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कार्य का नाम: नई दिल्ली के जनपथ स्थित नेशनल म्यूजियम में 2026-27 के दौरान लिफ्ट, एचवीएसी, डीजी सेट, ईआई, फायर-फाइटिंग और फायर अलार्म सिस्टम, फाउंटेन पंप, सब-स्टेशन उपकरण और सीसीटीवी सिस्टम का आरएमओ (एचएच: एनएम में एडमिन हॉल में वीआरवी सिस्टम लगाना)

Name of Work: RMO Lift, HVAC, DG Sets, EI, Fire-Fighting & Fire Alarm System, Fountain Pumps, Sub-Station Equipments & CCTV System at National Museum, Janpath, New Delhi during 2026-27 [SH: Providing VRV System at Admin Hall in NM]

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एन आई टी नं: **101/EE(E)/VBED/2026-27** रुपये **16,44,338/-** (रुपये सौलह लाख चौआलिस हजार तीन सौ अडतीस) मात्र जिसमें पृष्ठ संख्या 1 से 54 है, को एतद् द्वारा अनुमोदित किया जाता है।

NIT No. **101/EE(E)/VBED/2026-27** for Rs. **16,44,338/-** [**Rupees Sixteen Lakhs Forty Four Thousand Three Hundred and Thirty Eight**] only having Pages No. 1 to 54 is hereby approved

In case there's a discrepancy between English & Hindi versions in any line of this NIT, the English version shall prevail.

Assistant Engineer (E)(P)
VBED, CPWD, Jodhpur Hostel
New Delhi-110003

Executive Engineer (E)
VBED, CPWD, Jodhpur Hostel
New Delhi-110003

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ई-टेंडरिंग एवं वेबसाइट पर पोस्ट किए जाने हेतु संविदाकार के लिए जानकारी और निर्देश

INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR e-TENDERING

(खुली निविदाएं आमंत्रित करने के लिए लागू)

(Applicable for inviting Two-Bids)

The Executive Engineer (E), Vigyan Bhawan Electrical Division, CPWD, Block-6, Jodhpur Officer Hostel, New Delhi-110003 (e-mail: deleeevbed.cpwd@nic.in) on behalf of the President of India, invites online **Percentage Rate** e-tender, from **CPWD registered contractors enlisted in Composite Category of appropriate class / Buildings & Roads, OEM/Specialized Firms** for the following work:

क्रम संख्या/ SI. No.	एनआईटी नं./NIT No.	काम का नाम एवं स्थान Name of Work & Location	अनुमानित लागत /Estimated Cost put to tender	अग्रिम धनराशि/Earnest Money	कार्य अवधि /Period of Completion	प्रेस नोटिस में निर्दिष्ट अनुसार बोली, ईएमडी, ई-टेंडर प्रसंस्करण शुल्क और अन्य दस्तावेज जमा करने की अंतिम तिथि और समय/ Last date & time of submission of bid, EMD, e-tender processing fee and other documents as specified in the press notice	1) बोली खोलने का समय और तारीख 2) मूल्य बोली खोलने का समय और तारीख i) Time & date of opening of PQ Bid ii) Time and date of opening of Price Bid
1	2	3	4	5	6	7	8
1	101/EE(E)/VBED/2026-27	नई दिल्ली के जनपथ स्थित नेशनल म्यूजियम में 2026-27 के दौरान लिफ्ट, एचवीएसी, डीजी सेट, ईआई, फायर-फाइटिंग और फायर अलार्म सिस्टम, फाउंटेन पंप, सब-स्टेशन उपकरण और सीसीटीवी सिस्टम का आरएमओ (एचएच: एनएम में एडमिन हॉल में वीआरवी सिस्टम लगाना) RMO Lift, HVAC, DG Sets, EI, Fire-Fighting & Fire Alarm System, Fountain Pumps, Sub-Station Equipments & CCTV System at National Museum, Janpath, New Delhi during 2026-27 [SH: Providing VRV System at Admin Hall in NM]	Rs. 16,44,338/-	Rs. 32,887/-	03 Months	08.10.2026 Upto 15:00 hrs	(i) 08.10.2026 15:30 hrs (ii) _____ 15:30 hrs

1. The firms who fulfill the following requirements shall be eligible to apply. (Joint ventures are not accepted):

(i) The eligibility criteria mentioned as below:

(a) OEM or their authorized dealers of preferred makes of VRV System (OEM firm need not to submit any work experience certificate)

OR

- (b) Specialized Firms who have successfully completed similar works on their own name without associating other agency to carry out work and full filling the eligibility condition as mentioned here under **during last 7 years ending last date of month previous to the one in which tenders are invited.**

OR

- (c) Approved and eligible CPWD registered contractors enlisted in Composite Category of appropriate class / Buildings & Roads are also eligible to carry out the work himself/herself provided he fulfills the prescribed eligibility criteria on their own name without associating agency **OR** he has to associate eligible specialized firms with criteria as mentioned here under **during last 7 years ending last date of month previous to the one in which tenders are invited.**

For VRV System

- (a) Three similar works each of value not less than Rs. 6,57,735/- only or two similar works each of value not less than Rs. 9,86,603/- only or one similar work of value not less than Rs. 13,15,470/- only.

NOTE: Similar works means "SITC of VRV/VRF Type AC Systems". The value of the executed similar works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum, calculated from the last day of month previous to the one in which tenders are invited

Firm shall enclose attested copies of completion certificate issued by the officer of client department of rank of Executive Engineer or equivalent alongwith the application. The completion certificate shall clearly indicate:

- i) Name of Work
 - ii) Value of completed work
 - iii) Date of completion of work
 - iv) Performance of work
 - v) Penalty, if any, levied for delay in completion of work or any other reason
 - vi) **Nature of work executed by firm. Copy of the final paid bill if the work is of mixed items involving other nature of works**
- (ii) **The lowest tenderer has to submit, along with the performance guarantee after the acceptance of tender, an undertaking from the OEM regarding:**
- (a) **Authorization certificate.**
 - (b) **The OEM is unconditionally support the lowest tenderer technically throughout the execution of contract as well as for Maintenance/Comprehensive Maintenance Contract for the useful life of the system,**
and
 - (c) **OEM provides all the spares required for healthy functioning of the equipment for at least seven years from the date of supply of equipment.**
- (iii) Should have had Average Annual Financial Turnover of **Rs. 4,93,301/-** during the last three consecutive years ending 31st March 2026 (**Scanned copy of Certificate from CA with Unique Document Identification Number (UDIN) to be uploaded**).The value of annual turnover figures shall be brought to the current value by enhancing the actual turnover figures at simple rate of 7% per annum. (**Not required if applicant is a Composite category registered contractor of CPWD**)
- (iv) Should not have incurred any loss (profit after tax should be positive) in more than two years during the last five years ending 31st March 2026 (**Scanned copy of Certificate from CA with Unique Document Identification Number (UDIN) to be uploaded**) (**Not required if applicant is a Composite category registered contractor of CPWD**)
- (v) Should have a Banker's Certificate from a commercial Bank for **Rs 6,57,735/-** (**Scanned copy of original Banker's certificate to be uploaded**) (**Not required if applicant is a Composite category registered contractor of CPWD**)

OR

Net Worth certificate from CA with Unique Document Identification Number (UDIN) of minimum 10% amount (**Rs. 1,64,434/-**) of ECPT (**Scanned copy of original Net Worth certificate to be uploaded**) (**Not required if applicant is a Composite category registered contractor of CPWD**)

2. The intending bidder must read the terms and conditions of CPWD-6 carefully. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.

3. Information and Instructions for bidders posted on website shall form part of bid document and to be posted on website.
4. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from website www.etender.cpwd.gov.in free of cost.
Bidders are advised to keep visiting the above-mentioned website from time to time (till the deadline for bid submission) for any updates in respect of the tender documents, if any. Failure to do so shall not absolve the applicant of his liabilities to submit the applications complete in all respect including updates thereof, if any. An incomplete application may be liable for rejection.
5. Earnest Money in the form of Insurance Surety Bonds, Account Payee Demand Draft or Banker's Cheque or Fixed Deposit Receipt (FDR), or Bank Guarantee including e-Bank Guarantee (for balance amount as prescribed) from any of the Commercial Bank drawn in favor of **Executive Engineer (E), VBED, CPWD, New Delhi** shall be scanned and uploaded to the e-Tendering website within the period of bid submission. The Original EMD should be deposited either in the office of Executive Engineer inviting bids of division office or any Executive Engineer, CPWD within the period of bid submission. The EMD receiving Executive Engineer (including NIT issuing EE/AE) shall issue a receipt of deposition of earnest money deposit to the bidder in a prescribed format (enclosed) uploaded by the tender inviting EE in the NIT. If the EMD is deposited in Subdivision office then it shall not be considered and tender shall be rejected.
6. But the bid can only be submitted after deposition of original EMD either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission and uploading the mandatory scanned documents. The EMD documents shall only be issued from the place in which the office of receiving division office is situated.
7. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from website www.etender.cpwd.gov.in or www.cpwd.gov.in for free of cost.
8. Those contractors, who are not registered or have not updated their profile on the website mentioned above, are required to get registered / update their profile beforehand. The necessary training materials including the videos with step to step process are available on download section of <https://etender.cpwd.gov.in>
9. The intending bidder must have valid Class-III digital signature certificate with encryption key (combo type) to perform any operations / transactions on the e-tendering portal / website and the bidder should download and install the eMsigner on their system as per instructions available on download section of <https://etender.cpwd.gov.in>.
10. On opening date, the contractor can login and see the bid opening proves. After opening of bids, he will receive the competitor bid sheets.
11. Contractor can upload documents in the form of **JPG** format and **PDF** format.
12. Contractor must ensure to quote rate of each item. The column meant for quoting rate in figures appears in pink colour and the moment rate is entered, it turns sky blue.

In addition to this, while selecting any of the cells a warning appears that if any cell is left blank the same shall be treated as “0”. Therefore, if any cell is left blank and no rate is quoted by the bidder, rate of such item shall be treated as “0” (Zero).

However, If a tenderer quotes nil rates against each item in item rate tender or does not quote any percentage above/below on the total amount of the tender or any section / sub head in percentage rate tender, the tender shall be treated as invalid and will not be considered as lowest tenderer.

The quoted rate shall be inclusive of all Taxes, Royalty, Octroi, GST etc. and bonus payable to workers under labour act. No reimbursement shall be made for taxes paid like GST etc. and Bonus payable under relevant Labour Act.

The “Schedule of Quantity” of the bid may contain items of “Credit” for which bidder is required to quote the percentage for this part either “at par” or “above”. If the bidder quotes the percentage “below”, the same shall be considered “at par” and the bid shall be evaluated accordingly.

13. The department reserves the right to reject any prospective application without assigning any reason and to restrict the list of qualified contractors to any number deemed suitable by it, if too many bids are received satisfying the laid down criterion.

14. It is mandatory to fill details / upload scanned copies of all the documents as stipulated in the bid document. If such document is not uploaded his bid will become invalid and processing fee shall not be refunded.
15. If the Contractor is found ineligible after opening of bids, his bid shall become invalid.
16. **As per DG Circular No. DG/Enlist. Rules-2023/10 dated 22.04.2024, the enlisted contractor will not be allowed to participate in tendering process without uploading the certificate of compulsory ERP Training.**
17. If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies as submitted physically by the lowest Contractor, the bid shall become invalid.
18. The contractor has to follow standard operating procedures and guidelines for construction & maintenance site for covid-19 outbreak issued vide OM No. 2/9/2020-WII/DG/169 dated 05.05.2020 with upto date modification available on CPWD website. It will also form as a part of the agreement.
19. The work is to be executed in the building which is proposed to be a part of re-development plan for Central Vista. This building may be dismantled during currency of the contract. The intending bidders shall note that no claims what so ever on account of foreclosure of the contract shall be paid by the Department.
20. The bidders are advised to inspect and examine the site & its surroundings and satisfy themselves before submitting their tender. A bidder shall be deemed to have full knowledge of the site whether be allowed.
21. The minimum wage of labourers to be paid by contractor shall be the higher of the wage notified by the Govt. of India, Ministry of labour and that notified by the local administration for New Delhi/Delhi State.

A List of Documents to be scanned and uploaded within the period of bid submission:

- (i) Insurance Surety Bond, Demand Draft/ Account Payee Banker's Cheque / FDR/ Bank Guarantee of any commercial Bank against EMD.
- (ii) **Copy of receipt for deposition of original EMD issued from division office of any Executive Engineer, CPWD. If the EMD is deposited in Subdivision office then it shall not be considered and tender shall be rejected.**
- (iii) Copy of Enlistment order of the contractor of the composite category in CPWD in appropriate class / Copy of Valid OEM / authorized dealer certificate
- (iv) Copy of Valid Electrical Contractor License OR UNDERTAKING that they will either obtain valid electrical license at the time of execution of electrical work or associate contractor having valid electrical
- (v) **Form-C and Form-D:** Details of eligible similar nature of works (with completion certificate) completed during the last seven years ending last day of the month previous to the one in which Tenders are invited.

