



**National
Research
Foundation**

Invitation to Quote

**YOU ARE HEREBY INVITED TO QUOTE FOR REQUIREMENTS LISTED IN
THIS DOCUMENT**

**QUOTE NUMBER: RFQ/SAEON/HEADOFFICE/REPAIR OF
AIRCONS/140/2025**

SHORT DESCRIPTION OF REQUIREMENT

Appointment of a suitable CIDB Grade 2ME or higher qualified and experienced HVAC service providers to submit quotations for the inspection, diagnosis, repair and 12 months maintenance of an LG Multi V 5 Heat Pump (50/60Hz, R410A) installed at Didacta Building in Pretoria Central.

**Fraud alert! It is common for scammers to call bidders pretending to be NRF's employees and offering to swing tenders your way for a fee.
Do not fall for it, it is a scam!**

The NRF would never offer payment or any other consideration in return for the favourable consideration of a bid.

Please report any suspected acts of fraud or corruption to the following toll-free number - 0800 701 701 or SMS 39772.

INVITATION TO QUOTE (SBD 1A)

Quote Number	RFQ/SAEON/HEADOFFICE/REPAIR OF AIRCONS/140/2025
Compulsory briefing session / Site visit	Venue: Didacta Building 211 Nana Sita Street, Pretoria Central, Pretoria, 0001 Date: 21 November 2025 Time: 11:00 AM
Closing Date and Time (as per NRF systems)	28 November 2025 at 11:00 AM
HIGH LEVEL SUMMARY OF REQUIREMENTS:	
NRF-SAEON seeks to appoint of a suitable CIDB Grade 2ME or higher qualified and experienced HVAC service providers to submit quotations for the inspection, diagnosis, repair and 12 months maintenance of an LG Multi V 5 Heat Pump (50/60Hz, R410A) installed at Didacta Building in Pretoria Central. The system has exhibited abnormal operation where the system was not allowing two different offices to operate at different temperatures, one indoor unit having come off the wall and about to fall off resulting in the system no working completely. The purpose of this RFQ is to obtain a quotation for comprehensive fault diagnosis and subsequent repair to restore the unit to full operational condition.	
RESPONSE DOCUMENTS ARE DELIVERED VIA EMAILS:	
EMAIL DELIVERY AS FOLLOWS:	
tenders@saeon.nrf.ac.za	
ONLY PDF DOCUMENTS ARE ACCEPTABLE.	
EMAILS ADDRESS:	Electronic submission
Bidding and technical procedure enquiries may be directed in writing to:	
Section	SCM
Contact person	Irene Matsimela
E-mail address	SCM@saeon.nrf.ac.za

SUPPLIER INFORMATION					
Name Of Bidder					
Postal Address					
Street Address					
Telephone Number					
Code		Number			
Cell Phone Number					
Code		Number			
Facsimile Number					
Code		Number			
E-Mail Address					
VAT Registration Number					
Tax Compliance Status	Tax Compliance System PIN		OR	Central Supplier Database No.	MAAA
B-BBEE Status Level Verification Certificate		Tick Applicable Box. ☐ Yes ☐ No		B-BBEE Status Level Sworn Affidavit	Tick Applicable Box. ☐ Yes ☐ No
[A B-BBEE status level verification certificate/ sworn affidavit (for EMEs & QSEs) must be submitted in order to qualify for preference points for B-BBEE]					
Are you the accredited representative in South Africa for the goods /services/works offered?		☐ Yes ☐ No [If yes, enclose proof]	Are you a foreign-based supplier for the goods/services/works offered?		☐ Yes ☐ No [If yes, answer the questionnaire below]
QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS					
Is the entity a resident of the Republic of South Africa (RSA)?					☐ Yes ☐ No
Does the entity have a branch in the RSA?					☐ Yes ☐ No

SUPPLIER INFORMATION	
Does the entity have a permanent establishment in the RSA?	☐ Yes ☐ No
Does the entity have any source of income in the RSA?	☐ Yes ☐ No
Is the entity liable in the RSA for any form of taxation?	☐ Yes ☐ No
If the answer is “No” to all of the above, then it is not a requirement to register for a tax compliance status system pin code from the South African Revenue Service (SARS) and if not register as per 2.3 below.	

TERMS AND CONDITIONS FOR BIDDING (SBD 1B)	
1. BID SUBMISSION:	
1.1	Bids must be delivered by the stipulated time to the correct address. Late bids will not be accepted for consideration.
1.2	All bids must be submitted on the official forms provided–(not to be re-typed) or in the manner prescribed in the bid document. Bid pages are bound to minimise risk of lost pages.
1.3	This bid is subject to the Preferential Procurement Policy Framework Act, 2000 and the General Conditions Of Contract (GCC) with its special conditions of contract, and, if applicable, any other legislative requirements.
2. TAX COMPLIANCE REQUIREMENTS	
2.1	Bidders must ensure compliance with their tax obligations.
2.2	Bidders are required to submit their unique personal identification number (PIN) issued by SARS to enable the organ of state to verify the taxpayer’s profile and tax status.
2.3	Application for tax compliance status (TCS) pin may be made via e-Filing through the SARS website www.sars.gov.za .
2.4	Bidders may also submit a printed TCS certificate together with the bid.
2.5	In bids where consortia / joint ventures / sub-contractors are involved, each party must submit a separate TCS certificate / PIN / CSD number.
2.6	Where no TCS is available but the bidder is registered on the Central Supplier Database

TERMS AND CONDITIONS FOR BIDDING (SBD 1B)		
	(CSD), a CSD number must be provided.	
2.7	No bids will be considered from persons in the service of the state, companies with directors who are persons in the service of the state, or close corporations with members persons in the service of the state.	
3.	TWO ENVELOPE SYSTEM	No
4.	VALIDITY PERIOD FROM DATE OF CLOSURE	90 Days
5.	THE BIDDING SELECTION PROCESS	
	<u>Stage 1 – Compliance to submission requirements</u> Bidders warrant that their proposal document has, as a minimum; the specified documents required for evaluating their proposals as set out in the Returnable Document List and conform to all the terms, conditions, and specifications as set out in this document.	
	<u>Stage 2 – Evaluation of Bids against Technical Specifications</u> Bidders achieving the minimum threshold in the specification to enter the Price/Preference scoring stage:	
	<u>Stage 2A – Evaluation of Bids against Specifications including Quality</u> The NRF evaluates each bidder's written response to the specifications issued in accordance with published evaluation criteria set as in Section D.	
	<u>Stage 2B – Due Diligence Interviews or Proof of Delivery/Concept against Specifications</u> Where circumstances justify it, the NRF conducts interviews with shortlisted bidders for them to present further information or provide further proof to the evaluation committee. In these cases, the National Research Foundation provides the areas of concern to the shortlisted bidders to address in their presentations with this document and, where necessary, may provide further areas of concern to the shortlisted bidders at this stage.	
	<u>Stage 2C – Due Diligence Research</u> The National Research Foundation confirms the recommended bidder(s)'s reference letters with referees to confirm the recommendation(s).	
	<u>Stage 3 – Price/Preference Evaluation</u> <u>Basis of fair competition:</u> The NRF compares each bidder's pricing proposal on an equal and fair comparison basis equitable to all bidders, taking into account all aspects of the bid's pricing requirements including the application of fair pricing tests as set out below in the section "Insufficiency of Funds". <u>Ranking of the bidders pricing:</u> The NRF ranks the qualifying bids on price with lowest priced Bid receiving the maximum points (either 80 or 90) and the remainder ranked in relation to the lowest priced bid. The NRF adds the bidders' claimed preference points as verified to the submitted preference claim form (SBD 6.1) to provide the final ranking for the award decision.	

TERMS AND CONDITIONS FOR BIDDING (SBD 1B)

Stage 4 – Checking Tax Compliance

Stage 4A – Taxpayers Resident in South Africa

The NRF notifies the recommended bidder in writing where their tax compliance check reflects that they are non-compliant and provides the recommended bidder seven (7) working days to submit written proof from SARS of their tax compliance status or proof that they have made an arrangement with SARS to meet their outstanding tax obligations. Failure to deliver such written evidence of compliance results in the rejection of that recommended bid.

