iv. Earth Resistance test
- v. RCCB tripping time
- vi. Operation of protective devices.
- vii. Polarity test
- viii. Load test

ACs Testing shall be carried out by the contractor in the presence of the ESD representatives in two phases:

**Pre-Test:** One Week trial run.

1. Leak detection, drain pipe or any condensation shall be verified.
2. Ducting work shall have no vibration during operation.
3. Pressure Test.
4. Noise level.
5. Temperature test.
6. Level of humidity shall be tested
7. Amperage Record. Check for any abnormal value.
8. Air balancing for the grill.
9. Any modification or calibration shall be done to make the system functional.

**Final Test:** one week after Pre-Test.

The equipment has to be operational for a minimum of additional one week (test run period) without any issues detected.

#### **4.25.3 Documentation, Training and Tools**

##### **Documentation**

The contractor shall submit **three sets of maintenance manuals** which shall also include:-

- a. Site information, including facility description, history and current requirements;
- b. Site Contractor contact information;
- c. Description major system;
- d. Site equipment inventory and maintenance notes;
- e. Operating Parameters;
- f. Instruction for Operation;
- g. Maintenance Procedures and Frequencies;
- h. Troubleshooting;
- i. Repairs for critical faults and damages;
- j. List of Tools and equipment required for maintenance;
- k. List of spare parts to be stored for immediate usage;
- l. As-made drawings/Layout of the system including among those electrical installation, cable layout, air conditioning system, earthing system, etc...;
- m. Site event log;

#### **4.25.4 Drawings**

- (i) the electrical installations and protective gears
- (ii) schematic layout of circuits
- (iii) location of Distribution Boards & cable routes
- (iv) Earthing System
- (v) Routing of Pipes
- (vi) Position of AC units along with duct routing

to the Director of the ESD or his representative. All drawing shall be signed by a registered Professional Engineer.

### Priced Activity Schedule

ITEM NO.	DESCRIPTION	UNIT	AMOUNT (Rs)
<b>1</b>	Supply, install, test and commissioning of the following distribution boards with hinge lockable door and all components (MCBs, RCBOs, RCCB's, earth bars, neutral bars, and other accessories) according to the respective electrical schematic and specifications		
<b>1.1</b>	SDB AC1	Lot	
<b>1.2</b>	SDB AC2	Lot	
<b>2</b>	Supply, install, test and commissioning of all cabling works	Lot	
<b>3</b>	Supply, install, test and commissioning of all conduit works (PVC pressure pipe, PVC conduit, flameproof conduit etc...)	Lot	
<b>4</b>	Supply, install, test and commissioning of VRVs		
	System A	Lot	
	System B	Lot	
	System C	Lot	
	System D	Lot	
<b>5</b>	Factory Inspection for VRVs at Manufacturer place	Lot	
<b>6</b>	Supply, install, test and commissioning for new ducting work	Lot	
<b>7</b>	Supply and install of Perforated Metallic Partition (3mm) around outdoor units with service door.	Lot	
<b>8</b>	Removal of the existing AC units including all accessories, piping, ducting, metal support etc...	Lot	
<b>9</b>	Supply, Install, test and commissioning of Split AC Units as per specification	Lot	

ITEM NO.	DESCRIPTION	UNIT	AMOUNT (Rs)
<b>10a</b>	Supply, install, test and commissioning of Air Treatment Equipment as specified	Lot	
<b>10b</b>	Supply, install, test and commissioning of Supply Fans for Fresh air intake, including all accessories and VSD	Lot	
<b>11</b>	Allow for provision for security regulation in-place at the Lunch Room	Lot	
<b>12</b>	Allow for provision of Tools as listed above and Spare Part	Lot	
<b>13</b>	Allow for provision of Spare Parts as listed above and as per manufacturer's recommendation	Lot	
<b>14</b>	Allow for Complete Local training on the System	Lot	
<b>15</b>	Maintenance of the Systems including Split AC and Air Treatment Equipment during the defect liability period (DLP) Note: All spare part shall be provided by contractor during DLP	Lot	
<b>16</b>	Provision of "As made" drawings and test certificates	Lot	
<b>17</b>	Testing and commissioning of whole system	Lot	
<b>18</b>	Associated civil works / Builder Works including appropriate hoarding where required	Lot	
<b>19</b>	Any other item not mentioned but necessary to complete the project (give details).		
	<b>Contingency sum</b>		500,000.00
	<b>SUB-TOTAL</b>		
	<b>VAT 15%</b>		
	<b>TOTAL</b>		