OR

Undertaking that he shall associate any specialized agencies/authorized agencies, OEM's or their authorized dealer as per prescribed eligibility criteria and having valid electrical license (EA and above) and will submit form G, H and I after becoming L1 (For CPWD Registered contractor only)

- (vi) **Form-E:** Affidavit stating that similar works have not been got executed through another Contractor on back to back basis. **(Citing Name of Work & NIT No. on Affidavit duly attested by Notary) (Required only if eligibility documents are submitted as per form 'C' and Form-D at serial No-(v) above or to be submitted after becoming L1 in respect of associate agency)**
- (vii) Copy of average annual financial turnover certificate as per **(Form 'A')**. **(Scanned copy of Certificate from CA to be uploaded)**
- (viii) Copy of No loss certificate as per **(Form 'A')**. **(The balance sheet in case of Public Ltd. company means its standalone finance statement and consolidated financial statement both)**
- (ix) Copy of Banker's Certificate as per **(Form-B)** **(Scanned copy of original Solvency certificate to be uploaded) (Not required if applicant is a Composite category registered contractor of CPWD)**

OR

Copy of Net Worth certificate of minimum 10% of one year ECPT issued by the certified Chartered Accountant (on the format prescribed in Form B-1) (Scanned copy of original Net Worth certificate to be uploaded) (Not required if applicant is a Composite category registered contractor of CPWD)

- (x) GST Registration Certificate, if already obtained by the bidder. If the bidder has not obtained GST registration as applicable then he shall scan and upload following under taking along with other bid documents.
"If work is awarded to me, I/We shall obtain GST registration Certificate, as applicable, within one Months from the date of receipt of award letter or before release of any payment by CPWD, whichever is earlier, failing which I/We shall be responsible for any delay in payments which will be due towards me/us on a/c of the work executed and/or for any action taken by CPWD or GST department in this regard."
- (xi) Acknowledgement of up to date filed return of GST (Goods & Service Tax) as per NIT stipulation
- (xii) Copy of PAN Card
- (xiii) The agency should upload Bank Account Details registered with his firm like Bank name, A/c Number, IFSC Code, A/c name on blank paper/firm letter head with valid email ID and Mobile No. or Bank Pass Book having details of Account
- (xiv) Copy of certificate of compulsory ERP Training issued through LMS of ERP obtained by enlisted contractor either himself or his authorized representative
- (xv) Any other Document as specified in the NIT

Note:

1. ***List of documents mentioned in point No. 7, 8 & 9 are not applicable for CPWD enlisted contractors of appropriate class***
2. ***List of documents mentioned in Point No. 3 is not applicable for specialized Firms***
3. ***List of documents mentioned in Point No. 3, 4, 5 & 6 are not applicable for OEM's***

B List of Documents to be submitted after acceptance of Bid

- (i) **Form G:** Proposal for eligible Associating Agency for specialized works.
- (ii) **Form-H:** Consent letter from eligible Associating Agency for Specialized works.
- (iii) **Form-I:** MoU to be signed between CPWD contractor and Associate Specialized Agency.
- (iv) **Form E:** Affidavit stating that similar works have not been got executed through another Contractor on back to back basis. **(Required to be submitted after becoming L1 in respect of associate agency)**

कार्यपालक अभियंता (वै.)
 विज्ञान भवन वैद्युत मंडल
 के.लो.नि.वि., नई दिल्ली।

भारत सरकार
Government of India
 केंद्रीय लोक निर्माण विभाग
Central Public works Department
 निविदा आमंत्रण सूचना
NOTICE INVITING TENDER
CPWD-6 FOR E-TENDERING

कार्यपालक अभियंता (वै.), वि.भ.वै.मं., के.लो.नि.वि., ब्लॉक-6, जोधपुर अधिकारी हॉस्टल, नई दिल्ली-110003 (ई-मेल: deleeevbed.cpwd@nic.in) भारत के राष्ट्रपति की ओर से निम्नलिखित कार्य के लिए **सीपीडब्ल्यूडी** पंजीकृत ठेकेदारों को उपयुक्त वर्ग/भवन एवं सडकों, ओईएम/विशेषीकृत फर्मों की समग्र श्रेणी में सूचीबद्ध किया गया है से ऑनलाईन प्रतिशत दर निविदाएं आमंत्रित करते हैं:-

The Executive Engineer (E), Vigyan Bhawan Electrical Division, CPWD, Block-6, Jodhpur Officer Hostel, New Delhi-110003 (e-mail: deleeevbed.cpwd@nic.in) on behalf of the President of India invites online **Percentage rate Composite Bid e-tender in two bid system** from **CPWD registered contractors enlisted in Composite Category of appropriate class / Buildings & Roads, OEM/Specialized Firms** for the following work:

कार्य का नाम: नई दिल्ली के जनपथ स्थित नेशनल म्यूजियम में 2026-27 के दौरान लिफ्ट, एचवीएसी, डीजी सेट, ईआई, फायर-फाइटिंग और फायर अलार्म सिस्टम, फाउंटेन पंप, सब-स्टेशन उपकरण और सीसीटीवी सिस्टम का आरएमओ (एचएच: एनएम में एडमिन हॉल में वीआरवी सिस्टम लगाना)

Name of Work: **RMO Lift, HVAC, DG Sets, EI, Fire-Fighting & Fire Alarm System, Fountain Pumps, Sub-Station Equipments & CCTV System at National Museum, Janpath, New Delhi during 2026-27 [SH: Providing VRV System at Admin Hall in NM]**

The enlistment of the contractor should be valid on the last date of submission of bids.

In case the last date of submission of bids is extended, the enlistment of contractor should be valid on the original date of submission of bids.

1. The work is estimated to cost for **Providing VRV System at Admin Hall in NM** is **Rs. 16,44,338/- only**. This estimate, however, is given merely as a rough guide.
- 1.1 **To become eligible for submission of bids, the bidders/associates shall have to furnish an affidavit as under:-**
 I/We undertake and confirm that eligible similar works(s) has/have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of Department, then I/we shall be debarred for bidding in CPWD in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee. (Scanned copy to be uploaded at the time of submission of bid) **Note: (Affidavit to be furnished on a "Non-Judicial" Stamp Paper Worth Rs. 10/-)**
2. Agreement shall be drawn with the successful bidders on prescribed Form No. CPWD-7 (or other Standard Form as mentioned) which is available as a Govt. of India Publication and also available on website www.etender.cpwd.gov.in. Bidders shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.
3. The time allowed for carrying out the work will be **03 Months** from the date of start as defined in schedule 'F' or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the tender documents.
4. The site for the work is available.
5. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents except Standard General Conditions of Contract Form can be seen from website www.etender.cpwd.gov.in free of cost.
6. After submission of the bid the bidder can re-submit revised bid any number of times but before last time and date of submission of bid as notified.
7. While submitting the revised bid, bidder can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the items) but before last time and date of submission of bid as notified.

8. When bids are invited in Two/Three stage system and if it is desired to submit revised financial bid then it shall be mandatory to submit revised financial bid. If not submitted, then the bid submitted earlier shall become invalid.
9. Earnest Money in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee (for balance amount as prescribed) from any of the Commercial Banks (drawn in favour of **Executive Engineer (E), VBED, CPWD, New Delhi**) shall be scanned and uploaded on the e-Tendering website within the period of bid submission. The original EMD should be deposited either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission. The EMD receiving Executive Engineer (including NIT issuing EE/AE) shall issue a receipt of deposition of earnest money deposit to the bidder in a prescribed format (enclosed) uploaded by tender inviting EE in the NIT.
 A part of earnest money is acceptable in the form of bank guarantee also. In such case, minimum 50% of earnest money or Rs. 20 lac, whichever is less, shall have to be deposited in shape prescribed above, and balance may be deposited in shape of Bank Guarantee of any Commercial bank having validity for a period of 90 days for single bid works and 180 days for two bid system or more from the last date of receipt of bids which is to be scanned and uploaded by the intending bidders.
 The earnest money given by all the tenderers except the lowest tenderer shall be refunded immediately after the expiry of stipulated bid validity period or immediately after acceptance of the successful bidder, whichever is earlier. However, in case of two/ three bid system, earnest money deposit of bidders unsuccessful during technical bid evaluation etc. should be returned within 30 days of declaration of result of technical bid evaluation.
 Copy of Enlistment Order and certificate of work experience and other documents as specified in the notice inviting e- tender shall be scanned and uploaded on the e-Tendering website within the period of bid submission. However, certified copy of all the scanned and uploaded documents as specified in e- tender notice shall have to be submitted by the lowest bidder within a week physically in the office of tender opening authority. Online bid documents submitted by intending bidders shall be opened only of those bidders, whose original EMD deposited with any division of CPWD and other documents scanned and uploaded are found in order.
 The bid submitted shall be opened at **03:30 PM on 08.10.2026**
10. The bid submitted shall become invalid and e-Tender processing fee shall not be refunded if:-
 - (i) The bidder is found ineligible.
 - (ii) The bidder does not upload scanned copies of all the documents stipulated in the Bid Document.
 - (iii) If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies as submitted physically by the lowest bidder in the office of bid opening authority.
 - (iv) If a tenderer does not quote any percentage above/below on the total amount of the tender or any section/sub head in percentage rate tender, then the tender shall be treated as invalid and will not be considered as lowest tenderer.
11. The contractor whose bid is finally accepted will be required to furnish **performance guarantee of 5% (Five Percent)** of the **Estimated Cost Put to Tender (ECPT) or quoted amount (Whichever is higher) as mentioned in Schedule 'E'** and within the period specified in schedule F. This guarantee shall be in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt or Bank Guarantee from any of the Commercial Banks in accordance with the prescribed form. In case the contractor fails to deposit the said performance guarantee within the period as indicated in Schedule 'F', including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor. The earnest money deposited along with bid shall be returned after receiving the aforesaid performance guarantee. The contractor whose bid is accepted will also be required to furnish either copy of applicable licenses/ registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC and BOCW Welfare Board including Provident Fund Code No. If applicable and also ensure the compliance of aforesaid provisions by the subcontractors, if any engaged by the contractor for the said work within the period specified in Schedule F.
- 11.1 **Where the tendered amount is less than eighty percent (80%) of the Estimated Cost Put to Tender (ECPT), the Performance Guarantee, in addition to the requirement under point 11 above, shall be increased by an amount equal to the difference between eighty percent (80%) of the ECPT and the tendered amount**
12. **The description of the work is as follows:**

नई दिल्ली के जनपथ स्थित नेशनल म्यूजियम में 2026-27 के दौरान लिफ्ट, एचवीएसी, डीजी

सेट, ईआई, फायर-फाइटिंग और फायर अलार्म सिस्टम, फाउंटेन पंप, सब-स्टेशन उपकरण और सीसीटीवी सिस्टम का आरएमओ (एचएच: एनएम में एडमिन हॉल में वीआरवी सिस्टम लगाना)
RMO Lift, HVAC, DG Sets, EI, Fire-Fighting & Fire Alarm System, Fountain Pumps, Sub-Station Equipments & CCTV System at National Museum, Janpath, New Delhi during 2026-27 [SH: Providing VRV System at Admin Hall in NM]

Intending bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bids as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid. A bidder shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The bidders shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a bid by a bidders implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work.

13. The competent authority on behalf of the President of India does not bind itself to accept the lowest or any other bid and reserves to itself the authority to reject any or all the bids received without the assignment of any reason. All bids in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidders shall be summarily rejected.
14. Canvassing whether directly or indirectly, in connection with bidders is strictly prohibited and the bids submitted by the contractors who resort to canvassing will be liable to rejection.
15. The competent authority on behalf of President of India reserves to himself the right of accepting the whole or any part of the bid and the bidders shall be bound to perform the same at the rate quoted.
16. The contractor shall not be permitted to bid for works in the CPWD Circle (Division in case of contractors of Horticulture/Nursery category) responsible for award and execution of contracts, in which his near relative is posted as Divisional Accountant or as an officer in any capacity between the grades of Superintending Engineer and Junior Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any gazetted officer in the Central Public Works Department or in the Ministry of Urban Development. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of this Department.
17. No Engineer of Gazetted rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as a contractor for a period of one year after his retirement from Government service, without the previous permission of the Government of India in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of India as aforesaid before submission of the bid or engagement in the contractor's service.
18. **The bid for the works shall remain open for acceptance for a period of 75 days from the date of opening of bid in case of two bid system.**
 - (i) If any tenderer withdraws his tender or makes any modification in the terms & conditions of the tender which is not acceptable to the department within 7 days after last date of submission of bids, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 50% of the earnest money absolutely irrespective of letter of acceptance for the work is issued or not.
 - (ii) If any tenderer withdraws his tender or makes any modification in the terms & conditions of the tender which is not acceptable to the department within 7 days after last date of submission of bids, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 100% of the earnest money absolutely irrespective of letter of acceptance for the work is issued or not.
 - (iii) In case of forfeiture of earnest money as prescribed in para (i) and (ii) above, the bidders shall not be allowed to participate in the rebidding process of the same work.
19. This notice inviting Bid shall form a part of the contract document. The successful bidder/ contractor, on acceptance of his bid by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract consisting of:-
 - (a) The Notice Inviting Bid, all the documents including additional conditions, specifications and drawings, if any, forming part of the bid as uploaded at the time of invitation of bid and the rates quoted online at

the time of submission of bid and acceptance thereof together with any correspondence leading thereto.

- (b) Standard **C.P.W.D. Form 7** or other Standard C.P.W.D. Form as applicable.
- 20.** Integrity Pact: The contractor shall download the Integrity Pact, which is a part of tender documents, affix his signature in the presence of a witness, and upload the same while submitting online bids for all works of estimated cost put to tender equal or more than the threshold value given I Schedule-F. In the event of his failure to sign and upload the Integrity Pact along with other bid documents, his bid shall be rejected.
- 21.** The intending bidders are required to update their profile in CPWD e-tender portal and to upload their bids well in advance of last date of submission of tender. Any issue related to updating profile/uploading tender can be resolved through the concerned Executive Engineer/Assistant Engineer (011-23022227/Fax: 011-23022164 e-mail: deleeevbed.cpwd@nic.in or ERP help line no 18001803286 or E-mail ID cpwd.support@techmahindra.com. The e-tendering bidders are also advised not to wait to raise any issues till the last date of submission of bid in their own interest.

***Executive Engineer (E)
VBED, CPWD, Jodhpur Officer Hostel
New Delhi-110003***

FORM 'A'**FINANCIAL INFORMATION**

- I. Financial Analysis – Details to be furnished duly supported by figures in balance sheet/ profit & loss account for the last three years duly certified by the Chartered Accountant, as submitted by the applicant to the Income Tax Department (Copies to be attached).