Stage 4B – Non-Resident Foreign Bidders

When foreign bidders are submitting a bid, they complete all sections of the SBD1, especially the tax questionnaire. The NRF submitted the Foreign Bidder's completed SBD1 to the South African Revenue Service to obtain from the South African Revenue Service the Confirmation of Tax Obligations letter. Where South Africa Revenue Services does not issue the letter, Stage 4A applies in clearing the reason for not receiving the letter.

Stage 5 – Award and Contract Signing

The NRF nominates the bidder with the highest combined score for the contract award subject to the bidder having supplied the relevant administrative documentation.

6. ACKNOWLEDGEMENT OF READING EACH PAGE

The bidder warrants by signature in this document that the bidder has read and accepts each page.

7. CENTRAL SUPPLIER DATABASE REGISTRATION

Bidders are requested to register on the Central Supplier Database and to include in their bid their Master Registration Number (Supplier Number) in order to enable the NRF to verify the supplier's tax status on the Central Supplier Database.

8. CLARIFICATION

If the respondent wishes to clarify aspects of this request or the acquisition process, they contact the officials listed under the enquiries section above. The National Research Foundation does not provide the origin of the request to any party.

9. RESPONSE PREPARATION COSTS

The NRF is not liable for any costs incurred by a bidder in the process of responding to this Bid Invitation, including on-site presentations.

10. COLLUSION, FRAUD AND CORRUPTION

Any effort by Bidder/s to influence evaluation, comparisons, or award decisions in any manner will result in the rejection and disqualification of the bidder concerned.

11. FRONTING

The NRF, in ensuring that bidders conduct themselves in an honest manner will, as part of the bid evaluation processes where applicable, conduct or initiate the necessary enquiries/investigations to determine the accuracy of the representation made in the bid documents. The onus is on the bidder to prove that fronting does not exist, should the National Research Foundation establish and notify the bidder of potential breaches of any of the fronting indicators as contained in the Department of Trade and Industry's "Guidelines on Complex Structures and Transactions and Fronting". Failure to do so within a period of 7 days from date of notification will invalidate the bid/contract and may also result in the restriction of the bidder to conduct business with the public sector for a period not exceeding 10 years, in addition to any other remedies the NRF may have against the bidder concerned.

12. DISCLAIMERS

The NRF has produced this document in good faith. The NRF, its agents, and its employees and associates do not warrant its accuracy or completeness. The NRF makes no representation, warranty, assurance, guarantee or endorsements to any provider/bidder concerning the document, whether with regard to its accuracy, completeness or otherwise and the NRF shall have no liability towards the responding service providers or any other party in connection therewith.

13. CANCELLATION OF THE QUOTATION PRIOR TO AWARD

Procurement not required: The NRF cancels the Bid Invitation prior to making an award if due to changed circumstances there is no need for the specified procurement in the document.

No Acceptable Quotations: The NRF cancels the Quotation Invitation prior to making an award if it receives no acceptable bids i.e. that do not meet the minimum requirements set out in this document.

Invalid Bid Procedure: The NRF cancels the Quotation Invitation prior to making an award if a material irregularity occurred in the bid process.

Insufficiency of Funds or Quotations not within a fair price range: The NRF cancels the Quotation Invitation prior to making an award if the funds are no longer available to cover the total envisaged expenditure or if the price offered by the bidder scoring the highest points is not market related.

The NRF conducts fair pricing tests to arrive at an opinion of reasonableness of the bid price offered. Where these tests reflect pricing outside of the established fair price range, the evaluators may recommend price negotiation. The NRF only negotiates price, and no other component, with the winning bidder or, where that bidder refuses negotiation, with the next ranked bidder in the price/preference ranking until a market related price is achieved.

SBD 1 SIGNATURE

NB: FAILURE TO PROVIDE / OR COMPLY WITH ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.

SIGNATURE OF BIDDER:

CAPACITY UNDER WHICH THIS BID IS SIGNED

(Proof of authority must be submitted e.g. company resolution)

DATE:

SCOPE OF WORK

INTRODUCTION TO THE NRF

The National Research Foundation Act, Act 23 of 1998, establishes the National Research Foundation ("NRF") as the juristic person that makes this bid invitation and will contract with the awarded bidder. The Public Finance Management Act classifies the organisation as a Schedule 3A Public Entity.

CONTEXT OF THIS PROCUREMENT

NRF-SAEON seeks to appoint of a suitable CIDB Grade 2ME or higher qualified and experienced HVAC service providers to submit quotations for the inspection, diagnosis, repair and 12 months maintenance of an LG Multi V 5 Heat Pump (Model CB_ARUN260LLS5) (50/60Hz, R410A) installed at Didacta Building in Pretoria Central.

The system has exhibited abnormal operation where the system was not allowing two different offices to operate at different temperatures, one indoor unit having come off the wall and about to fall off resulting in the system no working completely. The purpose of this RFQ is to obtain a quotation for comprehensive fault diagnosis and subsequent repair to restore the unit to full operational condition and maintenance for 12 months.

CONTRACT PERIOD

12 months

DESCRIPTION OF GOODS/DETAILED SPECIFICATION

Scope of Work

Stage 1: Diagnostic Assessment

- 1.1 Conduct full fault diagnosis and performance evaluation of the LG Multi V 5 Heat Pump using LGMV diagnostic system.
- 1.2 Provide a detailed **technical fault report**, including:
 - 1.2.1 Root cause analysis
 - 1.2.2 Recommended corrective actions
 - 1.2.3 List of parts and materials required
 - 1.2.4 Estimated costs and lead times for repairs
- 1.3 Submit report for client review and approval before commencing any repairs.

Stage 2: Repair and Recommissioning (*to be authorized after diagnosis*)

- 2.1 Execute approved repairs in accordance with LG OEM standards and SANS/ISO best practices.
- 2.2 Replace faulty components with genuine LG parts or approved equivalents.
- 2.3 Conduct system evacuation, recharging (R410A), and functional testing.
- 2.4 Verify system performance, temperature differentials, and pressures.
- 2.5 Provide test results and a post-repair commissioning report.

Stage 3: Maintenance of an LG Multi V 5 Heat Pump (Model CB_ARUN260LLS5) (50/60Hz, R410A)

Outdoor Unit - ARUN260LLS5 X 1

Indoor Units – ARNU09GSJN4 X 3; ARNU12GSJN4 X 2; ARNU15GSJN4 X 11; ARNU24GSKN4 X 2 TOTAL =18

Service as per LG recommended Annual Service Requirement including rewiring of the electrical cable from the outside unit to DB as per SANS 1014

SUMMARISED ACTIVITY SCHEDULE

Using proven experience and ability the service provider shall be able to evaluate malfunction, diagnose the failure, repair, refurbish, upgrade, test, commission and provide skilled maintenance of the following plant equipment.

Preventative and Curative maintenance can be summarised into six maintenance service areas as follows.

SUMMARISED ACTIVITY SCHEDULE

Using proven experience and ability the service provider shall be able to evaluate malfunction, diagnose the failure, repair, refurbish, upgrade, test, commission and provide skilled maintenance of the following plant equipment.

Preventative and Curative maintenance can be summarised into six maintenance service areas as follows;

- a) Visual Inspections: To check for unusual noise, vibrations or leaks, dust, minor corrosion and also check exposed ductwork for damaged insulation and air leaks.
- b) Start-up and Shutdown: To check that the units are functioning correctly.
- c) Condenser: To chemically clean or wash coils, check fan motor voltage and amps, lubricate moving parts, check fan blades, belts and pulleys and adjust, if necessary, check for corrosion and degradation.
- d) Compressor: To check compressor oil levels and sight glass, to check voltage and amps, to check mounting for cracks and vibrations, and to check head and suction pressure.
- e) Evaporator: To wash or chemically clean the coils depending on the extent of fouling, clean blower wheels, check fan motor, voltage and amps, lubricate moving parts, check belts and pulleys and adjust, if necessary, clean evaporator covers.
- f) Filters: To inspect and clean when necessary. Kindly note that permission must be sought for the purchase of all items which do not fall under the maintenance and service contract prior to installation.
- g) Drains: To clean the drain pan and flush drain lines.
- h) Electrical Connections: To check electrical connections, clean and tighten any loose screws and cover exposed wires as necessary.
- i) Refrigerant lines and installation: To check refrigerant for exposed pipes, leaks and insulation damage.
- j) Operation of Thermostat/Remote Controls: To check to see that the unit is functioning correctly and adjust as required
- k) Repairs or Remedial work: Any equipment that needs repair must be clearly identified when present for sign-off by the NRF representative before work can be done and the service provider must:
 - l) Clearly state where it is to be done,
 - m) Clearly identify what is to be done,
 - n) Clearly state an estimated time to complete the Job,
 - o) Submit an estimated cost of repairs within a reasonable time frame for action as this is not included in the contract costs for maintenance and
 - p) Used spare parts must be shown and given to the NRF

2. PREVENTIVE MAINTENANCE SPECIFICATION

The service provider commits to ensuring support of the VRV Air Conditioning installations by onsite maintenance in accordance with schedules adopted and agreed upon by both parties. The major service and maintenance of VRV Aircon will be done twice a year. The appointed bidder will be obligated to respond to all VRV aircon service queries as and when required.

