

भारत सरकार
अंतरिक्ष विभाग
सतीश धवन अंतरिक्ष केंद्र शार
श्रीहरिकोटा रेंज डा.घ. 524 124
श्री पोष्टि श्रीरामुलु नेल्लूर जिला, आं.प्र., भारत
दूरभाष : +91-8623 245060 (6 जं)
फैक्स : +91-8623 222099



Government of India
Department of Space
Satish Dhawan Space Centre SHAR
Shriharikota Range P.O. 524 124
SPSR Nellore Dist., AP, India
Telephone : +91-8623 245060 (6 Lines)
Fax : +91-8623 222099

निविदा सूचना सं. TENDER NOTICE NO. SDSC SHAR/Sr.HPS/PT/RO-VALF/49/2025-2026

भारत के राष्ट्रपति की ओर से वरि. प्रधान क्रय एवं भंडार, सतीश धवन अंतरिक्ष केंद्र श्रीहरिकोटा निम्नलिखित वस्तुओं के लिए ऑनलाइन निविदाएं आमंत्रित करते हैं/On behalf of President of India, Sr. Head Purchase and Stores, SDSC SHAR, SRIHARIKOTA invites on line quotations for the following: -

क्र.सं. Sl No	संदर्भ सं. Ref. No.	विवरण Description	मात्रा Qty.
01.	SDSC SHAR /VALF PURCHASE /VALF/ 2025001515 Augmentation of AC systems at OMPF [Public Tender - Two Part]	Supply & Installation of Common mixing box for AHUs	03 Nos.
		Supply & Installation of Return air ducting with insulation and all essential & supporting elements	01 Lot
		Testing, Adjustment & Balancing of the Augmented AC system at OMPF	01 Lot

निविदा दस्तावेजों को डाउनलोड करने की अंतिम तिथि Last Date for downloading of tender documents : 22.12.2025 at 16:00 hrs.
ऑनलाइन निविदा जमा करने की अंतिम तिथि Due Date for submission of bids online : 22.12.2025 at 16:30 hrs.
निविदाएं खोलने की नियत तिथि Due Date for opening of tenders : 23.12.2025 at 10:30 hrs.

निविदाकार के लिए निर्देश Instructions to Tenderers:

निविदाएं ईजीपीएस के माध्यम से ही भेजी जाएं तथा कोई निविदा शुल्क लागू नहीं होगा।
Bids shall be submitted on line through EGPS only and No tender fee shall be applicable.