**Note:** Any unquoted amount shall be deemed to be included in the total amount

**Bill of Quantities Authorised By:**

Name:		Signature:	
Position:		Date:	
Authorised for and on behalf of:	Company		

### Schedule of Materials

Item No.	Description	Make	Model	Country of Origin
<b>1</b>	<b>Distribution Board</b>			
<b>2</b>	<b>Switchgear</b>			
<b>2.1</b>	MCB			
<b>2.2</b>	RCCB			
<b>2.3</b>	MCCB			
<b>3</b>	<b>VRV</b>			
<b>3.1</b>	Type A (outdoor)			
	Type A (indoor)			
<b>3.2</b>	Type B (outdoor)			
	Type B (outdoor)			
<b>3.3</b>	Type C (outdoor)			
	Type C (indoor)			
<b>3.4</b>	Type D(outdoor)			
	Type D (indoor)			
<b>4</b>	<b>Cables</b>			
<b>5</b>	<b>Conduit</b>			
<b>6</b>	<b>Energy Meter</b>			
<b>7</b>	<b>Control System</b>			
<b>8</b>	<b>Split AC Units</b>			
<b>9</b>	<b>Air Treatment Equipment</b>			
<b>10</b>	<b>Any other item (please give details)</b>			

**Objectives**

## **Section IV: General Conditions of Contract and Particular Conditions of Contract**

Any resulting contract shall be placed by means of a Letter of Acceptance and shall be subject to the General Conditions of Contract (GCC), **(Ref: W/GCC10/04-20)**<sup>1\*</sup>, for the Procurement of Works (available on website [ppo.govmu.org](http://ppo.govmu.org)) except where modified by the Particular Conditions of Contract below.

Procurement Reference Number: **NA/OAB 04/21-22**

The clause numbers given in the first column correspond to the relevant clause number of the General Conditions of Contract.

### **Particular Conditions of Contract**

<b>A. General</b>	
<b>GCC 1.1 (r)</b>	<p>The Employer is: <b>Mauritius National Assembly</b></p> <p style="text-align: center;"><b>Level 3, New Government Centre</b></p> <p style="text-align: center;"><b>Port Louis.</b></p>

<b>GCC 1.1 (v)</b>	The Intended Completion Date for the whole of the Works shall be: <b>within 6.5 months</b>
<b>GCC 1.1 (y)</b>	The Project Manager is: will be confirmed
<b>GCC 1.1 (aa)</b>	The Site is located at the <b>Mauritius National Assembly, Level 3, New Government Centre, Royal Street, Port Louis</b> and is defined in drawings <b>No DRG No.1 and DRG No.2</b>
<b>GCC 1.1 (dd)</b>	The Start Date shall be: <b>7 days after handing over of site</b>
<b>GCC 1.1 (hh)</b>	The Works consist of : <b>Refurbishment of HVAC in Lunch Room of the Mauritius National Assembly</b>
<b>GCC 2.2</b>	Sectional Completions are: <b>( Not Applicable)</b>
<b>GCC 2.3(i)</b>	The following documents also form part of the Contract: <b>None</b>
<b>GCC 3.1</b>	The language of the contract is English  The law that applies to the Contract is the law of Mauritius.
<b>GCC 5.1</b>	The Project manager <b>may</b> delegate any of his duties and responsibilities.
<b>GCC 8.1</b>	Schedule of other contractors: <b>(Not Applicable)</b>
<b>GCC 13.1</b>	Except for the cover mentioned in (d)(i) hereunder, the other insurance covers shall be in the joint names of the Contractor and the Employer and the minimum insurance amounts shall be:  (a) for the Works, Plant and Materials: for Total value of contract. This cover shall be in the joint name of the two parties.  (b) for loss or damage to Equipment: <b>Rs 100,000</b> ( Rupees One Hundred Thousand)  (c) for loss or damage to property (except the Works, Plant, Materials, and Equipment) in connection with Contract: <b>Rs 100,000</b> ( Rupees One Hundred Thousand)  (d) for personal injury or death: <b>Rs 100,000</b> ( Rupees One Hundred Thousand) for any one occurrence, with the number of occurrences unlimited. This cover shall be in the joint name of the two parties covering any third party and extended to the Employer's representatives  (i) of the Contractor's employees