The service tasks of preventive maintenance include but not limited to the following:

- a) A comprehensive quarterly preventive maintenance of Air Conditioning Unit, troubleshooting, repair and restoration of all the components of the Air Conditioning Unit.
- b) Assistance and advice in the best practice administration relating to the Air Conditioning equipment Area.
- c) To check that the Units are functioning correctly.
- d) Check and optimise the oil and gas levels of Air Conditioning Unit.
- e) To check for unusual noise, vibration, or leaks, dust, minor corrosion, and also other exposed components.
- f) Tightening the electrical connections.
- g) To chemically clean or wash coils, check fan motor voltage and amps (current), lubricate moving parts, check, check fan blades, belts and pulleys and adjust.
- h) Clean blower wheels.

3. CURATIVE MAINTENANCE SPECIFICATION

The service provider makes every effort to ensure that the breakdowns of the VRV Air Conditioning installations as a result of the normal use of equipment should be handled by providing the following services:

- a) The service provider must provide an email address or contact for system malfunctions of all kinds, which allows for defining of problems and to secure a timeous and effective intervention. NRF will notify the service provider telephonically or by email that a problem is experienced and that the service provider needs to attend to the site immediately.
- b) The service provider must have a qualified technician on-site within 120 minutes from the first telephonic call/call attempt.
- c) Repairs to the air conditioning units, and associated equipment and installations must start within 120 minutes from the first telephonic call/call attempt (unless NRF agrees to an alternative response time with the service provider during the call or on-site inspection).
- d) The 120-minute requirement will be heavily dependent on the severity of the incident. If the incident is less severe, NRF will settle for slightly longer response times. NRF will be the judge of the incident severity and repairs must be completed upon a mutually agreed period.
- e) Should the service provider's response time to site exceed the specified 120 minutes (or alternative duration as agreed to by NRF) a equivalent to 5% of the incident costs will be applied.
- f) The service provider should provide a list of necessary spare parts required for smooth functioning of Air Conditioning Units.

4. REPLACEMENT PARTS

- a) All replacement parts shall be new, unused, or fully refurbished and comply fully with the original manufacturer's specifications or as otherwise stated by the NRF representative.
- b) Replacement parts will preferably be obtained from the original manufacturer or as otherwise approved by the NRF representative.
- c) If the original manufacturer is unable or unwilling to supply the parts as may be required, refurbished parts may be used subject to the written authorization of the NRF

representative. The service provider shall guarantee these parts for a period of no less than 12 months from the date of installation or as otherwise specified in writing by the NRF representative.

- d) Any replacement part that was not obtained from the original manufacturer, as well as the supplier of the replacement part, shall be clearly specified on the service report.
- e) Where spare parts are obsolete it is expected from the service provider to reverse components where possible and provide the necessary guarantee.

5. CALLOUTS

- a) The service provider must include all costs for callout fees in the pricing schedule for the VRV Air Conditioning unit.
- b) The service provider shall offer continuous technical support National Research Foundation, address any inquiries and assist in troubleshooting (24/7 operations).
- c) The service provider is required to respond to incidents within the following timeframes from notification:
 - Critical incident = 1 hours from notification.
 - All other incidents = 2 hours from notification.
- d) The service provider shall ensure that standby arrangements for call outs are at all times in place. Upon appointment and commencement of services, the service provider must furnish the NRF with a call-out list containing the names and contact numbers of technicians involved in the project. Visual Inspections: To check for unusual noise, vibrations or leaks, dust, minor corrosion and check exposed ductwork for damaged insulation and air leaks.
- e) Start-up and Shutdown: To check that the units are functioning correctly.
- f) Condenser: To chemically clean or wash coils, check fan motor voltage and amps, lubricate moving parts, check fan blades, belts and pulleys and adjust, if necessary, check for corrosion and degradation.
- g) Compressor: To check compressor oil levels and sight glass, to check voltage and amps, to check mounting for cracks and vibrations, and to check head and suction pressure.
- h) Evaporator: To wash or chemically clean the coils depending on the extent of fouling, clean blower wheels, check fan motor, voltage and amps, lubricate moving parts, check belts and pulleys and adjust, if necessary, clean evaporator covers.
- i) Filters: To inspect and clean when necessary. Kindly note that permission must be sought for the purchase of all items which do not fall under the maintenance and service contract prior to installation.
- j) Drains: To clean the drain pan and flush drain lines.
- k) Electrical Connections: To check electrical connections, clean and tighten any loose screws and cover exposed wires as necessary.
- l) Refrigerant lines and installation: To check refrigerant for exposed pipes, leaks and insulation damage.
- m) Operation of Thermostat/Remote Controls: To check to see that the unit is functioning correctly and adjust as required
- n) Repairs or Remedial work: Any equipment that needs repair must be clearly identified when present for sign-off by the NRF representative before work can be done and the service provider must:
- o) Clearly state where it is to be done,

- p) Clearly identify what is to be done,
- q) Clearly state an estimated time to complete the Job,
- r) Submit an estimated cost of repairs within a reasonable time frame for action as this is not included in the contract costs for maintenance and
- s) Used spare parts must be shown and given to the NRF

Deliverables:

- a. Diagnostic inspection report, Verify the current installation against the final LG-approved system tree
 - b. Quotation for recommended repairs
 - c. Repair completion certificate
 - d. Test and performance verification report
 - e. Warranty certificate (minimum 12 months on workmanship and replacement parts)
 - f. Maintenance plan for 12 months
- **Provide detailed requirements to evaluate the bidder's ability to deliver on the bid.**
 - a) The bidder is to supply valid CIDB Grade 2 ME or higher certificate
 - b) Bidder must provide three Service, Supply and Installation of air-conditioning projects written references or completion certificates, with contact details for those customers for whom the bidder has completed work within the last 36 months like the scale and nature of the project and has indicated their willingness to take NRF representatives on such site visits to such client premises. These references meet the minimum threshold of "Meets requirements".
 - c) The bidder to supply valid proof of COIDA letter of good standing
 - d) The bidder to supply proof of the technician's South African Trade Refrigeration Certificate(s)
 - e) The bidder to supply valid proof of F-Gas registration number of technician
 - f) The bidder to supply proof of LG HVAC training certificate of the technician from the manufacturer

CONTRACT MANAGEMENT

1. Termination of contract due to non-performance

- 1.1 In the event of the non-performance as per the agreed contract, NRF-SAEON will appoint an alternative at the cost of the appointed third party. The defaulting third party is obliged to settle the damages/additional costs that NRF-SAEON has incurred as result of the non-performance of the appointed bidder.

2. Occupational Health and Safety when working on NRF sites:

- 2.1 All personnel performing work on NRF-SAEON site as part of this contract are responsible to obtain safety induction.
- 2.2 Over and above the obligations provided by the Occupational Health and Safety Act (OHS Act No 85 of 1993 and its Regulations, known as 'the Act'), the appointed bidder meets with all relevant health and safety instructions as given to them by site safety personnel, where relevant. Personal protection equipment including closed safety shoes, hard hats, height safety equipment, and high visibility vests are worn at all times while on the work site. All personnel are to obey the relevant instructions, including signage, related to restricted access and speed limits on all sites.

- 2.3 The appointed bidder, once signing the contract (SBD 7 and the NRF's Section 37.2 agreement), is responsible for itself, its employees, and those people affected by its operations in terms of the Act the regulations promulgated in terms thereof. The appointed bidder performs all work and uses equipment on site complying with the provisions of the Act.
- 2.4 To this end, the appointed bidder shall make available to NRF-SAEON on the valid Letter of Good Standing in terms of the COID Act and ensures its validity does not expire while executing this bid, where applicable. The appointed bidder furnishes its registration number with the office of the Compensation Commissioner.
- 2.5 The appointed bidder maintains a health and safety plan complying with the requirements of The Act at the work site during the period that contracted work takes place on the site.
- 2.6 NRF-SAEON manages the appointed bidder in his capacity for the execution of this contract to meet the provisions of the said Act and the regulations promulgated in terms thereof. The appointed bidder accepts liability for any contraventions to the Act. Each member of the appointed bidder's team (including sub-contracted personnel), submit a signed indemnity form prior to entering the work site and kept in the appointed bidder's health and safety file.