01. कार्य के सम्पूर्ण विवरण/जानकारी तथा नियम व शर्तों इत्यादि के लिए संलग्न अनुलग्नक को देखें। / For full details/scope of work and terms and conditions etc., please see the enclosed annexures.
02. इच्छुक निविदाकार इसरो की ई-खरीद वेबसाइट इसरो न्यू ई-प्रोक्यूरमेंट www.eproc.vssc.gov.in से ई-निविदा डाउनलोड और अपनी निविदा ई-खरीद पोर्टल पर ऑनलाइन जमा कर सकते हैं। डाक / वाहक / स्वयं द्वारा प्राप्त निविदाओं पर विचार नहीं किया जाएगा। / Interested tenderers can download the e-tender from ISRO e-procurement website ISRO NEW E-PROCUREMENT www.eproc.vssc.gov.in and submit the offer on line in the e-procurement portal. Offers sent physically by post/courier/in person will not be considered.
03. निविदा दस्तावेज इसरो की वेबसाइट www.isro.gov.in इसरो न्यू ई-प्रोक्यूरमेंट वेबसाइट www.eproc.vssc.gov.in तथा सतीश धवन अंतरिक्ष केंद्र शार की वेबसाइट www.shar.gov.in पर भी उपलब्ध हैं। इन्हें केवल ई-खरीद पोर्टल से डाउनलोड और निविदा ऑनलाइन जमा कर सकते हैं। / Tender documents are also available on ISRO website www.isro.gov.in ISRO New e-procurement website www.eproc.vssc.gov.in and SDSC SHAR, Sriharikota website www.shar.gov.in. The same can be down loaded and offer submitted on line in the new e-procurement portal only.
04. निर्धारित तिथि/समय के पश्चात प्राप्त बोलियों पर विचार नहीं किया जाएगा। / Quotations received after the due date/time will not be considered.
05. निविदा दस्तावेज दिनांक 22.12.2025 को 16:00 बजे तक डाउनलोड करने के लिए उपलब्ध रहेंगे तथा निविदा ऑनलाइन जमा करने की अंतिम तिथि 22.12.2025 को 16:30 बजे तक है। निविदाएं दिनांक 23.12.2025 को 10:30 बजे खोली जाएंगी। / The tender documents are available for download upto 22.12.2025 at 16:00 hrs. and last date for submission of tenders on line 22.12.2025 at 16 30 hrs. and Tender Opening on 23.12.2025 at 10:30 hrs.
06. इच्छुक विक्रेता विवरण जानने के लिए निविदा खोले जाने वाले सत्र में शामिल हो सकते हैं। निविदा के मूल्यांकन पर विचार करने के लिए उनकी उपस्थिति अनिवार्य नहीं है। / Interested vendors can attend the Bid opening sessions to know the details. Presence not mandatory to consider the quote for evaluation.
07. वरि. प्रधान क्रय एवं भंडार, सतीश धवन अंतरिक्ष केंद्र श्रीहरिकोटा के पास किसी भी या सभी निविदाओं को स्वीकार / अस्वीकार करने का अधिकार है। / Sr. Head, Purchase and Stores, SDSC-SHAR, Sriharikota reserves the right to accept or reject any/or all the quotations.
08. GeM ARPTS Report ID: GEM/GARPTS/25112025/WWU2T3SL6W1K

दिनांक DT: 27.11.2025
भारतीय अंतरिक्ष अनुसंधान संगठन



वरि. प्रधान क्रय एवं भंडार
Sr. HEAD PURCHASE AND STORES
Indian Space Research Organisation

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
SATISH DHAWAN SPACE CENTRE SHAR SRIHARIKOTA (SDSC SHAR)
NELLORE**

Tender for Augmentation of AC systems at OMPF

Bids to be submitted online

Tender No.: SDSC SHAR/VALF PURCHASE/SH202500151501 dated 27-11-2025

A. Tender Details

Tender No :	SDSC SHAR/VALF PURCHASE/SH202500151501
Tender Date :	27-11-2025
Tender Classification:	GOODS
Purchase Entity :	VALF PURCHASE
Centre :	SATISH DHAWAN SPACE CENTRE SHAR SRIHARIKOTA (SDSC SHAR)

Augmentation of AC systems at OMPF

GEM/GARPTS/25112025/WWU2T3SL6W1K

As per tender documents

A.1 Tender Schedule

Bid Submission Start Date :	27-11-2025 16:25
Bid Clarification Due Date :	08-12-2025 10:00
Bid Submission Due Date :	22-12-2025 16:30
Bid Opening Date :	23-12-2025 10:30
Price Bid Opening Date :	14-01-2026 10:30

B. Tender Attachments

Technical Write-up/Drawings

Document : RFP document

Document : OMPF AC Augmentation works - Configuration Drawings

Instructions To Vendors

3. STANDARD TERMS & CONDITIONS

1. Tele No.08623-225174/225127/226082

Fax No.08623-225170/22-5028

e-Mail ID : hps@shar.gov.in, sselvan@shar.gov.in, jomin@shar.gov.in

1. Instruction to Indigenous Suppliers:

a) Payment Terms shall be as specified in RFP. If not specifically mentioned Our Normal payment term is 100% within 30 days after receipt and acceptance of the item at our site. Please confirm acceptance in your quotation.

b) Our GST No. is. 37AAAGS1366J1Z1.

c) Purchase / Price preference to MSEs

Purchase/Price preference will be applicable to the product reservation admissible to the Micro and Small Enterprises. Purchase/Price Preference shall be extended to the MSEs under the Public Procurement Policy for MSEs formulated under the Micro, Small and Medium Enterprises Development Act, 2006. The participating MSEs in a tender, quoting price within the band of L-1 + 15% may also be allowed to supply a portion of the requirement by bringing down their price to the L-1 price, in a situation where L-1 price is from someone other than an MSE. Such MSEs may be allowed to supply up to 25% of the total tendered value. In case of more than one such eligible MSE, the supply will be shared equally.