	<p>(ii) of other people</p> <p>(e) for loss or damage to materials on-site and for which payment have been included in the Interim Payment Certificate, where applicable.</p> <p>The Contractor shall choose to take the insurance covers indicated above as separate covers or a combination of the Contractor's All Risks coupled with the Employer's liability and First Loss Burglary, after approval of the Employer. All insurance covers shall be of nil or the minimum possible deductibles at sole expense of the contractor.</p> <p>The Insurance Covers should be <b>valid for a period of 190 days</b> and should be submitted by successful bidders/contractors <b>within 21 days</b> as from award of contract.</p>
<b>GCC 14.1</b>	Site Data are: <b>(Not Applicable)</b>
<b>GCC 20.1</b>	The Site Possession Date(s) shall be: <b>within 14 days from the date of Letter of Acceptance which will be communicated to the contractor after receipt of Insurance Covers and Programme of Works.</b>
<b>GCC 23.1 &amp; GCC 23.2</b>	Appointing Authority for the Adjudicator: <b>No Adjudicator shall be appointed for this Contract.</b>
<b>GCC 24.</b>	<p>In case a dispute of any kind arises between the Employer and the Contractor in connection with, or arising out of, the contract or the execution of works or after completion of works and whether before or after repudiation or other termination of Contract, including any dispute as to any opinion, instruction, determination, certificate or valuation of the Employer's Representative, the matter in dispute shall, in the first place, be referred in writing to the employer's representative, with a copy to the other party.</p> <p>The Employer and the Contractor shall make every effort to resolve the dispute amicably by direct informal negotiation. If, after twenty-eight (28) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the Public Body or the Contractor may give notice to the other party of its intention to refer the matter to:</p> <p style="padding-left: 40px;">“the competent courts of Mauritius”</p>
<b>B. Time Control</b>	
<b>GCC 25.1</b>	The Contractor shall submit for approval a Program for the Works <b>within 07 calendar days</b> from the date of the Letter of Acceptance.
<b>GCC 25.3</b>	<p>The period between Program updates is <i>[insert number]</i> days.</p> <p>The amount to be withheld for late submission of an updated Program is <i>[insert amount]</i>. <b>(Not Applicable)</b></p>

<b>C. Quality Control</b>	
<b>CC 33.1</b>	The Defects Liability Period is: <b>365 days</b>
<b>GCC 34.1</b>	<p>Delete sub-clause 34.1 and replace by the following:</p> <p>Should any defect arise during the contractual period and up to the end of the Defects Liability Period and the Contractor fails to correct the Defect within the time specified in the Project Manager's notice, this shall constitute a breach of the Contractor's obligations under the contract. The Project Manager shall assess the cost of having the defect corrected and recover the money from the Performance Security.</p>
<b>GCC 39.7</b>	Interim Payment for Plant and Material on site <b>is not applicable.</b>
<b>D. Cost Control</b>	
<b>GCC 40.1</b>	<p>Amend clause 40.1 by replacing 21 days by 7 and 42 days by 28 days.</p> <p><b>(Not Applicable)</b></p>
<b>GCC 41.1 (l)</b>	<i>[ Public Body to define adverse weather conditions]</i> <b>(Not Applicable)</b>
<b>GCC 43.1</b>	The currency of the Employer's country is: <b>Mauritian Rupees.</b>
<b>GCC 44.1</b>	The Contract is not subject to price adjustment.
<b>GCC 45.1</b>	GCC Clause 45 is not applicable.
<b>GCC 46.1</b>	<p>The liquidated damages for the whole of the Works are: <b>Rs 3,250 per day.</b></p> <p>The maximum amount of liquidated damages for the whole of the Works is 3% of the Contract price.</p>
<b>GCC 47.1</b>	The Bonus for the whole of the Works is <b>not applicable</b>
<b>GCC 48.1</b>	<p>The Advance Payments shall be: <b>10% of contract value and inserted at contract signature stage (EXCLUSIVE OF VAT)</b> and shall be paid to the Contractor within 7 days after signature of the Contract and submission of the Advance Payment security by the contractor <b>within 7 days after Letter of Acceptance</b></p> <p>(The Advance Payment amount is as specified in the ITB)</p>
<b>GCC 49.1</b>	The Performance Security amount is <b>10% of contract sum and inserted at contract signature stage ( exclusive of VAT)</b> . (The Performance Security amount is as specified in the ITB)