Managing service levels

- a) Upon appointment, both parties agree on the final set of performance levels for each deliverable service levels including measurable key performance indicators with minimum thresholds in writing which is appended to this contract document.
- b) Where both parties agree to variation of these, both parties sign the revision which is appended to this contract document.
- c) Where either party has identified poor performance under this contract, both parties will meet and investigate the matter to determine the root cause, the correction plan, and the execution planning thereof.
- d) Both parties will monitor the corrective actions.
- e) Both parties will assess the applicability of penalties to the incurred poor performance and apply these,
- f) The service performance levels are:

Service	Measurement methodology	Penalty trigger level	Penalty
Diagnose/Service/maintenance of VRV air-conditioning system	NRF Building and Maintenance representatives will verify the completeness of the order and sign off if complete.	Non-delivery within the agreed timelines by both parties	Should work not be done as per specification GCC 22 will apply.
Completion of project	Non-completion of project within agreed timelines	Failure to complete the project within the agreed timelines	Completion certification will not be issued by NRF representative.

SETS OF QUOTATION DOCUMENTS REQUIRED				
Number of ORIGINAL bid documents for contract signing			1	
Bidders must submit the above number of original documents in electronic format (email) to the NRF. These serve as the original sets for the legal bid document and upon award, signature and serve as the legal contract document between the bidder and the NRF.				
RETURNABLE DOCUMENTS CHECKLIST				
The bidder is to complete this table and to supply the necessary page references to the supporting documentation. A bidder failing to adequately provide any of the mandatory documents will be disqualified.				
Legislative/Technical Documents		Compliance		
(M – Mandatory); (O – Optional); (A- Administrative)	Submitted	Bid Section Reference	Reference to Bidder's document	
Bidder Eligibility				
Procurement Invitation (SBD 1), signed and completed including the SBD 4, 6.1 and signed Bid Submission Certificate form.	A	☐ Yes ☐ No	Pages 1-20	
Proof of authority must be submitted e.g. company resolution	A	☐ Yes ☐ No	Page 7	
Proof of Registration on the Government's Central Supplier Database (CSD).	M	☐ Yes ☐ No	Page 5	
A valid B-BBEE certificate or Sworn Affidavit	O	☐ Yes ☐ No	Pages 16-19	
Pricing Documents		Compliance		
Pricing (SBD 3.1) in this document to be completed.	M	☐ Yes ☐ No	Pages 09-11	

ELIGIBILITY CRITERIA (GO/NO-GO)				
Selection Element		Meet Specification Minimum	Bid Section Reference	Reference to Bidder's document
1	Fully completed Procurement Invitation (SBD 1) including the SBD 4, 6.1 and signed Bid Submission Certificate form.	☐ YES ☐ NO	Pages 1-20	
2	Fully completed pricing schedule (SBD 3.1)	☐ YES ☐ NO	Documents' Due diligence Returnable of Eligibility on page	

Selection Element		Meet Specification Minimum	Bid Section Reference	Reference to Bidder's document
3	Detailed specifications provided on the quotation have met the scope of work required.	☐ YES ☐ NO	Detailed Specifications	
4	The bidder is to supply valid CIDB Grade 2 ME or higher certificate	☐ YES ☐ NO	Page 16	
5	Bidder must provide three Service, Supply and Installation of air-conditioning projects written references or completion certificates, with contact details for those customers for whom the bidder has completed work within the last 36 months like the scale and nature of the project and has indicated their willingness to take NRF representatives on such site visits to such client premises. These references meet the minimum threshold of "Meets requirements".	☐ YES ☐ NO	Page 16	
	The bidder to supply valid proof of COIDA letter of good standing	☐ YES ☐ NO	Page 16	
	The bidder to supply proof of the technician's South African Trade Refrigeration Certificate(s)	☐ YES ☐ NO	Page 16	
	The bidder to supply valid proof of F-Gas registration number of technician	☐ YES ☐ NO	Page 16	
	The bidder to supply proof of LG HVAC training certificate of the technician or company accreditation from the manufacturer	☐ YES ☐ NO	Page 16	

SBD 3.1: PRICING DETAIL	
Pricing Special Conditions	
1	Pricing Schedule: In terms of <u>General Conditions of contract clause 17.1</u> , the price schedule remains unchanged for the duration of the contract with the NRF accepting no changes, extensions, or additional ad hoc costs to the pricing conditions of the contract with the exception of any price adjustments authorised in the Special Conditions of Contract for pricing set out below:
2	Firm Quantities over the Contract Period: The NRF requires firm set quantities during the current period with the time of delivery being determined during the contract period.
3	Estimated quantities over the Contract Period: The NRF may require further quantities

SBD 3.1: PRICING DETAIL	
	during the current period with the actual quantity and time of delivery being determined when such quantities are needed. For bidding purposes and to establish the contract ceiling price, the NRF provides estimated quantities of what its requirements and estimated timing during the contract period for bidders to establish their pricing. The NRF does not provide guarantees or commitments that it will order this entire amount during the contract's life. The NRF, through the signed contract, guarantees its procurement of the specified goods and/or services is from the contracted party only.
4	<u>Placement of written purchase orders for actual quantities ordered:</u> The NRF manages the execution of this contract through the issue of written purchase orders – stipulating quantity, description, delivery date, and the unit price as set out in this contract - for the contracted supplies. The NRF, when issuing the written purchase order, guarantees that the funding is available.
5	<u>Contract Ceiling Price:</u> With these estimates in the bid contract, the contract ceiling price includes both the firm quantities and the potential future quantities within the contract ceiling price. The NRF manages the contract within the contract ceiling price by paying only for the verified deliveries/performances in terms of the clauses of this contract. The cumulative value of each of these invoices at the expiry of the contract is the actual total contract price.
6	<u>Price Adjustments:</u> In terms of <u>General Conditions of Contract clause 17.1</u> , the price adjustments with the rules for application are set out below as special conditions of <u>Contract Clause 17.1</u> . <u>Price adjustments and their corresponding rules are for the management of price risks on the basis of the NRF and the contracted bidder sharing the risk equally.</u>
7	<u>Price quoted</u> is South African Rands in terms of General Conditions of contract clause 16.4
8	<u>Price Quotation Basis</u> Price quoted is fully inclusive of all costs including delivery to the specified NRF price delivery point and includes value- added tax, income tax, unemployment insurance fund contributions, and skills development levies in terms of General Conditions of contract clauses 12, 32.1 and 32.2. <u>Price Delivery Point:</u> In cases where different delivery points influence the pricing, the bidder submits a separate pricing schedule for each delivery point.
9	<u>Detail Pricing Support:</u> Detailed information e.g. costed bill of quantities is optional where not stated in the price schedule below and is provided as an annexure to the details included in this SBD 3
10	<u>Application of Preference Points:</u> Pricing is subject to the addition of Preference Points as stipulated below - Standard Bidding Document 6.1 Preference claim form.

PRICING SCHEDULE 3.1

DESCRIPTION (Refer to specification)		QTY	UNIT OF MEASURE	TOTAL PRICE
1.	Diagnostic inspection, detailed fault report and recommendations.	1	Each	
2.	Callout fees for the duration of the maintenance period of 12 months	4	Each	
3.	Maintenance/Service of the Heat pump (quarterly service) Outdoor Unit - ARUN260LLS5 X 1 Indoor Units – ARNU09GSJN4 X 3; ARNU12GSJN4 X 2; ARNU15GSJN4 X 11; ARNU24GSKN4 X 2 TOTAL =18 Maintenance/Service as per LG heat pump recommended service requirement	4	Each	
4.	Provisional amount for Repairs (separate quotation to be submitted for approval before repairs)	1	Sum	R 100 000.00
TOTAL PRICE EXCLUDING VAT				R
VAT				R
TOTAL CONTRACT INCLUDING VAT (CEILING PRICE)				R

GENERAL CONDITIONS OF CONTRACT

The National Research Foundation cannot amend the National Treasury's General Conditions of Contract (GCC). The National Research Foundation therefore appends Special Conditions of Contract (SCC) providing specific information relevant to a GCC clause to its the National Treasury's General Conditions of Contract The National Research Foundation has filed its General Conditions of Contract GCC) on its website (<http://www.nrf.ac.za/procurement/General-Conditions-of-Contract>). These form part of this document's contract conditions. Special Conditions specific to this bid contract are set out in this document.