Micro & Small Enterprises which have technical capability to deliver the goods & Services as per prescribed technical & quality specifications and may not be able to meet the qualification criterion relating to prior experience-prior turnover may be relaxed as per guidelines issued by Ministry of MSMEs & as amended from time to time.

Interested vendors shall specifically claim the benefit with supporting documents.

d) Purchase / Price preference to Make-in-India Products:

Preference shall be given to Class 1 local supplier as defined in public procurement (Preference to Make in India), Order 2017 as amended from time to time and its subsequent Orders/Notifications issued by concerned Nodal Ministry for specific Goods/Products. The minimum local content to qualify as a Class 1 local supplier is denoted in the bid document 50%. If the bidder wants to avail the Purchase preference, the bidder must upload a certificate from the OEM regarding the percentage of the local content and the details of locations at which the local value addition is made along with their

bid, failing which no purchase preference shall be granted. In case the bid value is more than Rs. 10 Crore, the declaration relating to percentage of local content shall be certified by the statutory auditor or cost auditor, if the OEM is a company and by a practicing cost accountant or chartered accountant for OEMs other than companies as per the Public Procurement (preference to Make-in-India) order 2017 dated 04.06.2020 and amendments thereof. In case Buyer has selected Purchase preference to Micro and Small Enterprises clause in the bid, the same will get precedence over this clause.

2. Instruction to Foreign Suppliers:

a) Payment Terms shall be as specified in RFP. If not specifically mentioned Our normal payment term is SIGHT DRAFT, Please confirm acceptance in your offer, if you insist for L/C, and all bank charges shall be to your account. Confirm acceptance.

b) Please specify whether any export clearance is required in case of an order on you.

c) Warranty/Guarantee applicable for the item shall be mentioned in your offer

d) Special Certification for packing Material : as per Plant Quarantine (Regulation of Control into India) Order 2003, Articles packed with packing material of plant origin viz., hay, straw, wood shavings, wood chips, saw dust, wood waste, wooden pallets, Dunn age Mats, wooden packages, coir pith, pear or sphagnum moss etc., will be allowed entry by Customs only with a Phytosanitary Certificate. In case if a Purchase Order, if you propose to us any of the above material for packing such a certificate issued by your local Plant Quarantine Authority shall be furnished.

e) Confirm whether any Export License is required and for which End User Certificate is to be provided by us, in case of an Order on you. (Enclose format for EUC, if applicable)

f) Either Indian Agent on behalf of the foreign principals or the foreign principal directly can quote against this order, but not both. In either case an Indian agent cannot represent more than one principal against the same tender.

g) In case the quote is in INR we prefer to execute the same on HSS Basis and for which Concessional Customs duty as per Notification no.50/2017 Customs dated 30.06.2017, Serial No.539(A) as amended by Notification no.05/2018 dated 25.01.2018. In case the quote is on Indian Rupee (Outside High Sea Sale), the price shall include taxes and duties if any. We shall not able to provide any duty or IGST tax exemption/concession certificates. If the item quote is of USA make, please quote for all-inclusive price since we prefer to get the item on FOR destination basis.

h) Any bidder from a country which shares a land border with India will be eligible to bid in any procurement whether of goods, services (including consultancy services and non-consultancy services) or works (including turnkey projects) only if the bidder is registered with Competent Authority as specified in Office Memorandum no.F.No.6/18/2019-PPD, Ministry of Finance, Department of Expenditure, Public Procurement Division dated 23rd July 2020. All the conditions mentioned in the above OM is applicable for this tender.

Common terms to Indigenous and foreign suppliers:

3.Warranty

You shall provide applicable warranty for the items offered by you without fail. For the applicable period you shall provide necessary warranty certificate.