Years

FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26

- (i) Gross Annual turnover
- (ii) Profit (After deducting tax)/Loss.

Signature of Chartered Accountant with Seal

Signature of Bidder(s).

Note: The bidder may submit the scanned copy of CA certified provisional balance sheet for the financial year 2025-26. For the preceding four years, the audited balance sheet duly certified by the CA shall be uploaded).

FORM "B"

FORM OF BANKERS' CERTIFICATE FROM A COMMERCIAL BANK

This is to certify that to the best of our knowledge and information that M/s/Sh
having marginally noted
 address,.....
 a customer of our bank are/is respectable and can be treated as good for any engagement upto a
 limit of Rs...../- Rupees.....).
 This certificate is issued without any guarantee or responsibility on the bank or any of the officers.

(Signature)

For the Bank

(With bank seal)

NOTE:

- (1) Bankerscertificates should be on letter head of the Bank, **addressed to Executive Engineer (E), Vigyan Bhawan Electrical Division, CPWD.**
- (2) In case of partnership firm, certificate should include names of all partners as recorded with the Bank.

Form - B-1**FORM FOR CERTIFICATE OF NET WORTH FROM CHARTERED ACCOUNTANT**

It is to certify that as per the audited balance sheet and profit and loss account during the financial year, the Net Worth of M/s (Name & Registered Address of Individual/firm/company), as on (the relevant date) is Rs. after considering all liabilities. It is further certified that the Net worth of the company has not eroded by more than 30% in the last three years ending on (the relevant date)."

Unique Document Identification Number (UDIN)

Signature of Chartered Accountant

.....

Name of Chartered Accountant

.....

Membership No. of ICAI

Date and Seal

FORM 'C'**DETAILS OF ELIGIBLE SIMILAR NATURE OF WORKS COMPLETED DURING THE LAST SEVEN YEARS ENDING LAST DATE OF THE MONTH PREVIOUS TO THE ONE IN WHICH TENDERS ARE INVITED**

Sl.No	Name of work/project and location	Owner or sponsoring organization	Cost of work in crores of rupees	Date of commencement as per contract	Stipulated date of completion	Actual date of completion	Litigation/arbitration cases pending/in progress with details*	Name and address/telephone number of officer to whom reference may be made	Remarks i/c grant of extension of Time with/without levy details	Whether the work was done on back to back basis Yes/No
1	2	3	4	5	6	7	8	9	10	11

* Indicate gross amount claimed and amount awarded by the Arbitrator.

Signature of Bidder(s)

Note: The agency should give list of only those eligible works which are of '**SIMILAR NATURE**'.

FORM 'D'**PERFORMANCE REPORT OF WORKS REFERRED TO IN FORMS "C"**

1. Name of Work/ Project & Location
2. Agreement no.
3. Estimated cost Rs.
4. Tendered cost
 - 4.1 Completion cost Rs.
5. Date of start
6. Date of completion
 - (i) Stipulated date of completion
 - (ii) Actual date of completion
7. (a) Whether case of levy of compensation for delay has been decided or not Yes/No
 - (b) If decided, amount of compensation levied for delayed completion, if any Rs.
8. Performance Report
 - (1) Quality of work Outstanding/Very Good/Good/Poor
 - (2) Financial soundness Outstanding/Very Good/Good/Poor
 - (3) Technical Proficiency Outstanding/Very Good/Good/Poor
 - (4) Resourcefulness Outstanding/Very Good/Good/Poor
 - (5) General Behavior Outstanding/Very Good/Good/Poor

Dated:

Executive Engineer or Equivalent
(Signature with office stamp)

FORM - E

Name of work: RMO Lift, HVAC, DG Sets, EI, Fire-Fighting & Fire Alarm System, Fountain Pumps, Sub-Station Equipments & CCTV System at National Museum, Janpath, New Delhi during 2026-27 [SH: Providing VRV System at Admin Hall in NM]

NIT No.: 101/EE(E)/VBED/2026-27

I/We undertake and confirm that eligible similar works(s) has/have not been got executed through another contractor on **back to back basis**. Further that, if such a violation comes to the notice of Department, then I/we shall be debarred for bidding in CPWD in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee.

(Scanned copy to be uploaded at the time of submission of bid)

Note: (Affidavit to be furnished on a “Non-Judicial” Stamp Paper Worth Rs. 10/-)

Signature of Notary with seal

(Signature of Bidder(s))

Or

an authorized officer of the firm with stamp

FORM – F

FORMAT OF RECEIPT OF DEPOSITION OF ORIGINAL EMD

RECEIPT OF DEPOSITION OF ORIGINAL EMD (RECEIPT NO. / DATE)	
1.	NAME OF WORK: RMO LIFT, HVAC, DG SETS, EI, FIRE-FIGHTING & FIRE ALARM SYSTEM, FOUNTAIN PUMPS, SUB-STATION EQUIPMENTS & CCTV SYSTEM AT NATIONAL MUSEUM, JANPATH, NEW DELHI DURING 2026-27 [SH: PROVIDING VRV SYSTEM AT ADMIN HALL IN NM]
2.	NIT NO. : 101/ EE (E)/VBED/2026-27
3.	ESTIMATED COST : RS. 16,44,338/-
4.	AMOUNT OF EARNEST MONEY DEPOSIT : RS. 32,887/-
5.	LAST DATE OF SUBMISSION OF BID : 08.10.2026
(*To be filled by NIT approving authority / EE at the time of issue of NIT and uploaded along with NIT)	
1.	NAME OF CONTRACTOR#
2.	FORM OF EMD#
3.	AMOUNT OF EARNEST MONEY DEPOSIT#
4.	DATE OF SUBMISSION OF EMD#
Signature, Name and Designation of EMD Receiving officer (EE/AE(P)/AE/AAO) Along with Office Stamp (# To be filled by EMD receiving EE or NIT issuing EE/AE as the case may be)	

1. The Executive Engineer receiving EMD in original form shall examine the EMD deposited by the bidder and shall issue a receipt of deposition of earnest money to the agency in a given format uploaded by tender inviting EE. The receipt may be issued by the AE(P)/AAO.
2. The original EMD receiving Executive Engineer shall release the EMD after verification from the e-tendering portal website (www.tenderwizard.com>tender free view>advance search>awarded tenders) that the particular contractor is not L-1 bidder and work is awarded.
3. The tender inviting Executive Engineer will call for original EMD of the L-1 bidder from EMD receiving Executive Engineer immediately.

FORM-G**PROPOSAL FOR ELIGIBLE ASSOCIATING AGENCIES FOR SPECIALIZED WORK**

I/we hereby propose the following agencies as per mentioned against each for executing corresponding minor components of work. Their consent letters are also attached.

<i>S. No.</i>	<i>Name of Associated Agency</i>	<i>Category & Class of the Registrations</i>	<i>Enlistment copy completion certificates attached</i>	<i>Monetary Limit of work</i>	<i>Validity of Registration</i>	<i>Consent letter attached Yes / No</i>

Note: Self Attested photocopies of enlistment order, valid electrical contractor license, work experience certificates of each agency for each component of E&M work shall be submitted.

Signature of contractor

FORM - H

CONSENT LETTER FROM ELIGIBLE ASSOCIATE AGENCY FOR SPECIALIZED WORK(S)

(To be submitted for each and every E&M Component)

Name of work: RMO Lift, HVAC, DG Sets, EI, Fire-Fighting & Fire Alarm System, Fountain Pumps, Sub-Station Equipments & CCTV System at National Museum, Janpath, New Delhi during 2026-27 [SH: Providing VRV System at Admin Hall in NM]

1. I / We hereby give my consent to associate with M/s, for executing the minor component of work of (Mention specialized work(s)).
2. I / We will execute the work as per specifications and conditions of the agreement and as per directions of the Engineer-in-Charge for the corresponding specialized work(s) till the completion of the work.
3. I / We will be responsible for necessary action to handover the installations and for rectification of defects and repair during the maintenance / warranty period.
4. Also I / We will employ full time technically qualified Engineer / supervisor for the specialized work(s) component of the work as required for the work and list of same shall be made available to Engineer-in-Charge. I / We will attend inspection of officers of the department as and when required.

Date:

Signature with date of Main Agency/Contractor

Signature with date of Associate Specialized Agency

Address :

Address :

1. Witness with address
(From Main Contractor side)

2. Witness with address
(From Associated Agency side)

FORM - I**AFFIDAVIT OF MEMORANDUM OF UNDERSTANDING [MoU] BETWEEN**

- 1] M/S [Name of the firm/agency with full address]

Enlistment Status

Valid Upto:

[Henceforth called the Main Contractor]

And

- 2] M/S [Name of the firm/agency with full address]

Enlistment Status

Valid Upto:

[Henceforth, called Associated Specialized Agency]

1. For the execution of Specialized Work(s)
.....**as per schedule, specifications, terms and conditions of the agreement.**

We state that MoU between us will be treated as an agreement and has legality as per Indian Contract Act [amended upto date] and the department [CPWD] can enforce all the terms and conditions of the agreement for execution of the above work. Both of us shall be responsible for the execution of work as per the agreement to the extent this MOU allows. Both the parties shall be paid consequent to the execution as per agreement to the extent this MoU permits. In case of any dispute, either of us will go for mediation by the EE (C) / EE (E), CPWD, New Delhi. Any of us may appeal against the mediation to the **SE, VB, CPWD, New Delhi**. His decision shall be final and binding on both of us.

We have agreed as under:

- 1) The Associated Specialized Agency will execute all specialized work(s) in the wholesome manner as per terms and conditions of the agreement and as per the direction of the Engineer-in-charge.
- 2) That the Associated Specialized Agency has gone through the contract and has understood the scope of work required for the purpose of executing the specialized work(s).
- 3) All the machinery and equipments, tools and plants, special T&P required for execution of the specialized work(s), as per agreement, shall be the responsibility of the Associated Specialized Agency.
- 4) The site staff required for the specialized work(s) shall be arranged by the Associated Specialized Agency as per terms and conditions of the agreement.
- 5) Site order book maintained for the said work shall be signed by the authorized representative of Main Contractor as well as associated specialized Agency.
- 6) All the correspondence regarding execution of the specialized work(s) shall be done by the Department with the Main Contractor. In case of non-compliance of the provisions of agreement, the Main Contractor, shall be responsible for any failure of Associated agency. The action under clauses 2 and 3 shall be initiated and taken against the Main Contractor.

Signature of Main Contractor

Date:

Place:

Signature of Associated Specialized Agency

Date:

Place:

Note: (Affidavit to be furnished on a “Non-Judicial” Stamp Paper Worth Rs. 100/-)

भारत सरकार GOVERNMENT OF INDIA**केन्द्रीय लोक निर्माण विभाग CENTRAL PUBLIC WORKS DEPARTMENT**

राज्य STATE :New Delhi

परिमंडल CIRCLE :VB

शाखा BRANCH :E & M

मंडल DIVISION :VBED

अंचल ZONE :ADG (Delhi)

उपमंडल SUB-DIVISION :IV

कार्यों के लिए मद दर निविदा एवं संविदा

Percentage Rate Bid & Contract for Works

(A) कार्य के लिए निविदा

Bid for the work of

नई दिल्ली के जनपथ स्थित नेशनल म्यूजियम में 2026-27 के दौरान लिफ्ट, एचवीएसी, डीजी सेट, ईआई, फायर-फाइटिंग और फायर अलार्म सिस्टम, फाउंटेन पंप, सब-स्टेशन उपकरण और सीसीटीवी सिस्टम का आरएमओ (एचएच: एनएम में एडमिन हॉल में वीआरवी सिस्टम लगाना)

RMO Lift, HVAC, DG Sets, EI, Fire-Fighting & Fire Alarm System, Fountain Pumps, Sub-Station Equipments & CCTV System at National Museum, Janpath, New Delhi during 2026-27 [SH: Providing VRV System at Admin Hall in NM]

(i) Bids to be submitted online by **3.00 PM on 08.10.2026**(ii) To be opened on line in presence of bidders who may be present at **03.30 PM on 08.10.2026 in the office of Executive Engineer (E), VBED, CPWD, New Delhi.****निविदा / TENDER**

मैंने/हमने कार्य के लिए निविदा आमंत्रण सूचना, अनुसूची क,ख,ग,घ, ङ, और च, लागू विनिर्देश, नक्शे एवं डिजाइन, सामान्य नियम एवं निर्देश, ठेके के उपबंध, विशिष्ट शर्तें, दर अनुसूची एवं अन्य कागजात तथा ठेके की शर्तों में दिए गए नियम तथा निविदा कागजात में उल्लिखित अन्य बातों को पढ़ व जांच लिया है।

I/We have read and examined the notice inviting bid, schedule, A,B,C,D,E & F Specifications applicable. Drawings & Designs, General Rules and Directions, Conditions of Contract, clause of contract, Special conditions, Schedule of Rate & other documents and Rules referred to in the conditions of contract and all other contents in the bid documents for the work.

मैं/हम, एतद्वारा भारत के राष्ट्रपति के लिए अनुसूची 'च' में विनिर्दिष्ट समय के भीतर विनिर्दिष्ट कार्य, यथा-मात्राओं की अनुसूची तथा सभी संबंधित विनिर्देशों, डिजाइनों, नक्शों के अनुरूप तथा सामान्य नियमावली के नियम-1 और ठेके की शर्तों के खंड-11 में उल्लिखित लिखित अनुदेशों एवं ऐसी सामग्रियों, जो प्रदान की जाती है और उसके संबंध में, ऐसी शर्तें जो लागू हों, के अनुरूप निष्पादन हेतु निविदा देता हूँ/देते हैं।

I/We hereby bid for the execution of the work specified for the President of India within the time specified in Schedule 'F', viz., schedule of quantities and in accordance in all respects with the specifications, designs, drawings and instructions in writing referred to in Rule-1 of General Rules and Directions and in Clause 11 of the Conditions of contract and with such materials as are provided for, by, and in respects in accordance with, such conditions so far as applicable.