The NRF deems the bidders to have accessed and read the General Conditions of Contract. Whenever there is an unintended conflict, the provisions of the Special Conditions of Contract shall prevail over the General Conditions of Contract.

SPECIAL CONDITIONS OF CONTRACT

(AMENDMENTS TO SPECIFIC CLAUSES OF THE GENERAL CONDITIONS OF CONTRACT LISTED BELOW EACH CLAUSE IN THAT SECTION).

1 Service Provider Obligations:

The service provider must exercise reasonable skill, care and diligence in rendering all services included in this procurement contract.

The service provider must deliver the services during normal working hours (i.e. Monday to Friday, excluding public holidays from 08h30 to 17h00) and/or such additional hours as may be reasonably required by the NRF due to the existence of special circumstances. Services rendered outside of these hours will only be rendered by mutual agreement with the nominated person of the NRF, based on severity level.

The service provider may not do anything that may prejudice or be adverse to the operations and functions of the NRF

The service provider must submit such information and reports, as specified in the agreed service request, to the person nominated by the NRF, and comply with all legislation applicable in providing these services.

The service provider corresponds and delivers services only to the NRF and end users of the NRF.

2 Communication: The contracted parties communicate in writing through mail, delivery, or email. The contracted party states the contract number and purchase order number, if the latter is applicable, on communication documentation. The contract party does not act upon any communication without the contract number or must verify such communication with the assigned NRF contract manager prior to acting upon it.

3 Occupational Health and Safety when working on NRF sites: All personnel performing work on NRF site/s as part of this contract are responsible to obtain safety induction.

Over and above the obligations provided by the Occupational Health and Safety Act (OHS Act No 85 of 1993 and its Regulations, known as 'the Act'), the contracted party meets with all relevant health and safety instructions as given to them by site safety personnel, where relevant. Personal protection equipment including closed safety shoes, hard hats, height safety equipment, and high visibility vests are worn at all times while on the work site. All personnel are to obey the relevant instructions, including signage, related to restricted access and speed limits on all sites.

The contracted party, once signing the contract (SBD 7), is responsible for itself, its employees, and those people affected by its operations in terms of the Act the regulations promulgated in terms thereof. The contracted party performs all work and uses equipment on site complying with the provisions of the Act.

To this end, the contracted party shall make available to the NRF the valid Letter of Good Standing in terms of the COID Act and ensure its validity does not expire while executing this bid, where applicable. The contracted party furnishes its registration number with the office of the Compensation Commissioner. The contracted party enters into a Section 37.2 agreement in terms of Occupational Health and Safety Act (OHS Act No 85 of 1993 and its Regulations) that the NRF drafts.

The contracted party maintains a health and safety plan complying with the requirements of The Act at the work site during the period that contracted work takes place on the site.

SPECIAL CONDITIONS OF CONTRACT

The NRF manages the contracted party in his capacity for the execution of this contract to meet the provisions of the said Act and the regulations promulgated in terms thereof. The contracted party accepts liability for any contraventions to the Act. Each member of the contracted party's team (including sub-contracted personnel), submit a signed indemnity form prior to entering the work site and kept in the contracted party's health and safety file.

SBD 4 BIDDER'S DISCLOSURE

1. PURPOSE OF THE FORM

Any person (natural or juristic) may make an offer or offers in terms of this invitation to bid. In line with the principles of transparency, accountability, impartiality, and ethics as enshrined in the Constitution of the Republic of South Africa and further expressed in various pieces of legislation, it is required for the bidder to make this declaration in respect of the details required hereunder.

Where a person/s are listed in the Register for Tender Defaulters and / or the List of Restricted Suppliers,

that person will automatically be disqualified from the bid process.

2. Bidder's declaration

2.1 Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest¹ in the enterprise,

employed by the state?

YES/NO

2.1.1 If so, furnish particulars of the names, individual identity numbers, and, if applicable, state employee numbers of sole proprietor/ directors / trustees / shareholders / members/ partners or any person having a controlling interest in the enterprise, in table below.

Full Name	Identity Number	Name of State institution

2.2 Do you, or any person connected with the bidder, have a relationship with any person who is employed by the procuring institution?

YES/NO

2.2.1 If so, furnish particulars:

.....
.....

2.3 Does the bidder or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest in the enterprise have any interest in any other related enterprise whether or not they are bidding for this contract? **YES/NO**

2.3.1 If so, furnish particulars:

.....

¹ the power, by one person or a group of persons holding the majority of the equity of an enterprise, alternatively, the person/s having the deciding vote or power to influence or to direct the course and decisions of the enterprise.

.....

3 DECLARATION

I, the undersigned, (name)..... in submitting the accompanying bid, do hereby make the following statements that I certify to be true and complete in every respect:

3.1 I have read and I understand the contents of this disclosure;

3.2 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;

3.3 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium² will not be construed as collusive bidding.

3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.

3.4 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

3.5 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.

3.6 I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

I CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 1, 2 and 3 ABOVE IS CORRECT.

I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF PARAGRAPH 6 OF PFMA SCM INSTRUCTION 03 OF 2021/22 ON PREVENTING AND COMBATING

² Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

[illegible]

NB: BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF THE TENDER AND PREFERENTIAL PROCUREMENT REGULATIONS, 2022

PREFERENCE POINTS CLAIMED (SBD 6.1)

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to invitations to tender:

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

1.2 Preference point system

The applicable preference point system for this tender is the **80/20** preference point system.

a) The **80/20 preference point system** will be applicable in this tender. The lowest/ highest acceptable tender will be used to determine the accurate system once tenders are received.

1.3 Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for:

- (a) Price; and
- (b) Specific Goals.

1.4 Allocated preference points

The maximum points for this tender are allocated as follows:

The maximum points for this tender are allocated as follows:

	POINTS
PRICE	80
SPECIFIC GOALS	20
Total points for Price and SPECIFIC GOALS	100

a. Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.

b. The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

2. DEFINITIONS

(a) **“tender”** means a written offer in the form determined by an organ of state in response to an

PREFERENCE POINTS CLAIMED (SBD 6.1)

invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;

(b) **“price”** means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;

(c) **“rand value”** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;

(d) **“tender for income-generating contracts”** means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and

(e) **“the Act”** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1 POINTS AWARDED FOR PRICE

3.1.1 THE 80/20 PREFERENCE POINT SYSTEMS

A maximum of 80 points is allocated for price on the following basis:

80/20

$$P_s = 80 \left(1 - \frac{P_t - P}{P} \right)$$

Where

P_s = Points scored for price of tender under consideration

P_t = Price of tender under consideration

P_{min} = Price of lowest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

4.1 In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:

Table 1: Specific goals for the tender and points claimed are indicated per the table below:

Note to tenderers: The tenderer must indicate how they claim points for each preference point system.) Tenderer to submit a valid BBBEE certificate in order to earn points on specific goals. Failure to submit a valid BBBEE certificate, the bidder will not be allocated points for specific goals.

PREFERENCE POINTS CLAIMED (SBD 6.1)

The BBBEE allocated points in terms of this tender	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (80/20 system) (To be completed by the tenderer)
1	20	
2	18	
3	14	
4	12	
5	8	
6	6	
7	4	
8	2	
Non-compliant	0	

DECLARATION WITH REGARD TO COMPANY/FIRM

4.2 Name of company/firm.....

4.3 Company registration number:

4.4 TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
- ☐ One-person business/sole propriety
- ☐ Close corporation
- ☐ Public Company
- ☐ Personal Liability Company
- ☐ (Pty) Limited
- ☐ Non-Profit Company
- ☐ State Owned Company

[TICK APPLICABLE BOX]

4.5 I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/ firm for the preference(s) shown and I acknowledge that:

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as

PREFERENCE POINTS CLAIMED (SBD 6.1)

indicated in paragraph 1 of this form;

iii) the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;

iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –

(a) disqualify the person from the tendering process;

(b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;

(c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;

(d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and

(e) forward the matter for criminal prosecution, if deemed necessary.