4.Performance Bank Guarantee

Towards the performance of the systems during the warranty period you shall submit a performance bank guarantee equivalent to 3% of the order value to cover the warranty period. This PBG shall be interest free and the same shall be returned to you on successful completion of all contractual obligations. The said PBG shall have a further claim period of 2 months.

5. Security Deposit

On acceptance of the order, you shall submit an interest free amount equivalent to 3% of the total contract/order value towards security deposit. This security deposit is collected towards the performance of the Contract. The said Security Deposit shall be submitted either in the form of Bank Guarantee/Demand Draft/FDR receipts duly endorsed in the name of the centre. The Security Deposit will be returned to you on successful completion of the Contractual obligations; failing which it shall be forfeited/adjusted.

6. Offer Validity

Your offer shall be valid for 180 days in case of 2 part / 90 days in case of single part from the date of tender opening. In case you offer validity is less than the mentioned above, the said offer is liable for rejection which may please be noted.

7. Liquidated Damages:

If you fail to deliver the ordered items satisfactorily within the time specified or any extension thereof, Liquidated Damage @ 0.5%(zero point five percent) of the order value or part thereof the un-delivered items for each calendar weeks of delay shall be recovered from your bill. However total Liquidated Damage shall not exceed 10% (ten percent) of the order value.

FORCE MAJEURE:

Should a part or whole work covered under this contract be delayed in delivery/completion of work due to reasons of Force majeure which shall include legal lockouts, strikes, riots, civil commotion, fire, accidents, quarantines, epidemic, acts of God & War, stoppage of deliveries by the Government , freight embargoes etc; the delivery period/completion of work referred to in this Contract shall be extended by a period not in excess of duration of such Force Majeure. The occurrence shall be notified by either party within reasonable time.

8. Offers received through post, courier, fax or email will not be considered.

9. Technical and commercial bid (Part-I) shall not contain any price details. Optional accessories or other price details, if any shall be uploaded in Supporting documents related to Price Bid, to be opened along with Price Bid.

10. In respect of FIM being issued, the fabricator shall submit Bank Guarantee for equivalent sum compulsorily. In case, submission of Bank Guarantee is not possible, the reasons there for shall be clearly mentioned. However, for such cases the fabricators at their cost shall secure such FIM through Insurance Policy with Director, SDSC SHAR as beneficiary. In case of PSU and Government Organization, Indemnity Bond in lieu of Bank Guarantee is acceptable. Balance FIM/Scrap, if any shall be returned along with the supply of the items. Please confirm acceptance in your quotation.

11. SDSC SHAR shall have the right to place part order among the parties for the items for which they are the lowest.

12. Arbitration:

In the event of any dispute/s, difference/s or claim/s arising out of or relating to the interpretation and application of the Contract, such dispute/s or difference/s or claim/s shall be settled amicably by mutual consultations of the good Offices of the respective Parties and recognizing their mutual interests attempt to reach a solution satisfactory to both the parties. If such a resolution is not possible, within 30 days from the date of receipt of written notice of the existence of such dispute/s, then the unresolved dispute/s or difference/s or claim/s shall be referred to the Sole Arbitrator appointed by the Parties by mutual consent in accordance with the rules and procedures of Arbitration and Conciliation Act 1996 as amended from time to time. The arbitration shall be conducted in Bengaluru in the Arbitration and Conciliation Centre Bengaluru (Domestic and International) as per its rules and regulations. The expenses for the Arbitration shall be shared equally or as may be determined by the Arbitrator. The considered and written decision of the Arbitrator shall be final and binding between the Parties. The applicable language for Arbitration shall be English only.

Work under the Contract shall be continued by the CONTRACTOR during the pendency of arbitration proceedings, without prejudice to a final adjustment in accordance with the decision of the Arbitrator unless otherwise directed in writing by the DEPARTMENT or unless the matter is such that the works cannot be possibly continued until the decision (whether final or interim) of the Arbitrator is obtained.