We agree to keep the bid open for 75 (Seventy Five) days from the date of opening of bids in case of two bid system and not to make any modification in its terms and conditions.

रूपये 32,887 /- की धनराशि, धरोहर राशि के रूप में नकद/देजरी चालान रसीद/अनुसूचित बैंक की माँग जमा रसीद/अनुसूचित बैंक की सावधी जमा रसीद/ अनुसूचित बैंक के डिमांड ड्राफ्ट/अनुसूचित बैंक द्वारा जारी बैंक गारंटी के रूप में एतद्वारा अग्रेषित की जाती है। यदि मैं/हम निर्धारित निष्पादन गारंटी को निर्धारित समय अवधि में प्रस्तुत करने में असफल रहते हैं तो मैं/हम यह मंजूर करते हैं कि भारत के उक्त राष्ट्रपति या उनके कार्यालय के उत्तराधिकारी किसी अन्य अधिकारी या उपचारी उपाय पर प्रतिकूल प्रभाव डाले बिना उक्त धरोहर राशि जब्त करने के लिए पूर्णतया स्वतंत्र होंगे। इसके अलावा, यदि मैं/हम विनिर्दिष्ट कार्य प्रारम्भ करने के असफल रहते हैं तो मैं/हम यह मंजूर करते हैं कि भारत के राष्ट्रपति या उनके कार्यालय के उत्तराधिकारी कानून में उपलब्ध किसी अन्य अधिकार या उपचारी उपाय पर प्रतिकूल प्रभाव डाले बिना उक्त धरोहर राशि, तथा निष्पादन गारंटी जब्त करने के लिए पूर्णतया स्वतंत्र होंगे अन्यथा उक्त धरोहर राशि निविदा कागजात के अनुसार उसमें निहित शर्तों व निबंधनों के अनुसार कार्यों के निष्पादन एवं आदिष्ट विचलनों को अनुसूची 'च' में वर्णित प्रतिशत से अनधिक व निविदा प्रपत्र के खण्डों 12.2 व 12.3 में निहित प्रावधानों के अनुसार निश्चित की जाने वाली दरों पर उस सीमा से अधिक के विचलनों के करने के लिए उनके द्वारा प्रतिभूति-निक्षेप के रूप में रोक ली जायेगी। इसके अतिरिक्त मैं/हम सहमत हैं कि बयाना राशि या बयाना राशि तथा उपर्युक्त निष्पादन गारंटी जब्त हो जाने के मामले में मुझे/हमें कार्य की पुनः निविदा प्रक्रिया में भाग लेने से रोक दिया जाएगा।

If I/we, fail to furnish the prescribed performance guarantee within prescribed period. I/we agree that the said President of India or his successors in office shall without prejudice to any other right or remedy. Further, if I/we fail to commence work as specified, I/we agree that President of India or his successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said performance guarantee absolutely and debarred for participation in the re-tendering process of the work.

A sum of **Rs. 32,887/-** is here by forwarded in Receipt Treasury Challan /Deposit at call Receipt of a Scheduled Bank /fixed deposit receipt of schedule bank/demand draft of a Scheduled bank/Bank Guarantee issued by a schedule bank, as earnest money. If I/we, fail to furnish the prescribed performance guarantee within prescribed period. I/we agree that the said President of India or his successors in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I/we fail to commence work as specified, I/we agree that President of India or his successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said earnest money and the performance guarantee absolutely, otherwise the said earnest money shall be retained by him towards security deposit to execute all the works referred to in the bid documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be ordered, upto maximum of the percentage mentioned in schedule 'F' and those in excess of that limit at the rates to be determined in accordance with the provision contained in clause 12.2 and 12.3 of the bid form. Further I/we agree that in case of forfeiture of Earnest money or both earnest money & Performance Guarantee as aforesaid, I/we shall be debarred for participation in the re-tendering process of the work.

I/We undertake and confirm that eligible similar work(s) has/have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of Department, then I/We shall be debarred for bidding in CPWD in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee.

मैं/हम एतद्वारा घोषणा करते हैं कि मैं/हम निविदा कागजातों, नक्शों और कार्य से संबंधित अन्य अभिलेखा को गुप्त/गोपनीय कागजात के रूप में रखेंगे और उनसे प्राप्त/ली गई जानकारी किसी अन्य को, जिन्हें मैं/हम सूचित करने के लिए प्राधिकृत हो, से भिन्न किसी को, नहीं बताएंगे या जानकारी को किसी ऐसे रूप में प्रयोग नहीं करेंगे जो राज्य की सुरक्षा के लिए प्रतिकूल हो।

I/We hereby declare that I/we shall treat the bid documents drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived there from to any person other than a person to whom I/We am/are authorized to communicate the same or use the information in any manner prejudicial to the safety of the State.

तारीख Dated:

टेकेदार के हस्ताक्षर Signature of Contractor
डाक पता Postal Address

साक्षी Witness : #

पता Address: #

उपजीविका Occupation : #

स्वीकृति /ACCEPTANCE

मैं भारत के राष्ट्रपति की ओर से तथा उनके लिए रु0:- '.....' (रुपये '.....') की राशि के लिए उपर्युक्त निविदा

(अधोलिखित पत्रों के अनुसार परिवर्तित) स्वीकार करता हूँ।

The above bid (as modified by you as provided in the letters mentioned hereunder) is accepted by me for and on behalf of the President of India for a sum of Rs. *..... (Rupees*.....).

नीचे दिए गए पत्र इस ठेका करार का हिस्सा होंगे।

The letters referred to below shall form part of this contract Agreement:-

i) *

ii) *

iii) *

भारत के राष्ट्रपति की ओर से तथा उनके लिए
For & on behalf of the President of India
हस्ताक्षर Signature
पदनाम Designation

तारीख Dated *.....

कार्यों की अनुसूचियां SCHEDULES FOR WORK

- अनुसूची 'क' SCHEDULE 'A'** :
- मात्राओं की अनुसूची (संलग्न) : **As attached herewith**
 Schedule of quantities (Enclosed)
- अनुसूची 'घ' SCHEDULE 'D'** :
- कार्य के लिए विशिष्ट आवश्यकताओं/दस्तावेज़ के लिए : **NIL**
 अतिरिक्त अनुसूची, यदि कोई हो
 Extra schedule for specification requirements/
 document for the work, if any
- अनुसूची 'ड' SCHEDULE 'E'**
- 1 ठेके की सामान्य शर्तों का संदर्भ : **General Conditions of Contract for maintenance Works – 2023 with upto date correction slip issued upto the previous day to last date of submission of the tender**
 Reference to General Conditions of contract.
- (i) कार्य का नाम: : नई दिल्ली के जनपथ स्थित नेशनल म्यूजियम में 2026–27 के दौरान लिफ्ट, एचवीएसी, डीजी सेट, ईआई, फायर-फाइटिंग और फायर अलार्म सिस्टम, फाउंटेन पंप, सब-स्टेशन उपकरण और सीसीटीवी सिस्टम का आरएमओ (एचएच: एनएम में एडमिन हॉल में वीआरवी सिस्टम लगाना)
Name of Work:- **RMO Lift, HVAC, DG Sets, EI, Fire-Fighting & Fire Alarm System, Fountain Pumps, Sub-Station Equipments & CCTV System at National Museum, Janpath, New Delhi during 2026-27 [SH: Providing VRV System at Admin Hall in NM]**
- (ii) कार्य की अनुमानित लागत : **Rs. 16,44,338/-**
 Estimated cost of work:
- (iii) धरोहर राशि : **Rs. 32,887/-**
 Earnest money:
- (iv) निष्पादन गारंटी : **(a) 5% of Tender Value or Estimated Cost Put to Tender (ECPT) (Whichever is higher)**
Performance Guarantee :
(b) Where the tendered amount is less than eighty percent (80%) of the Estimated Cost Put to Tender (ECPT), the Performance Guarantee, in addition to the requirement under (a) above, shall be increased by an amount equal to the difference between eighty percent (80%) of the ECPT and the tendered amount
- (v) प्रतिभूति निक्षेप: **2.5% of Tender Value**
Security Deposit:
- अनुसूची 'च' SCHEDULE 'F'**
- सामान्य नियम एवं दिशानिर्देश:
General Rules & Directions.
- निविदा आमंत्रण करने वाला प्राधिकारी : **Executive Engineer (E)**
 Officer inviting tender **VBED, CPWD, New Delhi or his successor thereof**
- परिभाषाएँ:— Definitions:**

- 2(v) भारसाधक इंजीनियर : **Executive Engineer (E)**
Engineer-in-Charge **VBED, CPWD, New Delhi or his successor thereof**
- 2(viii) स्वीकार कर्ता प्राधिकारी : **Executive Engineer (E)**
Accepting Authority **VBED, CPWD, New Delhi or his successor thereof**
- 2(x) अतिरिक्त और लाभों को पूरा करने के लिए : **15%**
सामग्रियों की लागत पर प्रतिशतता
Percentage on cost of materials and labour to cover all overheads and profits.
- 2(xi) दरों की मानक अनुसूची : **DSR-2025 E&M & AOR (with amendments /**
Standard Schedule of Rates **correction slip upto last date of receipt of bids)**
- 2(xii) विभाग : **Central Public Works Department**
Department
- 9(ii) मानक के.लो.नि.वि. ठेका फार्म, संशोधित और : **CPWD form 7, GCC 2023 (Maint. Work) as**
शोधित के.लो.नि.वि. फार्म **modified and corrected upto the previous**
Standard CPWD contract form **day to last date of submission of the tender**

खण्ड—1**Clause 1**

- (i) स्वीकृति पत्र जारी होने की तारीख से निष्पादन : **07 Days**
गारंटी के प्रस्तुतीकरण के लिए अनुमत समय,
दिनों में।
Time allowed for submission of
Performance Guarantee from the date of
issue of letter of acceptance, in days
- (ii) ,क्सटेंशन, दिनों में : **03 Days on written request of contractor**
Maximum allowable extension with late fee **stating the reason of delay in procuring**
@ 0.1% per day of performance guarantee **performance guarantee to the satisfaction of**
amount beyond the period provided in (i) **Engineer-in-Charge.**
above

खण्ड—2**Clause 2**

- खण्ड 2 के तहत प्रतिकर निश्चित करने वाला : **Superintending Engineer**
प्राधिकारी **Vigyan Bhawan, CPWD,**
Authority for fixing compensation under **New Delhi or his successor thereof**
Clause 2

खण्ड—2ए**Clause 2A**

- क्या खण्ड 2। क लागू होगा। : **No**
Whether Clause 2A shall be applicable

खण्ड—5**Clause 5**

- कार्य आरम्भ करने की तारीख की गणना के : **10 Days**
लिए स्वीकृति पत्र जारी होने की तारीख से दिनों
की संख्या
Number of days from the date of issue of
letter of acceptance for reckoning date of
start

लक्ष्य मील-पत्थर। सारणी: लक्ष्य नीचे दी गई सारणी अनुसार

Table of Milestones: --As per Table given below

Sl. No.	Description of Milestone (Physical)	Time Allowed in Days (from date of start)	Amount to be withheld in case of non-achievement of milestone (Percentage of bid amount)

कार्य निष्पादित करने के लिए अनुमत्य समय : **03 Months**

Time allowed for execution of work

निर्णायक प्राधिकारी

Authority to Decide :

- i. Authority to convey the decision of shifting of milestone and extension of time : **Executive Engineer (E) VBED, CPWD, New Delhi or his successor thereof**
- ii. Authority to decide rescheduling of milestone and extension of time : **Superintending Engineer, Vigyan Bhawan I.P. Bhawan, New Delhi**
- iii. Shifting of data of start in case of delay in handling over of site : **Superintending Engineer, Vigyan Bhawan I.P. Bhawan, New Delhi**

Clause 5

Clause applicable – (5 or 5A) : **Clause 5**

Proforma of Schedule Clause 5 Schedule of handing over of site			
Part	Portion of site	Description	Time Period for handing over reckoned from date of issue of letter of intent
Part A	Portion without any hindrance	All	As and when required
Part B	Portions with encumbrances	Nil	N.A.
Part C	Portions dependent on work of other agencies	Nil	N.A.

Clause 6

(Mode of measurement) : **EMB (Electronic Measurement Book) through ERP (As per circular DG/CON-Maintenance-2020/338 dt. 13.04.2023)**

खण्ड—7

Clause 7

अंतरिम भुगतान के लिए पात्र होने के लिए : **Rs. 1,00,000/-**

अंतिम ऐसे भुगतान के बाद कुल भुगतान एकत्रित सामग्रियों के अग्रिमों के समायोजन सहित किया जाने वाला कुल कार्य

Gross work to be done together with net payment/ adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment

खण्ड—7ए

Clause 7A (Modified)

No Running Account Bill shall be paid for the work till the applicable labour licenses, registration with EPFO, ESIC and BOCW Welfare Board, whatever applicable, are submitted by the contractor to the Engineer-in-charge. Whether Clause 7A shall be applicable. : **Yes, Applicable**

खण्ड—8

Clause 8

The competent authority to inspect and issue of completion certificate : **Executive Engineer (E), VBED, CPWD or his success or thereof.**

खण्ड—10(क)

Clause 10A

कार्यस्थल प्रयोगशाला में ठेकेदार द्वारा उलब्ध : **As amended upto date**

कराये जाने परीक्षण उपकरण की सूची

List of testing equipment to be provided by the contractor at site lab

खण्ड-10(ख)(ii)**Clause 10B(ii)**

क्या खण्ड 10(ख)(ii) लागू होगा। : **Not Applicable**

Whether Clause 10 B(ii) shall be applicable:

खण्ड-10(ग)**Clause 10C**

श्रम घटक को कार्य के मूल्य के प्रतिशत के : **15%**

रूप में अभिव्यक्त किया गया है।

Component of labour expressed as percent of value of work

खण्ड.10 गग**Clause 10CC**

खण्ड 10गग उन संविदाओं पर लागू होगा : **Not Applicable**

जिसमें कार्य समापन की अवधि, अगले कालम में दर्शायी गई अवधि से अधिक अनुबंधित है।

Clause 10CC to be applicable in contracts with stipulated period of completion exceeding the period shown in the next column

मूल्य वृद्धि के लिए अन्य सामग्री, श्रम, पी.ओ.एल आदि के घटकों की अनुसूची।

Schedule of component of other Materials, Labour, POL etc. for price escalation.