.....

SIGNATURE(S) OF TENDERER(S)

SURNAME AND NAME:

DATE:

ADDRESS:

.....

.....

.....

BID SUBMISSION CERTIFICATE FORM - (SBD 1)

I hereby undertake to supply all or any of the goods, works, and services described in this procurement invitation to the NRF in accordance with the requirements and specifications stipulated in this Bid Invitation document at the price/s quoted.

My offer remains binding upon me and open for acceptance by the NRF during the validity period indicated and calculated from the closing time of Bid Invitation.

The following documents are deemed to form and be read and construed as part of this offer / bid even where integrated in this document:

Invitation to Bid (SBD 1)	Specification(s) set out in this Quotation Invitation inclusive of any annexures thereto
Bidder's responses to this invitation as attached to this document	Pricing Schedule(s) (SBD3) including detailed schedules attached
Local Content and Local Manufacturing Certification (SBD 6.2) in accordance with the SABS standard	
Declaration of Interest (SBD4)	General Conditions of Contract and special/additional conditions of contract as set out in this document
Preference (SBD 6.1) claims for Broad Based Black Economic Empowerment Status Level of Contribution, supported by a valid certified BBBEE certificate.	

I confirm that I have satisfied myself as to the correctness and validity of my offer / bid in response to this Bid Invitation; that the price(s) and rate(s) quoted cover all the goods, works and services specified in the Bid Invitation and cover all my obligations and I accept that any mistakes regarding price(s) and rate(s) and calculations will be at my own risk.

I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me in terms of this Bid Invitation as the principal liable for the due fulfilment of the subsequent contract if awarded to me.

I declare that I have had no participation in any collusive practices with any Bidder or any other person regarding this or any other Bid.

I certify that the information furnished in these declarations (SBD 3, SBD 4, SBD 6.1 and SBD 6.2 (if applicable)) is correct and I accept that the NRF may reject the Bid or act against me should these declarations prove to be false.

I confirm that I am duly authorised to sign this offer/ bid response.

NAME (PRINT)

CAPACITY

SIGNATURE

WITNESS 1

NAME	
SIGNATURE	
WITNESS 2	
NAME	
SIGNATURE	
DATE	

AIR CONDITIONING PROPOSAL SHEET

Date: 2020/12/09

LGE

Prepared by:

Customer/Contractor Information

Customer

Name :

Address :

City :

State/Province :

Country :

Phone Number :

Fax Number :

E-mail :

Contractor

Name :

Address :

City :

State/Province :

Country :

Phone Number :

Fax Number :

E-mail :

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2. Model Selection - Summary
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7. System Cost Estimate
8. System Type Cost Estimate
9. Project Cost Estimate
10. Pipe Summary

Building Load Summary

1. Project name:Nerf Hvac
2. Date:2020/12/09
3. Location :Nation(PRETORIA, South Africa), Altitude(1322m)
4. Design conditions

		Cooling	Heating
OAT	DB Temp[°C]	31.9	5.1
	WB Temp[°C]	21.0	4.0
	RH[%]	40.0	86.0
IAT	DB Temp[°C]	24.0	23.0
	WB Temp[°C]	16.7	15.9
	RH[%]	50.0	50.0

5. Cooling and Heating Loads

Floor Name	Room Name	Cooling Load[kW]		Heating Load[kW]
		Total	Sensible	

Model Selection - Summary

Project Name :Nerf Hvac

Date: 2020/12/09

1. Outdoor Units

No.	Model Name	Quantity	Description
1	ARUN260LLS5	1	50,60Hz/R410A/Heat Pump/MULTI V 5 Pro/Southern Africa
Total		1	

2. Indoor Units

No.	Model Name	Quantity	Description
1	ARNU09GSJN4	3	Wall Mounted(Standard)
2	ARNU12GSJN4	2	Wall Mounted(Standard)
3	ARNU15GSJN4	7	Wall Mounted(Standard)
4	ARNU24GSKN4	5	Wall Mounted(Standard)
5	ARNU30GSVA4	1	Wall Mounted(Libero)
Total		18	

3. Branch/Header

No.	Model Name	Quantity
1	ARBLN01621	3
2	ARBLN03321	8
3	ARBLN07121	6

4. Pipes

No.	Dia(Liq:Gas,mm)	Length(m)
1	6.35 : 12.7	53.0
2	9.52 : 15.88	37.0
3	9.52 : 22.2	8.0
4	12.7 : 19.05	10.0
5	12.7 : 22.2	10.0
6	12.7 : 25.4	9.0
7	12.7 : 28.58	14.0
8	15.88 : 31.8	13.0
9	19.05 : 34.9	35.0

Model Selection - Summary

Project Name :Nerf Hvac

Date: 2020/12/09

5. Accessories

Index	Model Name	Quantity	Description

System Model Selection - ODU

System Name: Multi V2

Date: 2020/12/09

System No : 1/1

1. Design conditions - Outdoor

Cooling		Heating	
DB(°C)	WB(°C)	DB(°C)	WB(°C)
31.9	21.0	5.1	4.0

2. Outdoor Units

Model Name	Max. connectable indoor units	Max total over load (kW(%))	Combination Ratio (IDUS/ODU)	Product charge (kg)	Additional Refrigerant (kg)	Fluid Type / Concentration (%)
ARUN260LLS5	64	145.6(200%)	125.8 %	11.00	25.28	-

Rated / Corrected Capacity (kW)		Rated / Corrected Power Input (kW)	
Cooling	Heating	Cooling	Heating
72.8/75.8	72.8/75.2	20.8/19.6	20.5/22.4

Efficiency(W/W)		Weight(kg)	Dimension (WxHxD) (mm)	Electrical Characteristics				
Cooling	Heating			Volt	Phase	Hz	MCA (A)	Breaker (A)
3.9	3.4	268	1240x1690x760	380~415	3	50/60	54.5	63

3. Pipes

Dia(Liq:Gas,mm)	Length(m)
6.35 : 12.7	53.0
9.52 : 15.88	37.0
9.52 : 22.2	8.0
12.7 : 19.05	10.0
12.7 : 22.2	10.0
12.7 : 25.4	9.0
12.7 : 28.58	14.0
15.88 : 31.8	13.0
19.05 : 34.9	35.0

4. Branch/Header

Model Name	Quantity
ARBLN01621	3
ARBLN03321	8
ARBLN07121	6
-	-
-	-
-	-
-	-
-	-
-	-

#Notes: Correction factor is corrected by such as, but not limited to, indoor unit combination, temperature, and pipe length.
The result can be slightly different from Product Data Book due to simulation.

System Model Section - IDU

System Name: Multi V2

Date: 2020/12/09

System No : 1/1

5. Indoor Units(1)

Room	Room Load(kW)			Room Design Temp.(Return Air Temp.)(°C)				Model Name	Rated TC/Corrected TC(kW)			Correted Capa/Room Load(%)		
	TC	SC	HT	Cooling		Heating			TC	SC	HT	TC	SC	HT
				DBT	WBT	DBT	WBT							
Room	-	-	-	24.0	16.7	23.0	15.9	ARNU09GSJN4	2.8/2.4	2.1/2.0	3.2/2.3	-	-	-
Room	-	-	-	24.0	16.7	23.0	15.9	ARNU09GSJN4	2.8/2.3	2.1/1.9	3.2/2.3	-	-	-
Room	-	-	-	24.0	16.7	23.0	15.9	ARNU09GSJN4	2.8/2.3	2.1/1.9	3.2/2.3	-	-	-
Room	-	-	-	24.0	16.7	23.0	15.9	ARNU12GSJN4	3.6/3.0	2.6/2.3	4.0/3.0	-	-	-
Room	-	-	-	24.0	16.7	23.0	15.9	ARNU12GSJN4	3.6/3.0	2.6/2.4	4.0/3.0	-	-	-
Room	-	-	-	24.0	16.7	23.0	15.9	ARNU15GSJN4	4.5/3.8	3.2/3.0	5.0/3.7	-	-	-
Room	-	-	-	24.0	16.7	23.0	15.9	ARNU15GSJN4	4.5/3.7	3.2/2.9	5.0/3.7	-	-	-
Room	-	-	-	24.0	16.7	23.0	15.9	ARNU15GSJN4	4.5/3.7	3.2/3.0	5.0/3.7	-	-	-
Room	-	-	-	24.0	16.7	23.0	15.9	ARNU15GSJN4	4.5/3.7	3.2/2.9	5.0/3.7	-	-	-
Room	-	-	-	24.0	16.7	23.0	15.9	ARNU15GSJN4	4.5/3.7	3.2/2.9	5.0/3.7	-	-	-
Room	-	-	-	24.0	16.7	23.0	15.9	ARNU15GSJN4	4.5/3.6	3.2/2.9	5.0/3.7	-	-	-
Room	-	-	-	24.0	16.7	23.0	15.9	ARNU15GSJN4	4.5/3.6	3.2/2.9	5.0/3.7	-	-	-
Room	-	-	-	24.0	16.7	23.0	15.9	ARNU24GSKN4	7.1/6.0	5.0/4.6	7.5/5.8	-	-	-
Room	-	-	-	24.0	16.7	23.0	15.9	ARNU24GSKN4	7.1/5.9	5.0/4.6	7.5/5.8	-	-	-
Room	-	-	-	24.0	16.7	23.0	15.9	ARNU24GSKN4	7.1/5.9	5.0/4.6	7.5/5.8	-	-	-
Room	-	-	-	24.0	16.7	23.0	15.9	ARNU24GSKN4	7.1/5.8	5.0/4.5	7.5/5.8	-	-	-
Room	-	-	-	24.0	16.7	23.0	15.9	ARNU24GSKN4	7.1/5.9	5.0/4.6	7.5/5.8	-	-	-
Room	-	-	-	24.0	16.7	23.0	15.9	ARNU30GSVA4	8.8/7.5	6.3/5.9	9.4/7.4	-	-	-