4. INSTRUCTIONS TO TWO PART TENDER

1. We are proposing to invite Tenders in Two Parts viz., Part-I Techno and Commercial & Part-II Price. All Tenderers are requested to follow carefully the following instructions before preparing their offer.

PART- I- TECHNO COMMERCIAL BID:

(1) This part should contain detailed Specifications of the items quoted by you along with Technical Literature and Leaflets if any.

(2) All the Commercial terms and Conditions applicable also should be indicated separately under separate heads.

(3) The Commercial terms such as delivery terms, delivery period, payment terms, warranty, validity of the offer, Installation & Commissioning, Duties and Taxes etc shall come into this.

(4) Either Technical Specifications or Terms & Conditions as above should be very clearly reflected items wise with reference to the items called for in the tender.

(5) Please note that Prices should not be indicated in this part.

(6) Any deviations from the Technical Specifications and Commercial Terms shall be indicated separately.

PART II-PRICE BID:

(1) The prices applicable for the items, item wise in response to the tender shall come into this part.

(2) Tender shall indicate very clearly item wise prices with reference to their Technical Offer.

Note: 1. PLEASE NOTE THAT THE OFFERS SUBMITTED CONTRADICTORY TO ABOVE INSTRUCTIONS WILL BE LIABLE FOR REJECTION. PLEASE ENSURE OFFERS ARE SUBMITTED WITHIN THE DUE DATE.

2. BEING TWO PART TENDER, WE REQUEST YOU NOT TO DISCLOSE / INDICATE ANY OF THE PRICE VALUE WHILE SEEKING / PROVIDING CLARIFICATION. YOU SHOULD INDICATE ONLY IN PERCENTAGE. IN CASE IF YOU DISCLOSE ANY OF THE PRICE AMOUNT YOUR OFFER WILL BE REJECTED.

5. General Instructions to Vendor

1. Instructions to tenderers

TeleNo.08623-225174/225127

Fax No.08623-225170/22-5028

e-Mail ID : hps@shar.gov.in, sselvan@shar.gov.in, psovalf@shar.gov.in

1. Interested tenderers may, at their option, login to <https://eproc.isro.gov.in> and submit your offers.

2. TENDER FEE IS NOT APPLICABLE.

3. EARNEST MONEY DEPOSIT IS NOT APPLICABLE IF NOT MENTIONED IN THE RFP SPECIFICATION.

4. Indian agents while quoting on behalf of their principals are requested to attach Principals original quote, necessary authorization letter from their Principals, copy of agency agreement etc. in their bid.

5. TWO PART BIDS: In case of Two part tender, price details shall not be uploaded in the Technical & Commercial Bids (Part I), failing to which the bid will be treated as INVALID.

6. The offer should be valid for a minimum period of 180 days for 2 part / 90 days for single part from the date of opening.

7. Due date & time: Sufficient time has been allotted for Bid submission. Vendors are requested to complete Bid submission well in advance. Last minute requests for due date extension citing server problems etc. will not be entertained. Bids will not be entertained after the due date and time.

7 (A). Request for the extension of the due date will not be considered.

8.

(a) Bid Opening for Public Tender: In case of Public Tender-Two Part Tenders: Technical and Commercial Bids will be opened on the first day specified for Tender opening. Interested vendors can attend the tender opening session to know the bidding details (Bidders presence is not mandatory to consider the quote for evaluation). Price Bid opening of the selected vendors will be scheduled later and it will be intimated to the selected Bidder (s).

(b) For Limited Tender: Bidders participation is not allowed.

9. Prices are required to be quoted according to the units indicated.

10. Preference will be given to those tenderers offering supplies from ready stocks and on the basis of FOR destination delivery at site.

11. (a) All available technical literature, catalogues and other data in support of the specifications and detail of the items should be furnished as attachments.

(b) Samples, if called for, should be submitted free of all charges by the tenderer and the Purchaser shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of non-acceptance of tender, the tenderer will have to remove the samples at his own expense.

(c) Approximate net and gross weight of the items offered shall be indicated in your offer. If dimensions details are available the same should be indicated in your offer.