निर्माण कार्य सामग्री के लिए सिविल घटक (खंड 10 ग के अन्तर्गत शामिल सामग्रियों को छोड़कर)/वैद्युत कार्य में कुल मूल्य के प्रतिशत के रूप में प्रदर्शित

खण्ड- 11**Clause 11**

कार्य निष्पादन के लिए अनुपालन किए जाने वाले विनिर्देश : **CPWD General Specifications for Electrical Works:**

Specifications to be followed: (i) Part-I Internal - 2023

(ii) Part-II External – 2023

(iii) General Specifications for Heating, Ventilation & Air-Conditioning

खण्ड-12 Clause12	The completion cost shall in no case exceed 1.5 times the contract amount	
Authority to decide deviation of contract amount	Upto 1.25 times the contract amount	Executive Engineer (E), VBED, CPWD or his successor
	Beyond 1.25 times upto 1.50 times of contract amount	Superintending Engineer, Vigyan Bhawan, CPWD or his successor
Type of work	Maintenance work	

The completion cost shall, in no case exceed 1.5 times the contract amount. Contractor will devise a system to keep a watch on quantum of work taken up vis-à-vis balance items required to complete defined scope of work and will give the alerts to Engineer-in-charge before taking up extra items(s), deviations(s) so that completion cost does not exceed above limit. Work executed beyond above limit with neither be recorded nor be paid. The Contractor will not have any claim(s) whatsoever on this amount.

खण्ड-16**Clause 16**

घटी हुई दरे निर्धारित करने की लिए सक्षम प्राधिकारी : **Superintending Engineer, Vigyan Bhawan for 5% of contract Value, ADG(RD), beyond 5% of contract value**

Competent Authority for Deciding Reduced Rates

खण्ड-18**Clause 18**

कार्यस्थल पर ठेकेदार द्वारा लगाये जाने वाली : **As per site requirement**

अनिवार्य मशीनरी, औजार एवं सयंत्रों की सूची:

List of mandatory machinery, tools &

plants to be deployed by the contractor at site:

- Clause 19C : Executive Engineer (E), VBED, CPWD or his successor (Penalty of Rs. 200/- for each default)
- Clause 19D : Executive Engineer (E), VBED, CPWD or his successor (Penalty of Rs. 200/- for each default)
- Clause 19G : Executive Engineer (E), VBED, CPWD or his successor (Penalty of Rs. 100/- per day for each default and defaulting continuously the Penalty may be enhanced to Rs.200/- per day for each day fault subject way maximum of 5% of the estimated cost of the work put to tender)
- Clause 19K : Executive Engineer (E), VBED, CPWD or his successor (Penalty of Rs. 200/- per tradesman per day)

खण्ड-25

Clause 25

S.No.	Designations	
1	Conciliator	ADG(Delhi)
2	Arbitrator Appointing Authority	SE, Vigyan Bhawan
3	Place of Arbitration	New Delhi

खण्ड-32(i)

Clause 32(i)

Requirement of Technical Representative(s) and Recovery Rate

Requirement of Technical staff		Minimum experience (Years)	Designation Technical staff	Rate at which recovery shall be made from the contractor in the event of not fulfilling
Qualification	Number			
Graduate Engineer (Electrical) Or Diploma Engineer (Electrical)	1	2 or 5 respectively	Project Manager cum planning/ quality/ site billing Engineer	Rs. 15,000/- per month per person

NOTE: Assistant Engineer retired from Govt. services that are holding Diploma will be treated at par with Graduate Engineer.

Diploma holder with minimum 10 years' relevant experience with a reputed construction co. can be treated at par with Graduate Engineers for the purpose of such deployment subject to condition that such diploma should not exceed of 50% of requirement of degree engineers.

खण्ड-38

Clause 38

- (i) Schedule/Statement for determining theoretical quantity of cement and bitumen on the basis of Delhi schedule of Rate 2023 printed by C.P.W.D. : **Applicable**
- (ii) Variations permissible on theoretical quantities as per GCC 2023 : **Applicable**

ADDITIONAL TERMS & CONDITIONS OF CONTRACT

1.0 GENERAL

- 1.1 The work “RMO Lift, HVAC, DG Sets, EI, Fire-Fighting & Fire Alarm System, Fountain Pumps, Sub-Station Equipments & CCTV System at National Museum, Janpath, New Delhi during 2026-27 [SH: Providing VRV System at Admin Hall in NM]” is to be carried out at National Museum, New Delhi
- 1.2 The department shall be at full liberty to get the installation inspected by the third party and the contractor shall have to make all modifications in the designing and installations as communicated to it by the department inter-alia advised by the third party.
- 1.3 The work shall be executed as per CPWD General Specifications for Electrical Works Part – I, II & IV, as amended upto date, relevant I.E. Rules, BIS/IEC and as per directions of Engineer-in-charge. These additional specifications/ conditions are to be read in conjunction with above and in case of variations; specifications given in these Additional conditions shall apply. However, nothing extra shall be paid on account of these additional specifications and conditions, as the same are to be read along with schedule of quantities for the work. In any case the presidency of the documents shall be as per the following sequence:-
- BOQ ⇒ List of Approved Makes ⇒ Technical Specification ⇒ CPWD General specifications ⇒ Various IS/ IEC Codes
- 1.4 The tenderer should, in its own interest, visit the site and get familiarized with the site conditions before tendering.
- 1.5 No T & P shall be issued by the Department and nothing extra shall be paid on account of this.
- 1.6 **Type of Contract:** The work to be awarded by this tender shall be treated as indivisible works contract.

2.0 COMMERCIAL CONDITIONS

2.1 Submission and opening of tender

Earnest Money in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee (for balance amount as prescribed) from any of the Commercial Banks (drawn in favour of **Executive Engineer (E), VBED, CPWD, New Delhi**) shall be scanned and uploaded on the e-Tendering website within the period of bid submission. The original EMD should be deposited either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission. The EMD receiving Executive Engineer (including NIT issuing EE/AE) shall issue a receipt of deposition of earnest money deposit to the bidder in a prescribed format (enclosed) uploaded by tender inviting EE in the NIT.

A part of earnest money is acceptable in the form of bank guarantee also. In such case, minimum 50% of earnest money or Rs. 20 lac, whichever is less, shall have to be deposited in shape prescribed above, and balance may be deposited in shape of Bank Guarantee of any Commercial bank having validity for a period of 90 days for single bid works and 180 days for two bid system or more from the last date of receipt of bids which is to be scanned and uploaded by the intending bidders.

The earnest money given by all the tenderers except the lowest tenderer shall be refunded immediately after the expiry of stipulated bid validity period or immediately after acceptance of the successful bidder, whichever is earlier. However, in case of two/ three bid system, earnest money deposit of bidders unsuccessful during technical bid evaluation etc. should be returned within 30 days of declaration of result of technical bid evaluation.

Copy of Enlistment Order and certificate of work experience and other documents as specified in the notice inviting e- tender shall be scanned and uploaded on the e-Tendering website within the period of bid submission. However, certified copy of all the scanned and uploaded documents as specified in e- tender notice shall have to be submitted by the lowest bidder within a week physically in the office of tender opening authority. Online bid documents submitted by intending bidders shall be opened only of those bidders, whose original EMD deposited with any division of CPWD and other documents scanned and uploaded are found in order.

- 2.2 The tenderer will have to fill up their rates only in the Schedule of Work in the e-tendering put up on the website by the department. Tenders in whom the price bids are given in any other format are liable to be rejected. The abstract of cost will be required to be filled in.
- 2.3 In the tender bid, there shall be no conditions, whatsoever. In case any tenderer mentions any condition including conditional rebates in their price bid the tender shall be rejected forth with.

A tenderer will also not be allowed to withdraw or modify any condition and/ or rates after the opening of bids.

- 2.4 The department reserves the right to reject any or all the price bids and call for fresh prices/tenders as the case may be without assigning any reason.

3.0 TERMS OF PAYMENTS

The following percentage of contract rates for the various items included in the contract shall be payable against the stage of work shown herein.

- 70% of the contract value, of the sub work, on initial inspection and delivery of materials at site, in good condition, on pro-rata basis.
- 20% on completion of installation of the equipments and accessories pro-rata basis.
- 10% on completion of testing, commissioning and handing over to the department.

3.1 SECURITY DEPOSIT

- (a) The security deposit shall be collected by deductions from the running bills of the contractor at the rate mentioned below. The security deposit can also be accepted in cash or in the form of Government Securities, Fixed Deposit Receipts etc.
- (b) A sum @ 2.5% of the gross amount of the bill shall be deducted from each running as well as final bill of the contractor. Such deductions shall be made unless the contractor has deposited the amount of security at the rate mentioned in cash or Government securities or Fixed Deposit Receipts. This is in addition to the performance guarantee that the contractor is required to deposit as per Clause no. 3.2.
- (c) Security deposit can be released against Bank Guarantee issued by a scheduled bank in the specified format for the full value of the security deposit. The Bank Guarantee shall be kept valid till the expiry of the above guarantee/ maintenance period. The security deposit shall be released after successful completion of the guarantee period from the date of completion/commissioning or handing over whichever is later.

3.2 PERFORMANCE GUARANTEE

The successful tenderer shall submit an irrevocable performance guarantee of 5% of the tendered amount **or Estimated Cost Put to Tender (ECPT) (Whichever is higher), Where the tendered amount is less than eighty percent (80%) of the Estimated Cost Put to Tender (ECPT), the Performance Guarantee, in addition to the requirement under above, shall be increased by an amount equal to the difference between eighty percent (80%) of the ECPT and the tendered amount as mentioned in Schedule 'E'**, in addition to other deposits mentioned elsewhere in the contract for his proper performance of the contract agreement within 15 days of issued of letter of acceptance of tender. This guarantee shall be in the form of Demand draft/Pay order or irrevocable bank guarantee bond of any scheduled bank or the State Bank of India in the specified format or in the form of Government security, fixed deposit receipt pledged in favour of Executive Engineer (E), VBED, CPWD, New Delhi or as specified in the letter of acceptance of tender. The performance guarantee shall be initially valid up to the stipulated date of completion plus 90 days beyond. This bank guarantee shall be kept valid till the recording of completion certificate for the work by the competent authority.

- 3.3 Income tax, GST, Labour Cess & other statutory deductions etc. shall be made at source as per the prevalent laws of the Govt. Of India and the Govt. of Delhi. The deductions of Security Deposit, Income-Tax etc. shall be done after calculation of the above due payments as per clauses 3.1 to 3.3 and net payment shall be reduced accordingly.

4 RATES

The rates quoted by the tenderer, shall be firm and inclusive of all taxes including, GST etc. and all charges for packing forwarding, insurance, freight and delivery, installation, testing, commissioning etc. at site including temporary construction of storage, risks, over head charges, general liabilities/obligations.

5 COMPLETENESS OF TENDER

The work is to be executed in the National Museum where the entry is restricted. It shall therefore be mandatory for the contractor to get proper verification of the work force employed for the work. Proper

identification documents shall be submitted, as desired, with the engineer-in-charge or its authorized representative.

6 STORAGE AND CUSTODY OF MATERIALS

At present no storage facility is available at site that may be used for storage of sundry materials and erection equipments. The contractor has to make its own arrangements. No separate storage accommodation shall be provided by the department. Watch and ward of the stores and their safe custody shall be the responsibility of the contractor till the final taking over of the installation by the department.

7 CARE OF THE BUILDING AND OTHER STRUCTURES/ INSTALLATIONS

Care shall be taken by the contractor while handling and installing the various equipments and components of the work to avoid damage to the building and its surrounding roads, pavements, horticulture work, boundary wall, sewer and water lines etc. He shall be responsible for repairing all damages and restoring the same to their original finish at his cost. He shall also remove at his cost all unwanted and waste materials arising out of the installation from the site of work. All dismantled material received from site shall be returned to the Junior Engineer (E) at his stores at site.

8 SAFETY CODE & LABOUR REGULATIONS

In respect of all labour employed directly or indirectly on the work for the performance of contractor's part of the work, the contractor at his own cost will arrange for the safety provisions as per the statutory provision, BIS recommendations, CPWD code, general conditions of contract and instructions issued from time to time. In case of default the Engineer-in-Charge shall be at liberty to make arrangement and provide facilities as aforesaid and recover the cost from the contractor.

9 TOOLS, PLANT AND MACHINERY

The CPWD shall not provide any tools and plant & machinery. The contractor shall provide all tools, plant and machinery required for execution of work. The contractor shall include its cost in appropriate items of work.

10 COMPLETION PERIOD

The completion period indicated in the tender documents is for the entire work of planning, designing, approval of drawings etc., arrangement of materials & equipments, delivery at site including transportation, installation, testing, commissioning and handing over of the entire system to the satisfaction of the Engineer-in-charge.

11 GUARANTEE

The installation will be handed over to the department after necessary testing and commissioning. The equipments or components, or any part thereof, so found defective during guarantee period shall be forthwith rectified/ repaired or replaced free of cost, to the satisfaction of the Engineer-in-Charge. In case it is felt by the department that undue delay is being caused by the contractor in doing this, the same will be got done by the department at the risk and cost of the contractor. The decision of the Engineer-in-charge in this regard shall be final & binding on the contractor.