#Notes: Correction factor is corrected by such as, but not limited to, indoor unit combination, temperature, and pipe length.

The result can be slightly different from Product Data Book due to simulation.

EWT=Entering Water Temperature / LWT=Leaving Water Temperature.

System Model Section - IDU

System Name: Multi V2

Date: 2020/12/09

System No : 1/1

6. Indoor Units(2)

Tag	Model Name	Type	Est. Discharge Temp.(°C)		Air flow rate (LPS)	Remark
			Cooling	Heating		
11	ARNU09GSJN4	WALL_MOUNTED	11.3	37.6	130.0	NA
14	ARNU09GSJN4	WALL_MOUNTED	11.6	37.6	130.0	NA
16	ARNU09GSJN4	WALL_MOUNTED	11.8	37.6	130.0	NA
6	ARNU12GSJN4	WALL_MOUNTED	10.5	40.2	141.7	NA
10	ARNU12GSJN4	WALL_MOUNTED	10.2	40.2	141.7	NA
1	ARNU15GSJN4	WALL_MOUNTED	9.8	40.4	175.0	NA
7	ARNU15GSJN4	WALL_MOUNTED	10.3	40.4	175.0	NA
12	ARNU15GSJN4	WALL_MOUNTED	10.0	40.4	175.0	NA
13	ARNU15GSJN4	WALL_MOUNTED	10.1	40.4	175.0	NA
15	ARNU15GSJN4	WALL_MOUNTED	10.3	40.4	175.0	NA
17	ARNU15GSJN4	WALL_MOUNTED	10.4	40.4	175.0	NA
18	ARNU15GSJN4	WALL_MOUNTED	10.4	40.4	175.0	NA
2	ARNU24GSKN4	WALL_MOUNTED	9.0	42.0	253.3	NA
3	ARNU24GSKN4	WALL_MOUNTED	9.0	42.0	253.3	NA
4	ARNU24GSKN4	WALL_MOUNTED	9.1	42.0	253.3	NA
8	ARNU24GSKN4	WALL_MOUNTED	9.3	42.0	253.3	NA
9	ARNU24GSKN4	WALL_MOUNTED	9.0	42.0	253.3	NA
5	ARNU30GSVA4	WALL_MOUNTED	11.4	38.9	383.3	NA

#Notes: Correction factor is corrected by such as, but not limited to, indoor unit combination, temperature, and pipe length.

The result can be slightly different from Product Data Book due to simulation.

EWT=Entering Water Temperature / LWT=Leaving Water Temperature.

System Model Section - IDU

System Name: Multi V2

Date: 2020/12/09

System No : 1/1

7. Indoor Units(3)

Tag	Model Name	Weight	Dimension (WxHxD)	Electrical Characteristics				
				Volt	Phase	Hz	MCA (A)	FLA (A)
11	ARNU09GSJN4	8.4 kg	818x316189 mm	220~240	1	50/60	0.31	0.25
14	ARNU09GSJN4	8.4 kg	818x316189 mm	220~240	1	50/60	0.31	0.25
16	ARNU09GSJN4	8.4 kg	818x316189 mm	220~240	1	50/60	0.31	0.25
6	ARNU12GSJN4	8.4 kg	818x316189 mm	220~240	1	50/60	0.31	0.25
10	ARNU12GSJN4	8.4 kg	818x316189 mm	220~240	1	50/60	0.31	0.25
1	ARNU15GSJN4	8.4 kg	818x316189 mm	220~240	1	50/60	0.31	0.25
7	ARNU15GSJN4	8.4 kg	818x316189 mm	220~240	1	50/60	0.31	0.25
12	ARNU15GSJN4	8.4 kg	818x316189 mm	220~240	1	50/60	0.31	0.25
13	ARNU15GSJN4	8.4 kg	818x316189 mm	220~240	1	50/60	0.31	0.25
15	ARNU15GSJN4	8.4 kg	818x316189 mm	220~240	1	50/60	0.31	0.25
17	ARNU15GSJN4	8.4 kg	818x316189 mm	220~240	1	50/60	0.31	0.25
18	ARNU15GSJN4	8.4 kg	818x316189 mm	220~240	1	50/60	0.31	0.25
2	ARNU24GSKN4	12.2 kg	975x354x209 mm	220~240	1	50/60	0.65	0.52
3	ARNU24GSKN4	12.2 kg	975x354x209 mm	220~240	1	50/60	0.65	0.52
4	ARNU24GSKN4	12.2 kg	975x354x209 mm	220~240	1	50/60	0.65	0.52
8	ARNU24GSKN4	12.2 kg	975x354x209 mm	220~240	1	50/60	0.65	0.52
9	ARNU24GSKN4	12.2 kg	975x354x209 mm	220~240	1	50/60	0.65	0.52
5	ARNU30GSVA4	16.6 kg	1190x346x265 mm	220~240	1	50/60	1.19	0.95

#Notes: Correction factor is corrected by such as, but not limited to, indoor unit combination, temperature, and pipe length.

The result can be slightly different from Product Data Book due to simulation.

EWT=Entering Water Temperature / LWT=Leaving Water Temperature.

System Validation Check

System Name: Multi V2

Date: 2020/12/09

System No : 1/1

8. System Validation Check - Conditional Application

Contents	Limit	Current(Max value : connected unit)
Total pipe length	1000.0 m	231.0 m
Longest equivalent pipe length	225.0 m	89.4 m : ARNU15GSJN4[17]
Longest pipe length after 1st branch	90.0 m	47.0 m : ARNU15GSJN4[17]
Height difference [Above: IDU, Below: ODU]	110.0 m	0.0 m
Height difference [Above: ODU, Below: IDU]	110.0 m	3.0 m : ARNU15GSJN4[18]
Height difference [IDU to IDU]	40.0 m	0.0 m : ARNU15GSJN4[1]-ARNU15GSJN4[1]
Longest actual pipe length	200.0 m	82.0 m : ARNU15GSJN4[17]