(d) Specifications: Stores offered should strictly conform to our specifications. Deviations, if any, should be clearly indicated by the tenderer in their quotation. The tenderer should also indicate the Make/Type number of the stores offered and provide catalogues, technical literature and samples wherever necessary. Test certificates wherever necessary should be attached. Whenever options are called for in our specifications, the tenderer should address all such options. Wherever specifically mentioned by us the tenderer could suggest changes to specifications with appropriate response for the same.

12. The purchaser shall be under no obligation to accept the lowest or any tender and reserves the right of acceptance of the whole or any part of the tender or portion of quantity offered and the tenderers shall supply the same at the rates quoted.

13. All amounts shall be indicated both in words as well as in figures. Where there is difference between amounts quoted in words and figures, amount quoted in words shall prevail.

14. The tenderer will be required to furnish a document containing the name of his bankers as well as the latest income-tax clearance certificate duly counter signed by the Income-tax Officer of the Circle concerned under the Seal of his office, if required by the Purchaser.

15. The Purchaser reserves the right to place order on the successful tenderers for additional quantity up to 25% of the quantity offered by them at the rates quoted.

16. Sr. Head, Purchase and Stores, SDSC SHAR SRIHARIKOTA reserves the right to accept or reject any bid in part or full without assigning any reason thereof.

17. Any bidder from a country which shares a land border with India will be eligible to bid in any

procurement whether of goods, services (including consultancy services and non-consultancy services) or works (including turnkey projects) only if the bidder is registered with Competent Authority as specified in Office Memorandum no.F.No.6/18/2019-PPD, Ministry of Finance, Department of Expenditure, Public Procurement Division dated 23rd July 2020. All the conditions mentioned in the above OM is applicable for this tender.

C. Bid Templates

C.1 Technical Bid - Augmentation of AC systems at OMPF

1. Supply & Installation of AC System: Supply & Installation of Common mixing box for AHUs (1 to 6) as per BOQ mentioned in the technical specifications & configuration drawings of RFP

Item specifications for Supply & Installation of AC System: Supply & Installation of Common mixing box for AHUs (1 to 6) as per BOQ mentioned in the technical specifications & configuration drawings of RFP

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Vendor to confirm compliance to all the Technical Specifications and General terms & conditions laid down in the RFP document attached with the tender.	As per RFP document	Yes / No / Explain		
2	Vendor to confirm compliance to adherence to configuration drawings for the OMPF AC augmentation works attached with the tender.	As per OMPF AC augmentation works - Configuration drawings	Yes / No / Explain		

2. Supply & Installation of AC System: Supply & Installation of Return air ducting with insulation and all essential & supporting elements as per the BOQ mentioned in the technical specifications & configuration drawings of RFP

Item specifications for Supply & Installation of AC System: Supply & Installation of Return air ducting with insulation and all essential & supporting elements as per the BOQ mentioned in the technical specifications & configuration drawings of RFP

SI No	Specification	Value	Compliance	Offered Specification	Remark
-------	---------------	-------	------------	-----------------------	--------

1	Vendor to confirm compliance to all the Technical Specifications and General terms & conditions laid down in the RFP document attached with the tender.	As per RFP document	Yes / No / Explain		
2	Vendor to confirm compliance to adherence to configuration drawings for the OMPF AC augmentation works attached with the tender.	As per OMPF AC augmentation works - Configuration drawings	Yes / No / Explain		

3. Supply & Installation of AC System: Testing, Adjustment & Balancing of the Augmented AC system at OMPF

Item specifications for Supply & Installation of AC System: Testing, Adjustment & Balancing of the Augmented AC system at OMPF

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Vendor to confirm compliance to all the Technical Specifications and General terms & conditions laid down in the RFP document attached with the tender.	As per RFP document	Yes / No / Explain		
2	Vendor to confirm compliance to adherence to configuration drawings for the OMPF AC augmentation works attached with the tender.	As per OMPF AC augmentation works - Configuration drawings	Yes / No / Explain		