<b>E. Finishing the Contract</b>	
<b>GCC 56.1</b>	The date by which operating and maintenance manuals are required is <i>[insert date]</i> . The date by which “as built” drawings are required is <i>[insert date]</i> . (Not Applicable)
<b>GCC 57.2 (g)</b>	The maximum number of days is: <b>190 days</b>
<b>GCC 59.1</b>	The percentage to apply to the value of the work not completed, representing the Employer’s additional cost for completing the Works, is <i>[insert percentage]</i> . (Not Applicable)

## Section V- Contract forms

### Performance Security

.....*Bank/Insurance Company's Name and Address of Issuing Branch or Office*.....

**Beneficiary:** .....*Name and Address of Public Body*.....

**Date**.....

**PERFORMANCE GUARANTEE No.:** .....

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

Furthermore, we understand that, according to the conditions of the Contract, a performance security is required.

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

This guarantee shall expire and returned to us not later than twenty- one days from the date of issuance of the Defects Liability Certificate, calculated based on a copy of such Certificate which shall be provided to us, or on the.....day of .....*, .....*, whichever occurs first. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

.....*Seal of bank/Insurance Guarantee and*

**Signature(s)**.....

## Advance Payment Security

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

**Beneficiary:** ..... **[Name and Address of Employer]** .....

**Date:** .....

**Advance Payment Guarantee No.:** .....

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

Furthermore, we understand that, according to the Conditions of the Contract, an advance payment in the sum ..... **[name of the currency and amount in figures]** <sup>1</sup> ..... (..... **[amount in words]** ..... ) is to be made against an advance payment guarantee.

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

It is a condition for any claim and payment under this guarantee to be made that the advance payment referred to above must have been received by the Contractor on its account number ..... **[Contractor's account number]** ..... at ..... **[name and address of the Bank/Insurance Company]** .....

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as indicated in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that eighty (80) percent of the Contract Price has been certified for payment, or on the ... day of ..... , ..... <sup>2</sup>, whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

..... **[Seal of Bank/Insurance Company and Signature(s)]** .....

**Note -**

*All italicized text is for guidance on how to prepare this demand guarantee and shall be deleted from the final document.*

*1 The Guarantor shall insert an amount representing the amount of the advance payment denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Employer.*

*2 Insert the expected expiration date of the Time for Completion. The Employer should note that in the event of an extension of the time for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months]/[one year], in response to the Employer's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.*

## Letter of Acceptance

*[on letterhead paper of the Employer]*

*..... [date] .....*

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

Subject: ..... *[Notification of Award Contract No.]* .....

This is to notify you that your Bid dated ..... *[insert date]* .... for execution of the .....  
*..[insert name of the contract and identification number, as given in the Appendix to Bid]* ..  
..... for the Accepted Contract Amount of .Rs ..... *[insert amount in numbers and  
words and name of currency]*, exclusive of VAT, as corrected and modified in accordance  
with the Instructions to Bidders is hereby accepted by *(insert name of Public Body)*.

You are requested to furnish the Performance Security in accordance with the General  
Conditions of Contract, using for that purpose of the Performance Security Form included in  
Section V (Contract Forms) of the Bidding Document.

Authorized Signature: .....

Name and Title of Signatory: .....

Name of Agency: .....

Attachment: Contract Agreement

## Contract Agreement

THIS AGREEMENT made the ..... day of ..... , between ..... **[name of the Employer]** ..... (hereinafter “the Employer”), of the one part, and ..... **[name of the Contractor]** ..... (hereinafter “the Contractor”), of the other part:

WHEREAS the Employer desires that the Works known as ..... **[name of the Contract]** ..... should be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein,

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.
  - (a) the Letter of Acceptance
  - (b) the Bid
  - (c) the Addenda Nos ..... *[insert addenda numbers if any]* .....
  - (d) the Appendix to the General Conditions of Contract
  - (e) the General Conditions of Contract;
  - (f) the Specification
  - (g) the Drawings; and
  - (h) the completed Schedules,
3. In consideration of the payments to be made by the Employer to the Contractor as indicated in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of Mauritius on the day, month and year indicated above.

Signed by: .....  
for and on behalf of the Employer

Signed by: .....  
for and on behalf the Contractor

in the  
presence of: .....  
Witness, Name, Signature, Address, Date

in the  
presence of: .....  
Witness, Name, Signature, Address, Date