11.1 The tender shall guarantee among other things, the following:

- (a) Quality, strength and performance of the materials used as per manufacturers standards.
- (b) Safe mechanical and electrical stress on all parts under all specified conditions of operation.

12 POWER SUPPLY

Power supply for carrying out the E&M works shall be provided at one point near the site and further extension of power supply shall be in the scope of contractor.

13 ACCEPTABLE MAKES OF VARIOUS EQUIPMENTS

The acceptable makes of various equipments/components/accessories have been indicated in "List of Approved Makes". The tenderer shall work out the cost of the offer on this basis. Alternate makes are not acceptable. All items for which the makes are not mentioned in the tender shall be got approved from the engineer incharge before procurement as otherwise the same will be rejected outright.

14 EXTENT OF WORK

14.1 The work shall be carried out strictly in conformity with the CPWD General Specification of HVAC-2024 as amended upto date and as per direction of Engineer-in-Charge.

- 14.2 All the materials, used by the contractor should be got approved from the Engineer-in-Charge or his authorized representative before installation. No payment will be made for any unapproved or sub standard materials used on the work. Rejected materials should be removed from the site of work within 48 hours, by the contractor.
- 14.3 **The OEM of VRV / VRF System shall support for spare parts for 10 years from the date of installation and maintain during warranty period. Successful bidder must submit the certificate of the OEM support for spares and technical requirement alongwith the PG.**
- 14.4 No T & P shall be issued by the department.
- 14.5 Any damage to the installation / building during execution of work shall be made good by the contractor at his own cost. Repair work if any, should be done with proper cement and sand ratio and to be match with existing finish.
- 14.6 The rates quoted shall be inclusive of all taxes i.e. GST but exclusive of ESI & EPF as it would be reimbursed only (As applicable and eligible) after submitted proper documents of their deposits & to the satisfaction of Engineer-in-charge.
- 14.7 The work shall be carried out in security zone area, hence necessary passes shall have to be arranged by the contractor for the workers engaged by him.
- 14.8 The antecedents of the staff engaged shall be verified by the contractor from local Police station.
- 14.9 The electrical work shall be done strictly in close co-ordination with other works. No claim for idle labour shall be entertained by the department.
- 14.10 The contractor shall submit the proof of purchase from manufactures/authorized dealer for all material used at site.
- 14.11 All termination of electrical cables for sizes higher than 4 Sq. mm shall have to be done with proper thimbles / reducer. Copper thimble / reducer shall be used for copper cable and aluminum ones for Al. cables. Nothing extra shall be paid by the department however end termination of power cables shall be paid extra.
- 14.12 Nothing extra shall be paid on account of dismantling the ODU, wire, MCCBs, fittings, fans, DB's & Panel etc. and the same will be deposited to the JE's Store, if not included in BOQ as buy back item.
- 14.13 All the debris etc. shall be removed from the site of work daily.
- 14.14 Electricity & water shall be supplied by the department free of cost.
- 14.15 The site in very secured important heritage building, so all related bye laws are to be followed.
- 14.16 Normally execution will take place during and after office hours. & site for the work will be provided accordingly.
- 14.17 Lowest bidder shall submit Police verification of staff/labourers to be deployed at site before stipulated date of start, otherwise penalty of Rs. 500/- per day till submission of police verification of labour and start of work.
- 14.18 The watch and ward of the materials installed will be the responsibility of the contractor till handing over to the department on completion of work.
- 14.19 Any accident at site during execution of work to be workman and to the third party shall be responsibility of the contractor and claim if any arises due to such accident shall be on the part of contractor and department shall not entertain any claim in this regard.
- 14.20 Work will be carried out in the occupied building hence labour wastage may be there and no claim in this regard from the contractor shall be entertain by the department.
- 14.21 The tenderer in his own interest should visit the site and get familiarize with the site conditions before tendering.
- 14.22 Successful agency/lowest bidder must submit the working drawing/layout after a brief presentation of the design etc. with the consultation of Engineer-in-charge within 4-5 days.

15 INSPECTION AND TESTING

- 15.1 All major equipments shall be offered for initial inspection by the engineer-in-charge or officer authorized by him at manufacturer's works in India. The department may or may not inspect the material at its discretion. The contractor will intimate the date of testing of equipments at the manufacturer's works before dispatch. Contractor shall make all arrangements for inspection of material at works. The department reserves the right to get the equipment inspected by third party inspection also. Such inspection shall be of following categories:
 - (a) Inspection of materials/ equipments to be witnessed at the manufacturer's premises/ at its authorized works in India, in accordance with relevant BIS/ Agreement Inspection Procedure.
 - (b) To receive material at site with manufacturer's Routine & Type Test certificates.
 - (c) To inspect material at the authorized dealer's go-down to ensure delivery of genuine material at site.
 - (d) To receive material after physical inspection at site.
- 15.2 Adequate care to ensure that only tested and genuine materials of proper quality are used in work shall be ensured by firm. The firm shall ensure that:

- (a) Material will be ordered and delivered at site only with the prior approval of the department. The contractor shall, however, be responsible for timely delivery of material.
- (b) As and when the order is placed for the items, it shall be endorsed to the engineer-in-charge alongwith details of Agency, model no. and other delivery details.
- (c) The firm will be required to procure material like all type of accessories etc. directly from the manufacturer's/ dealers authorized by the manufacturer's to ensure genuineness & quality. A sample of all items shall, however, be got approved from the engineer-in-charge, before placement of order.
- (d) Inspection at factory or at go-down in India, as required, shall be arranged by the firm for a mutually agreed date.
- (e) Delivery of material shall be taken up only with the consent of department, after clearance of the material. Material shall generally be transported under proper insurance to avert any consequent delay due to damage/ loss during transit. Department shall be at liberty to inspect all documents to taxes/ duties clearances, insurance etc. at its own discretion.
- (f) Department, however, reserves the right to waive inspection in lieu of suitable test certificates, at its discretion.

16 DISPATCH OF MATERIAL

The contractor shall dispatch all the materials to the site in coordination with the execution of the civil work and in consultation with the Engineer-in-Charge so that the materials are not laying at site more than one month in advance of the stage where the materials are to be taken up for the installation.

17 COMPLIANCE WITH REGULATIONS AND INDIAN STANDARDS

- 17.1 All works shall be carried out in accordance with relevant regulation, both statutory and those specified by the Indian Standards related to the works covered by this specification. In particular, the equipment and installation will comply with the following:
 - (i) Factories Act.
 - (ii) Indian Electricity Rules.
 - (iii) B.I.S. & other standards as applicable.
 - (iv) Workmen's compensation Act.
 - (v) Statutory norms prescribed by local bodies like CEA, Power Supply Co., etc.
- 18.2 Nothing in this specification shall be construed to relieve the successful tenderer of his responsibility for the design, manufacture and installation of the equipment with all accessories in accordance with currently applicable statutory regulations and safety codes.
- 18.3 Successful tenderer shall arrange for compliance with statutory provisions of safety regulations and departmental requirements of safety codes in respect of labour employed on the work by the tenderer. Failure to provide such safety requirement would make the tenderer liable for penalty of Rs 5000/- (Rs Five Thousand only) for each default. In addition, the department will be at liberty to make arrangement for the safety requirements at the cost of tenderer and recover the cost thereof from him.

18 INDEMNITY

The successful tenderer shall at all times indemnify the department, consequent on this works contract. The successful tenderer shall be liable, in accordance with the Indian law and regulations for any accident occurring due to any cause and the contractor shall be responsible for any accident or damage incurred or claims arising there from during the period of erection, construction and putting into operation the equipments and ancillary equipment under the supervision of the successful tenderer in so far as the latter is responsible. Though not mandatory under the terms of these documents, the successful tenderer is advised to take insurance including third party insurance for the men and material, as he may be necessary, to cover the risk in his own interest. No extra payment would be made to the successful tenderer on account of the above.

19 ERECTION TOOLS

No tools and tackles either for unloading or for shifting the equipments for erection purposes would be made available by the department. The successful tenderer shall make its own arrangement for all these facilities.

20 COOPERATION WITH OTHER AGENCIES

The successful contractor shall coordinate the work with other contractor(s)/ agencies engaged in the other construction/maintenance of building and it's installations, if any, and exchange freely all technical information so as to make the execution of this work/contract smooth. No remuneration should be claimed from the department for such technical cooperation. If any unreasonable hindrance is caused to other agencies and any completed portion of the work has to be dismantled and re-done

for want of cooperation and coordination by the tenderer during the course of work, such expenditure incurred will be recovered from the successful tenderer if the restoration work to the original condition or specification of the dismantled portion of the work was not undertaken by the tenderer himself.

The work shall be carried out with least disturbance during shifting & shut down taken in consultation with the client department.

21 MOBILIZATION ADVANCE

Mobilization advance is not admissible as per the "General Conditions of Contract".

22 INSURANCE AND STORAGE

The contractor may get all consignments duly insured upto the destination from warehouse in its own interest and at his cost. The insurance covers may be valid till the equipment is handed over duly installed, tested and commissioned. All defective and deformed material shall be rejected outright.

23 VERIFICATION OF CORRECTNESS OF EQUIPMENT AT DESTINATION

The contractor shall have to produce all the relevant records to certify that the genuine equipments from the manufacturers has been supplied from origin of manufacturer.

24 TRAINING

The scope of works includes the on job technical awareness training of one persons of department at site. Nothing extra shall be payable on this account.

25 INTERPRETING SPECIFICATIONS

In interpreting the specifications, the following order of decreasing importance shall be followed in case of contradictions:

- (a) Schedule of quantities
- (b) Technical specifications
- (c) Drawing (If any)
- (d) Additional conditions of the contract
- (e) General conditions of the contract
- (f) Relevant BIS or other international code in case BIS code is not available

SECTION-(B)

SYSTEM DESIGN DATA for Air Condition Unit

1.0 General

The work is to be carried out as per CPWD Specifications for HVAC Works, 2024 as amendment upto date, CPWD Specifications for Internal EI Works & External Electrical Works & Sub-Station Works and as per the specifications provided in these documents. The system design, basis of design, estimated requirements and other relevant data are outlined in this section. The detailed specifications and specific requirements are outlined in the subsequent sections.

1.1 Location

The proposed HVAC System (VRV) is to be installed at the **National Museum**, New Delhi.

1.2 Scope of Work

The work proposed under this tender includes providing and fixing Air Cooled Variable Refrigerant Volume Air-Conditioning System including Outdoor Units, Indoor Units, Refrigerant Piping, Drain Piping, Air Handling Unit, Air Distribution Ducting, Duct Insulation, Acoustics, Electrical Work etc. The work shall also include chasing of walls for piping, rough plaster to seal the chases, embedding of drain piping under floor, wiring from electrical point upto unit etc.

The scope of work includes supply, installation, testing and commissioning of air cooled variable refrigerant volume/flow air-conditioning system and treated fresh air system (through AHU) to provide designed conditions in the following areas:

- a) As per the direction of Engineer-in-charge. The layout drawing of the area to be air-conditioned is attached with these documents.

1.3 Design Consideration

The proposed area for air-conditioning is expected to have air conditioning load of 24 H.P. for conditioned fresh air through AHU. A combination of various indoor units shall be connected with the above ODU(s) with the help of insulated inter-connected refrigerant piping and control cabling.

Selected VRV Outdoor Units

Refrigerant piping distribution scheme

All the outdoor units shall be located on the terrace of National Museum or as per direction of engineer-in-charge adjoining to the proposed air-conditioned areas, as shown in the drawing. The outdoor & indoor units shall be interconnected with copper refrigerant piping duly insulated.

1.4 Basis of Design:

Area Description	Season	Summer	Monsoon	Winter
	Month	May	August	January
Outside Ambient Conditions	DB	45°C	35 °C	7.2 °C
	WB	23.9°C	28.3°C	7.2 °C
<u>Inside Conditions</u>				

Office area	DB	22±1.5 °C	22±1.5 °C	20±1.5 °C
	RH	< 60%	< 60%	> 30%
Corridor, lobby	DB	22+1 °C	22+1 °C	20+1.5 °C
	RH	< 60%	< 60%	> 30%
Conference Halls	DB	22+1.5 °C	22+1.5 °C	20+1.5 °C
	RH	< 55%	< 55%	> 30%

Other Assumptions

a. Occupancy

Office Area : 5 Sqm/ Person

Conference Hall Seating : 30

b. Lighting

Lobby : 15 Watt/ Sqm

Office Area : 15 Watt/ Sqm

Conference Hall Seating : 50Watt/ Sqm

c. Equipment Load

Office Area : 45 Watt/ Sqm or 300 Watt/computer

Sound Sys (Conference Room) : 5 KW

LED Wall / LED Panels : 7.5 KW

d. Fresh air in conditioned area

Offices : 18 CMH/ Person

Corridor : 8.5 CMH/ Person

Conference rooms : 19 CMH/Person (duringConference)

1.5 System Design

It is proposed to provide Air cooled variable refrigerant volume system (VRV). All VRV system will be Micro Processor based inverter type scroll/rotary compressors.

It is proposed to provide total of **24 H.P. capacity** Outdoor Units for the designated areas (at design conditions of the OEM i.e. before accounting the derating at the outdoor ambient provided in these documents). **The contractor shall therefore be required to provide the outdoor units of capacity after enhancing the same by accounting for the derating of these units for 45°C outdoor ambient conditions. A minimum of 25% de-rating shall be taken for all VRV systems designed for 35°C ambient conditions. The minimum capacity of the outdoor units after calculating de-rating as per NIT under item no. 1(i)(a) and 1(i)(b) shall be **6HP to 8HP** respectively. Contractor shall produce De-rating Chart alongwith the details of the model he proposes to supply, certified by the OEM, to ascertain that**

the derating is not more than 25% for 45°C outdoor ambient conditions. (No extra payment for derating to be paid by department)

It is proposed to use different types of Indoor units, to suit the requirement of the site. Contractor shall be free to make his own suggestions to enhance the performance of the system. Each Indoor Unit shall have its individual temperature control.