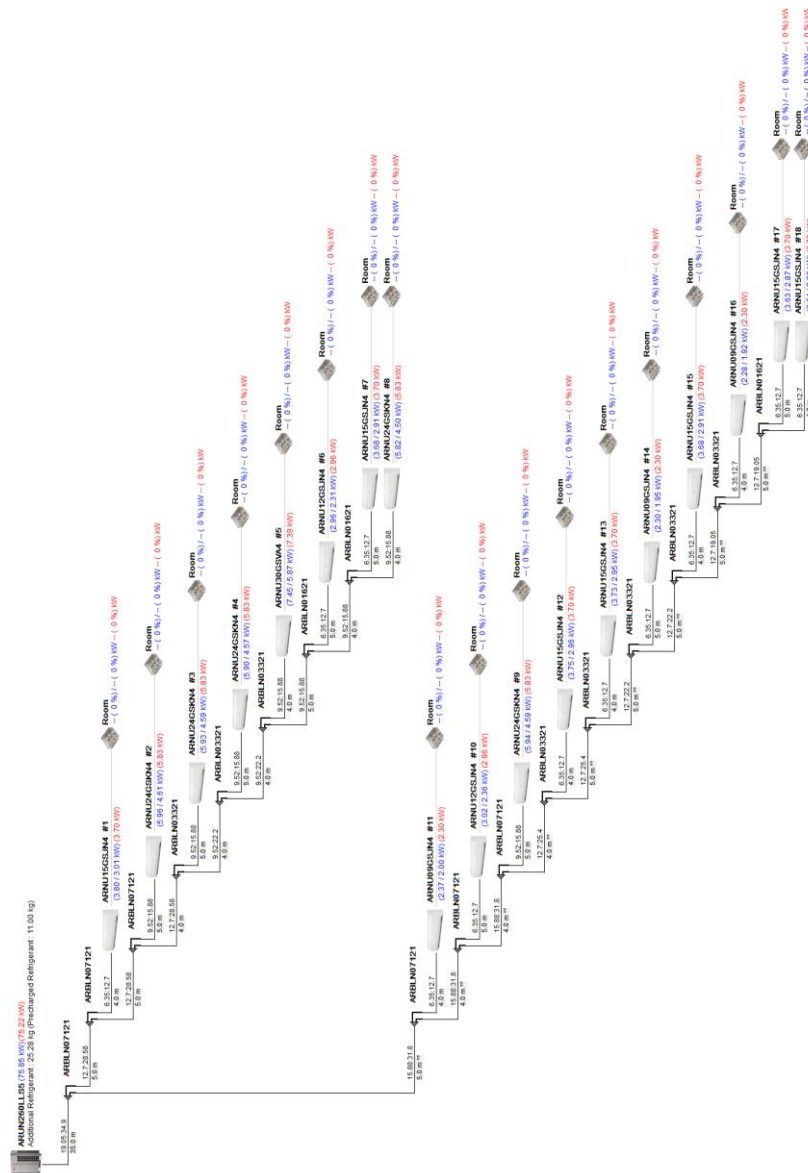
Note : Except "Longest equivalent pipe length", the other pipe length limitations are actual length.

System Tree Diagram

System Name: Multi V2

System No : 1/1

Date: 2020/12/09



Conditioned Application	Two pipe Liquid Gas
Remote Control	Group Control Dry Contact
Leakage Detector	Temperature Sensor
Air Purification Unit	
Indoor Units	18 of 84
Refrigerant	5.0 of 15.0kg
Total Pipe	231.9 of 1000.0 m

System Schematic Diagram

System Name: Multi V2

Date: 2020/12/09

System No : 1/1



System Cost Estimate

Project Name :Nerf Hvac

Date: 2020/12/09

Total Cost	#VALUE!
------------	---------

1. Outdoor Units

Model Name	Quantity	Unit Cost	Total Cost
ARUN260LLS5	1		0
SubTotal	1		0

2. Indoor Units

Model Name	Quantity	Unit Cost	Total Cost
ARNU09GSJN4	3		0
ARNU12GSJN4	2		0
ARNU15GSJN4	7		0
ARNU24GSKN4	5		0
ARNU30GSVA4	1		0
SubTotal	18		0

3. Accessories

Model Name	Quantity	Unit Cost	Total Cost
SubTotal	0		0

4. Branch/Header

Model Name	Quantity	Unit Cost	Total Cost
ARBLN01621	3		0
ARBLN03321	8		0
ARBLN07121	6		0
SubTotal	17		0

5. Pipes

Dia(mm)	Length(m)	Unit Cost	Total Cost
6.35	53.0		#VALUE!
9.52	45.0		#VALUE!
12.7	96.0		#VALUE!
15.88	50.0		#VALUE!

System Cost Estimate

Project Name :Nerf Hvac

Date: 2020/12/09

5. Pipes

Dia(mm)	Length(m)	Unit Cost	Total Cost
19.05	45.0		#VALUE!
22.2	18.0		#VALUE!
25.4	9.0		#VALUE!
28.58	14.0		#VALUE!
31.8	13.0		#VALUE!
34.9	35.0		#VALUE!
SubTotal			#VALUE!

6. Refrigerant

Refrigerant	Additional Refrigerant(kg)	Unit Cost	Total Cost
R410A	25.28		#VALUE!
SubTotal			#VALUE!

Cost Estimate - MULTI V

Project Name :Nerf Hvac

Date: 2020/12/09

Total Cost	#VALUE!
------------	---------

1. Outdoor Units

Model Name	Quantity	Unit Cost	Total Cost
ARUN260LLS5	1		0
SubTotal	1		0

2. Indoor Units

Model Name	Quantity	Unit Cost	Total Cost
ARNU09GSJN4	3		0
ARNU12GSJN4	2		0
ARNU15GSJN4	7		0
ARNU24GSKN4	5		0
ARNU30GSVA4	1		0
SubTotal	18		0

3. Accessories

Model Name	Quantity	Unit Cost	Total Cost
SubTotal	0		0

4. Branch/Header

Model Name	Quantity	Unit Cost	Total Cost
ARBLN01621	3		0
ARBLN03321	8		0
ARBLN07121	6		0
SubTotal	17		0

5. Pipes

Dia(mm)	Length(m)	Unit Cost	Total Cost
6.35	53.0		#VALUE!
9.52	45.0		#VALUE!
12.7	96.0		#VALUE!
15.88	50.0		#VALUE!
19.05	45.0		#VALUE!

Cost Estimate - MULTI V

Project Name :Nerf Hvac

Date: 2020/12/09

5. Pipes

Dia(mm)	Length(m)	Unit Cost	Total Cost
22.2	18.0		#VALUE!
25.4	9.0		#VALUE!
28.58	14.0		#VALUE!
31.8	13.0		#VALUE!
34.9	35.0		#VALUE!
SubTotal			#VALUE!

6. Refrigerant

Refrigerant	Additional Refrigerant(kg)	Unit Cost	Total Cost
R410A	25.28		#VALUE!
SubTotal			#VALUE!

Project Cost Estimate

Project Name :Nerf Hvac

Date: 2020/12/09

Total Cost	#VALUE!
------------	---------

1. Outdoor Units

Model Name	Quantity	Unit Cost	Total Cost
ARUN260LLS5	1		0
SubTotal	1		0

2. Indoor Units

Model Name	Quantity	Unit Cost	Total Cost
ARNU09GSJN4	3		0
ARNU12GSJN4	2		0
ARNU15GSJN4	7		0
ARNU24GSKN4	5		0
ARNU30GSVA4	1		0
SubTotal	18		0

3. Accessories

Model Name	Quantity	Unit Cost	Total Cost
SubTotal	0		0

4. Branch/Header

Model Name	Quantity	Unit Cost	Total Cost
ARBLN01621	3		0
ARBLN03321	8		0
ARBLN07121	6		0
SubTotal	17		0

5. Pipes

Dia(mm)	Length(m)	Unit Cost	Total Cost
6.35	53.0		#VALUE!
9.52	45.0		#VALUE!
12.7	96.0		#VALUE!
15.88	50.0		#VALUE!
19.05	45.0		#VALUE!

Project Cost Estimate

Project Name :Nerf Hvac

Date: 2020/12/09

5. Pipes

Dia(mm)	Length(m)	Unit Cost	Total Cost
22.2	18.0		#VALUE!
25.4	9.0		#VALUE!
28.58	14.0		#VALUE!
31.8	13.0		#VALUE!
34.9	35.0		#VALUE!
SubTotal			#VALUE!

6. Refrigerant

Refrigerant	Additional Refrigerant(kg)	Unit Cost	Total Cost
R410A	25.28		#VALUE!
SubTotal			#VALUE!

Pipe Summary

Project Name :Nerf Hvac

Date: 2020/12/09

1. Refrigerant Pipe

System Name	Length(m)														
Diameter(mm)	6.35	9.52	12.7	15.88	19.05	22.2	25.4	28.58	34.9	31.8	41.3	38.1	44.5	50.8	53.98
Multi V2	53.0	45.0	96.0	50.0	45.0	18.0	9.0	14.0	35.0	13.0	-	-	-	-	-
Total	53.0	45.0	96.0	50.0	45.0	18.0	9.0	14.0	35.0	13.0	0	0	0	0	0