1.6 Guarantee of Performance

The contractor shall guarantee that the air conditioning system shall maintain the design inside temperature within 1.5°C tolerance under the worst ambient condition specified and the relative humidity shall not exceed the specified limit.

The contractor shall also guarantee that the capacity of various components as well as the whole system is not be less than specified in the tender documents after enhancing the same by the derating at the specified outdoor ambient condition or the minimum specified derating mentioned in these documents.

The contractor shall ensure that the system is free of all objectionable vibrations and disturbing sounds under all conditions of operation.

Contractor shall also guarantee that the system shall continue to work under even harsher outdoor ambient condition of 50°C.

Contractor shall guarantee complete equipment, including all accessories and ancillaries, installed under the scope of this contract against all defects, whatsoever including performance parameters, for a period of two years from the date of completion or handing over, whichever is later.

1.7 Items to be provided by other Agencies

The following items of works shall be provided by other agencies. The HVAC contractor shall be responsible for the adequacy and accuracy of these works and shall ensure that these are completed as per the required time schedule.

- 1.7.1 Provision and termination of main 3 phase, 50 Hz, 415 Volts AC supply from main LTelectrical panel in the switch roomto theoutdoor units, as per electrical single line drawing.
- 1.7.2 Provision and termination of control sensing from fire annunciation panel to central control panel of the VRV system for tripping/energizing of panels in case of fire.
- 1.7.3 Provision of single phase power supply within 2 metre distance of indoor units.
- 1.7.4 Provision of floor drains.
- 1.7.5 Necessary false ceiling and return air boxing wherever required.

1.8 Drawings

The department shall provide Auto Cad Drawings of the area where the VRV system is to be installed. The contractor will be required to prepare its proposed system on the drawings and shall submit shop drawings prior to commencement of work and get approval of the engineer. 'As built drawings' shall be submitted by the contractor as a part of 'acceptance of work'.

1.9 Test data

Addition: NIL; Correction: NIL; Overwriting: NIL; Deletion: Nil

The whole system shall be tested as per specifications and complete test data shall be furnished on prescribed data sheet.

1.10 **Deviation from specifications**

Deviation from specifications will not be accepted.

1.11 **Completeness of Items**

The prices of each item shall include the cost of all accessories or miscellaneous items listed in the respective section, except for the items where "Price Separately" is indicated. The item shall be complete regardless of whether or not it is listed in the BOQ.

1.12 **Technical data**

The Contractor shall furnish complete technical data on the equipment offered by him as required under the heading 'Technical Data'. Technical data including make & model of units shall be got approved by Engineer-in-charge before procurement.

Variable Refrigerant Volume Type Air-Conditioning System

2.0 Scope

The scope of work includes supply, erection, testing and commissioning to these specifications and in accordance with the requirements of drawings and schedule of quantities.

2.1 General

These specifications are to be read in conjunction with the drawings, particulars of technical specifications, CPWD specifications of HVAC works, 2024 and schedule of quantities enclosed. Nothing left out in these specifications shall relinquish the contractor of its responsibility of ensuring a perfect quality work meeting the standards of the OEM of the equipment it proposes to provide and their suitability for this work. The lowest bidder shall arrange the visit of OEM of VRV unit for successful completion & Installation testing & commissioning of work. OEM shall submit the certificate to this effect.

2.2 System Description

The air cooled variable refrigerant volume air conditioning system shall primarily consist of:

- Outdoor condensing units
- Each condensing unit shall be connected to multiple indoor units
- The indoor units may be of different type/ configuration / capacities
- Each indoor unit shall have the capability of individual temperature set point control.
- The system should have the ability to connect each condensing unit to 8 to 16 (depending up on the capacity of outdoor unit) indoor units of different types and capacities on one refrigerant circuit.
- The system shall be capable of providing cooling in summer & monsoon. The system shall also be capable of providing heating in winter.
- Each condensing unit shall incorporate only DC inverter driven variable speed hermetic scroll/rotary compressors. Every unit shall have minimum of two such compressors.
- Each indoor unit shall be provided with signal receiving kit to facilitate operation through remote control. Each indoor unit shall be provided with wireless and/or wired remote control, as specified in BOQ.
- The indoor and outdoor units shall be BMS compatible and it shall be possible to monitor all indoor units from a single PC.
- The system shall be provided with desk type **Central advance Intelligent Control Manager** with touch colour LCD Display, suitable for remote automatic control of all indoor units by schedule function and shall have features like troubleshooting, auto heat/cool changeover, temperature limitation, history function, facility of integration with building FA system/BMS system etc.
- Refrigerant piping, piping insulation, drain piping, AHU integral with the condenser unit to facilitate conditioned fresh air to provide adequate air changes.
- Environment friendly refrigerant gas in complete system.

2.3 Operating Conditions

The complete system shall be capable of operating within a wide range of ambient temperatures. The Condensing units shall be capable of providing specified cooling conditions with variable ambient temperature conditions in the range of (–) 5 °C to 45 °C DBT and heating with ambient temperature in the range –10 °C to 25 °C DBT. The regulation in refrigerant volume shall be achieved by varying the speed of inverter driven scroll/rotary compressor(s) or loading/unloading of digital scroll compressors, head pressure control (by varying fan speeds) and hot gas bypass connection.

2.4 Outdoor Condensing Units

The capacity of the Outdoor Units given in the schedule of quantities are actual required at site at the specified conditions of outdoor ambient temperature and not the designed

capacity of the OEM at its own design temperature. **The contractor shall therefore be required to provide the outdoor units of capacity after enhancing the same by accounting for the derating of these units for 45°C outdoor ambient conditions. A minimum of 25% de-rating shall be taken for all VRV systems designed for 35°C ambient conditions. The contractor shall provide Outdoor Unit Model in configuration of 40HP, having COP and all other details as mentioned in Item No.1 of Schedule of Works. (No Extra Payment for derating to be paid by department.) In this regard, for any alteration of capacity of above outdoor units as per site conditions, the decision of Engineer-in-charge will be final.** Contractor shall produce Derating Chart alongwith the details of the model he proposes to supply, certified by the OEM, to ascertain that the derating is not more than 25% for 45°C outdoor ambient conditions. Pro-rata rates shall be calculated and paid on per HP basis derived from average of item no. 1(i)a & 1(i)b of Sub-Head-I i.e. Outdoor Air Cooled Condensing Unit for additional HP required, if any.

- 2.4.1 **Unit Type:** The unit shall be fully weatherproof, factory assembled and pre-wired with all necessary electronic and refrigerant controls. The casing shall be constructed of mild steel panels finished with baked enamel or powder coating. The unit shall be completely factory wired and tested with all controls before dispatch. The unit shall be of rugged & anti-corrosion design with strong base plate for easy mounting. The unit shall be complete with state of the art microprocessor control panel. The microprocessor panel shall incorporate controls for precise monitoring of status of the system.
- 2.4.2 **Larger Condensing Units:** The condensing units larger than 5 HP capacities shall incorporate minimum two compressors. All the compressors in the condensing unit shall be DC inverter driven hermetically sealed digital scroll/rotary compressors. The unit shall be capable of operating even if one of the compressors becomes unserviceable.
- 2.4.3 **Modular design:** The modular design of the condensing units shall allow for side-by-side installation. The outdoor unit when consisting of separate modules.
- 2.4.4 **Compressors:**
- Compressors shall be highly efficient hermetic scroll/rotary type of industrial quality, rugged construction direct driven, with suction/discharge service valves, with industrial solid motor mounts, internal motor protection and vibration isolators.
 - The compressors shall be completely enclosed in a chamber with no leakage path. Scroll compressors shall have the capability for scroll plates to separate.
 - All the compressors shall be inverter driven type and the controller shall vary the speed of the compressor or load/unload the compressor to meet the variations in the cooling / heating loads.
 - Each compressor shall be independently wired and piped to its own circuit for efficient operation & ease of maintenance.
 - All parts of the compressor shall be suitable and sufficiently lubricated.
 - Oil heaters shall be provided in compressor casing.
- 2.4.5 **Heat Exchanger:** The heat exchanger shall be constructed from seamless copper tubes mechanically bonded to aluminium fins to form a cross fin coil. The heat exchanger shall be with sub cooling feature for effective usage of the entire coil surface through proper circuiting in order to prevent flushing of refrigerant owing to large length of piping.
- 2.4.6 **Refrigerant Circuit:** The refrigeration circuits of the condensing unit shall be complete with refrigeration compressors, motors, fans, condenser coils, electronic expansion valve, solenoid valves, 4 way valve, distribution headers, capillaries, filters, shut down valves, service ports, receivers and accumulators and all other components which are essential for safe and satisfactory operation of the system.
- 2.4.7 **Fans:** The unit shall be provided with necessary numbers of direct driven low noise propeller fans arranged for vertical discharge. Each fan shall be with a safety guard.

- 2.4.8 **Fan Motor Speed Control:** The condensing unit fan motors shall have multi-speed operation to maintain constant head pressure control in all ambient temperatures and modes of operation.
- 2.4.9 **Safety Devices:** The condensing unit shall be complete with the following safety devices as minimum:
- High pressure switch
 - Fan Drive Overload protection switch
 - Fuses
 - Crank case heater
 - Fusible plugs
 - Over current protector
- 2.4.10 **Oil Recovery:** The unit shall be equipped with an oil recovery system to ensure stable operation of system with long refrigerant piping. The oil recovery system shall be operated after the first hour of operation and then every consecutive 4 hours of operation. The unit shall be provided with high efficiency oil separators on the discharge side of the compressor together with factory fitted oil equalization system.

2.5 **Indoor Units**

The Indoor Units shall be of type & capacity as specified in the BOQ and/or can be of any of the following types:

- Ceiling suspended concealed type duct able unit
 - 4-way decorative cassette type (With circular flow)
 - 2-way decorative cassette type
 - High Wall mounted decorative type
 - Floor mounted decorative type
 - Floor mounted concealed type
 - Ceiling mounted exposed decorative type
- 2.5.1 **Filter:** Each unit shall be complete with cleanable type filter fixed to an integrally moulded plastic frame. The filter shall preferably be slide away type & neatly mounted.
- 2.5.2 **Electronic Expansion Valve:** Each indoor unit shall be fitted with an electronic expansion valve, which shall control the refrigerant flow in response to the load variations in the room. The electronic expansion valve shall be controlled via a computerized control sensing the return air temperature, refrigerant inlet and outlet temperatures.
- 2.5.3 **Fan:** The blower fan shall be direct driven multi-blade type. The fan shall be statically and dynamically balanced to ensure low noise and vibration free operation.
- 2.5.4 **Coil:** The evaporation coil shall be direct expansion type and shall be constructed from copper tubes expanded mechanically or hydraulically into aluminium fins forming mechanical bond. The tubes shall be staggered in the direction of airflow. Each coil shall be factory tested with 21 Kg/Sqcm air pressure under water.
- 2.5.5 **Supply Air Discharge Louvers:** All the indoor units shall be decorative type. These indoor units shall be provided with auto swing of the supply air louvers. The louvers shall be capable of providing continuous swing operation. It shall also be possible to fix the direction of the airflow in to any particular direction. The ceiling mounted cassette units shall be circular flow type unless otherwise required.
- 2.5.6 **Control Board:** The indoor unit shall be provided with microprocessor based controller / printed circuit board complete and thermostat. The control system shall be complete with

address switches for variety of operation controls, emergency operation switch, fault/operation indication LED's, thermal protection of fan motor etc.

2.5.7 **Casing:** The casing of the units shall be insulated and sealed to prevent condensation.

2.5.8 **Drain Piping of Indoor Units:** The Drain connection of each indoor unit to the main Header shall be of minimum 25 mm diameter. The drainpipe shall be of high-pressure hard PVC. The connection of the Indoor unit to the Hard PVC Pipe shall be made with flexible braided pipe. The drain piping shall be insulated with slip on Closed Cell Nitrile Rubber fire retardant pipe insulation having a wall thickness of not less than 6 mm unless otherwise required in the BOQ. The thermal conductivity of the insulation material shall not exceed 0.032 W/m °K at 0°C mean temperature. The density of the insulation material shall not be less than 33±3Kg/cum. **All joints of the insulation shall be sealed with 100mm width x 3mm thick self adhesive tape of the same material as insulation and shall be of the same make as the basic insulation material. Insulation material exposed to atmosphere shall be of the material as described above and shall be provided with UV protective coating / lamination. The joint sealing tape shall also be provided with identical UV protective coating / lamination.**

2.5.9 **Unit Control:** In case of individual and group control, the address of each indoor unit shall be automatically set to minimize commissioning time. In case of centralized control, the address of the units shall be set through the remote controller.

2.5.10 **Cassette Units:** The cassette units shall generally be recess mounting type with circular flow unless otherwise required. The cassette units shall be -

- Ceiling mounted type
- With pre-filter, fan section with fan & motor and coil section with coil
- Housing shall be of galvanized steel with powder coated finish.
- Fan shall be with aerodynamic design and shall be of diffuser turbo type.
- Unit shall be complete with attractive external panel for supply and return air.
- Unit shall have supply air grills on all sides with circular flow (4-way units) or on two sides (2-way units) and return air grill in center.
- Unit shall be with high lift drain pump.
- Unit shall be with fresh air intake provision.
- Irrespective of the capacity of the unit, the decorative panel size shall be same for all units for aesthetics.
- It shall have digital display panel for indication all vital information of the units setting.
- It shall be with full function cordless remote.
- Mounting arrangement through suitable tie rod/ chain including clamps and fixing arrangement in the ceiling is in the scope of work.

2.5.11 **High Wall mounted units:** The high wall units shall be in white colour and

- Wall mounted type.
- With pre-filter, fan section with fan & motor and coil section with coil
- Housing shall be of galvanized steel.
- Unit shall be complete with attractive external casing for supply and return air.
- It shall have digital display panel for indication all vital information of units setting.
- It shall be with full function cordless remote. **Wired remotes shall be provided for controlling two or more indoor units in a group.**

2.6 **Refrigerant Piping**

2.6.1 **Scope:** The work includes supply, installation, testing & commissioning of complete refrigerant duty copper pipes, fittings, valves, strainers etc. to these specifications and in accordance with the requirements of drawings and schedule of quantities between the outdoor units and indoor units. These specifications are to be read in conjunction with the drawings, particular technical specifications and schedule of quantities enclosed.

2.6.2 **Pipe Material:** The pipe material shall be pure copper as follows:

- Upto 3/4" dia: Soft drawn copper tube coils
- Above 3/4" dia: Hard drawn copper pipes of grade "L"

2.6.3 **Fittings Material:** Hard wrought copper or brass, suitable for flared / copper soldered / silver soldered connections.

2.6.4 **Thickness:** The thickness of piping shall be as follows:

- | | | |
|------------------------------------|---|----------|
| • Pipe size from 6.3 mm to 9.5 mm | : | ≥ 0.8 mm |
| • Pipe size from 12 mm to 15 mm | : | ≥ 0.9 mm |
| • Pipe size from 19 mm to 22.54 mm | : | ≥ 1.0 mm |
| • Pipe size from 25 mm to 32 mm | : | ≥ 1.2 mm |
| • Pipe size from > 32 mm | : | ≥ 1.3 mm |

2.6.5 **Pitching:** All refrigerant pipes shall be pitched to ensure proper oil return to the compressor.

2.6.6 **Joints:** Sweat joints using low temperature brazing and/or silver soldered. Also

- Isolation 'Y' valves shall be provided with all indoor and outdoor units and also at suitable locations, as required by the engineer-in-charge, for ease of maintenance. The orientation of the joints shall be as under:
- All the proprietary Distribution refrigeration pipe joints and headers shall be installed in an appropriate orientation to enable correct distribution of refrigerant.
- The Distribution Joints shall be factory insulated with pre-formed sections of Expanded Polystyrene/Equivalent insulation material.

2.6.7 **Cleanliness of Piping:** All pipe work shall be kept clean and free from contamination to prevent breakdown of the system. All pipe ends shall be sealed and kept sealed until immediately prior to making a joint.

2.6.8 **Installation:** The installation shall be carried out strictly by the refrigeration equipment manufacturers (the OEM of VRV system) or by the contractor under the supervision of the trained engineer of the refrigeration equipment manufacturers (the OEM of VRV system), including the required distribution joints and headers. Contractor shall provide a certificate of the OEM of the VRV system after the completion of the work that "The work has been carried out by us/the contractor under the supervision of its engineer, strictly as per the best manufacturing and installation practice recommended and practiced in the industry and the quality of the work is at par with the best".

The number of brazed joints shall be kept as minimum as possible/practical. The pipe work shall be supported on saddling arrangement with maximum 0.75-meter center distance. The refrigerant piping inside the building and/or outside the building shall be supported on perforated GI cable trays, which shall be covered from top with GI open able covers.

2.6.9 **Refrigerant Piping Distance Limits:**

- The system shall be capable of refrigerant piping runs up to 100 m between the condensing unit and fan coil units with 40 to 50 m level difference.
- The oil equalizing lines shall be inside the condensing units. The maximum allowed level difference between fan coil units connected to the same refrigerant circuit shall be 15m.

2.6.10 **Testing:**

After the completion of the installation of the refrigerant piping, the entire system shall be pressure tested with dry nitrogen at a pressure of 20 Kg/Sqcm G (high side) and 10 Kg/Sqcm (Low side). The pressure shall be maintained for a period of 24 hours. The system shall then be evacuated to a minimum possible vacuum, which shall be maintained for 24 hours before flushing and charging the system with the refrigerant.

2.7 **Insulation of Refrigerant Piping:**

All suction pipes and low temperature / pressure liquid pipes of the Refrigerant pipe work shall be insulated with slip on Closed Cell Nitrile Rubber fire retardant pipe insulation having a wall thickness of not less than 13 mm. The thermal conductivity of the insulation material shall not exceed 0.032 W/m K at 0°C mean temperature. The density of the insulation material shall not be less than 33±3 Kg/cum. All joints of the insulation shall be sealed with 100mm (width) x 3mm (thick) self adhesive tape of the same material as insulation and shall be of the same make as the basic insulation material. Insulation material exposed to atmosphere shall be of the material as described above and shall be provided with UV protective coating/lamination. The joint sealing tape shall also be provided with identical UV protective coating/lamination. Where indoor refrigerant pipe work is located in roof spaces or spaces where temperature may exceed 30 °C and RH may exceed 80%, the thickness of pipe insulation shall be selected accordingly.

2.8 **Refrigerant:**

- Acceptable Refrigerants are R-410A/R-407C.
- All the condensing units and indoor evaporating units shall be factory assembled and tested for pressure handling for the above refrigerants as per specifications of the OEM.
- The entire refrigerant required to operate the system satisfactorily shall form part of the machines and nothing extra shall be payable on this account.
- Any additional refrigerant required to meet the requirements of piping lengths shall be added at site. Nothing extra shall be payable on this account.
- Additional refrigerant charge weight must be calculated based on the actual length of the refrigerant pipe work. The refrigerant charging process must be carried out with an appropriate charging station and under supervision. The contractor shall submit the details as calculated by the OEM and also duly certified by them, for the approval and execution at site.

2.9 Centralized Intelligent Manager: The control system for VRV indoor units shall be with carried out through desk mounted intelligent manager suitable for upto 128 indoor units. The intelligent manager shall have following features.

2.9.1 **Central Control:**

- It shall have the central control and handy area settings facility for simplified management of all indoor units and outdoor units.
- Touch coloured display of floor plan to enable clear and quick search of desired IDU.
- Memory to store operation history to inform manner of control and origin in past operations of IDU's.

2.9.2 **Remote Access:NOT MANDATORY**

- Remote access with the help of an external PC, to be arranged by the department, shall allow total air-conditioning management using the same type of screens as those displayed in the intelligent Touch Manager.
- Only authorized user shall be able to centrally control individual air-conditioning units from their own computers.

2.9.3 **Automatic Control:**

- The intelligent Touch Manager shall have a schedule function whereby the VRV system could be controlled automatically throughout the year by the setting scheduled for the year.
- The automatic control shall have facility of interlocking VRV system with other equipment to enable easy automation of building facilities and their operation.
- It shall adjust temperature settings, when rooms are unoccupied.

2.9.4 **Trouble Shooting:**

- The Intelligent Manager shall automatically evaluate the system performance and functioning of the indoor units.

2.9.5 Energy Management: NOT MANDATORY

- The energy Navigator feature shall simplify energy management by tracking energy consumption data and identifying inefficient operations.

2.9.6 Other Features:

- Colour LCD touch panel icon display
- Yearly schedule facility
- Auto heat/cool changeover facility
- Temperature limitation facility
- Scalability
- “Emergency Stop” function operating through the external input control like the AFA etc.
- Automatic time correction of all indoor units

2.10 Wired Remote Control

The wired remote controller is proposed in the work stations / office areas where generally more than one indoor unit is installed and there are many occupants. The wired remote controller is proposed to be surface mounting type unless otherwise required. The wired remote controller shall though be as per the OEM's standard manufacturing practice but should generally have the following features.

- Display for current airflow, swing, temperature, operating mode and timer settings.
- Digital display of temperature with natural number settings in 1 °C unit variation.
- Facility to set individual programme by timer.
- Enable selection of cool/heat/fan operation mode.
- Constantly monitor malfunctions in the system and run a self-diagnosis and to let know the operator, by message, immediately when a malfunction occurs.
- Shall be equipped with a thermostat sensor to enable the room comfortable temperature control possible.
- One remote controller shall control the operation of atleast eight indoor units.

न्यूनतम रु. के गैर-न्यायिक स्टाम्प पेपर पर. 100
(अनुबंधों के निष्पादन के संबंध में बैंक द्वारा सीपीडब्ल्यूडी को दी गई गारंटी)

On non-judicial stamp paper of minimum Rs. 100

(Guarantee offered by Bank to CPWD in connection with the execution of contracts)

बयाना राशि जमा/प्रदर्शन गारंटी/सुरक्षा जमा/मोबिलाइजेशन अग्रिम के लिए बैंक गारंटी का फॉर्म

Form of Bank Guarantee for Earnest Money Deposit/ Performance Guarantee/Security Deposit/Mobilization Advance

1. Whereas the Executive Engineer (name of division), CPWD on behalf of the President of India (hereinafter called "The Government") has invited bids under (NIT number) dated for (name of work) The Government has further agreed to accept irrevocable Bank Guarantee for Rs. (Rupees only) valid upto (date)* as Earnest Money Deposit from (name and address of contractor) (hereinafter called "the contractor") for compliance of his obligations in accordance with the terms and conditions of the said NIT.

OR

Whereas the Executive Engineer (name of division), CPWD on behalf of the President of India (hereinafter called "The Government") has entered into an agreement bearing number with (name and address of the contractor) (hereinafter called "the Contractor") for execution of work (Name of work) The Government has further agreed to accept an irrevocable Bank Guarantee for Rs. (Rupees only) valid upto (date) as Performance Guarantee/Security Deposit/Mobilization Advance from the said Contractor for compliance of his obligations in accordance with the terms and conditions of the agreement.

2. We, (indicate the name of the bank) (herein after referred to as "the Bank"), hereby undertake to pay to the Government an amount not exceeding Rs. (Rupees only) on demand by the Government within 10 days of the demand.
3. We, (indicate the name of the Bank), do here by undertake to pay the amount due and payable under this guarantee without any demur, merely on a demand from the Government stating that the amount claimed is required to meet the recoveries due or likely to be due from the said Contractor. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. (Rupees only)
4. We, (indicate the name of the Bank), further undertake to pay the Government any money so demanded notwithstanding any dispute or disputes raised by the contractor in any suit or proceeding pending before any Court or Tribunal, our liability under this Bank Guarantee being absolute and unequivocal. The payment so made by us under this Bank Guarantee shall be a valid discharge of our liability for payment there under and the Contractor shall have no claim against us for making such payment.
5. We, (indicate the name of the Bank), further agree that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligation here under to vary any of the terms and conditions of the said agreement or to extend time of performance by the said Contractor from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said contractor and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said Contractor or for any forbearance, act of omission on the part of the Government or any indulgence by the Government to the said Contractor or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.
6. We, (indicate the name of the Bank), further agree that the Government at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor at the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee the Government may have in relation to the Contractor's liabilities.
7. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor.

8. We, (indicate the name of the Bank), undertake not to revoke this guarantee except with the consent of the Government in writing.
9. This Bank Guarantee shall be valid up to unless extended on demand by the Government. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rs. (Rupees only) and unless a claim in writing is lodged with us within the date of expiry or extended date of expiry of this guarantee, all our liabilities under this guarantee shall stand discharged.

Date

Witnesses:

1. Signature.....

Authorized signatory

Name and address

Name
Designation
Staff code no.

2. Signature

Bank seal

Name and address

*Date to be worked out on the basis of validity period of 90 days where only financial bids are invited and 180 days for two/three bid system from the date of submission of tender.

**In paragraph 1, strike out the portion not applicable. Bank Guarantee will be made either for earnest money or for performance guarantee/security deposit/mobilization advance, as the case may be.

LISTS OF APPROVED MAKES

S. No	Item	Approved Makes
1.	VRV / VRF System Equipments	: Daikin/ Toshiba /Mitsubishi Electric/ O-General/ Carrier/ Midea/ Hitachi
2.	VRV/VRF Cassette type Indoor ceiling mounted unit	: Daikin/ Toshiba /Mitsubishi Electric/ O-General/ Carrier/ Midea/ Hitachi
3.	Refrigerant Piping	: Met-Tube/ Hindustan/ Rajco/ Total line/ Mandav tubes /Jindal Refrigeration / Parasmani Tubes
4.	PVC Pipe/ U-PVC Pipe	: Polypack/Prakash/Surya/Astrall/Finolex
5.	FRLS PVC insulated copper conductor single core cable for wiring. (ISI marked)	: Finolex / RR Kabel / KEI /Havells / Polycab / Bonton / Grandlay
6.	Aluminium / Copper power cable / Control Cable (Armoured / Unarmoured)	: Finolex / Universal / Polycab / Nicco / RPG Cables / KEI / Havells / RRKabel / Bonton / Grandlay
7.	Cable Tray	: Slatko /SPC/INDIANA/ SUPER/VENUS
8.	Refrigerant Piping Insulation	: Trocellen/ Supreme/ Armaflex/Armacell/ Superlone/Paramount
9.	PVC drain pipe / Copper tube piping	: Polycab/Supreme/ Prince/Finolex/ Polypack
10.	DLP Plastic Trunking	: Legrand /MK/Schneider
11.	PVC / Steel Conduit	: AKG/ BEC /Finolex/ NIC
12.	Fastener	: Hilti/ Fisher/ Canon
13.	MCB/ MCBDB / MCCB	: ABB/ Legrand/ Hager/Seimens/ L&T
14.	Any other items	: As approved by Engineer-in-Charge

Note:

- a. *Materials specified in the List of Acceptable Makes for Electrical Materials shall be got approved from Engineer-in-charge before use on work. Decision of Engineer-in -charge shall be final regarding selection of the makes.*
- b. *Materials not specified in the List of Acceptable Makes for Electrical Materials shall be got approved from Engineer-in-charge before use on work. Decision of Engineer-in -charge shall be final in this respect.*

Executive Engineer (E)
VBED, CPWD, VB Annexe
New Delhi-110011