Supporting Documents required from Vendor

1. Signed RFP document with priced BOQ ("Accepted" & sign at the bottom of every page) as proof of vendor's acceptance & compliance to RFP terms during submission of Priced commercial part of bid (Price Bid Related)

2. Signed RFP document with unpriced BOQ ("Accepted" & sign at the bottom of every page) as

proof of vendor's acceptance & compliance to RFP terms during submission of Technical & unpriced part of bid

3. Udyam Certificate if claiming MSE purchase preference.

4. Self-declaration indicating percentage of local content along with location of value addition (If applicable)

5. Turnover of last three FY

6. Experience certificate as mentioned in the attached RFP

7. Copy of IT return for last three FY

8. Current Solvency Certificate for an amount of Rs. 0.5 CR

5 additional documents can be uploaded by the vendor

C.2 Commercial Terms / Bid

Sl. No.	Description	Compliance	Vendor Terms
1	As per the technical specifications and General terms & conditions specified in the RFP document - Augmentation of AC systems at OMPF	Yes / No / Explain	
2	(1). The procurement intended for the bonafide use in Systems/Sub-systems of Launch Vehicle Project of Indian Space Research Organization, Government of India, Department of Space and eligible for IGST@5% as per guiding principles conveyed by the Ministry of Finance Dept. of Revenue Notification No. 25/2018-Integrated Tax (Rate) Schedule-I; Sl. No. 243B dated 31.12.2018 (Amendment to Notification No. 07/2018-Integrated Tax (Rate) dated 25.01.2018 and Notification No. 01/2017- Integrated Tax (Rate) dated: 28.06.2017). An end user certificate shall be issued in this effect.	Yes / No / Explain	
3	Please confirm here whether your quoted "UNIT PRICE" in our Price Bid is EXCLUDING GST or INCLUDING GST. ----- NOTE: If you are not clearly stating "GST is Inclusive OR Extra in basic cost" it will be treated as "GST is included in the quoted Basic/Unit cost in the price bid". Your offer will be evaluated as INCLUSIVE OF GST.	Yes / No / Explain	
4	Delivery Term FOR : SDSC SRIHARIKOTA (MANDATORY)	Yes / No / Explain	
5	Packing and Forwarding(P & F) charges, extra if any, please mention percentage in price-bid. Please note that in case of Two part tenders, only percentage should be mentioned otherwise those offers shall be summarily rejected.	Yes / No / Explain	
6	Freight charges, extra if any, please mention percentage in price-bid Please note that in case of Two part tenders, only percentage should be mentioned otherwise those offers shall be summarily rejected.	Yes / No / Explain	
7	Delivery Period required for delivery of the items/completion of total scope of work: 22 Weeks, detailed as per RFP.	Yes / No / Explain	

8	Payment Terms: Option a. In general, our payment terms will be 100% within 30 days after commissioning & testing. Option b. However, if Vendors/Suppliers are requesting for advance payment, department may consider as given below: i. After placement of confirmed Purchase Order: 30% of supply payment as advance against submission of bank guarantee for an equal amount from a reputed nationalized/scheduled bank and shall be valid till Contract completion period plus 60 days. ii. After receipt at SDSC SHAR, Sriharikota: 60% of supply payment on pro-rata basis will be paid for the cost of the Purchase order against receipt of materials at Purchasers / Department site along with GST (including for advance portion) within 30 days from the day of clearance by Department. iii. After commissioning, testing & balancing at SDSC SHAR, Sriharikota: 10% of supply and 100% of erection cost plus service tax (including for advance portion) on pro- rata basis after successful erection, commissioning, testing, balancing and acceptance by Department. Note: 1. Please clearly indicated your option of payment as option a or option b 2. After release of advance payment, any delay attributable to the supplier in effecting the supply after prescribed delivery period, interest will be levied beyond the specified delivery period on the amount of balance advance payments per the Prime Lending Rate of RBI. 3. In case of non-performance/poor performance, advance payment shall be recovered from supplier with interest as per the Prime Lending Rate of RBI along with 2% penal interest from the date of release of advance payment and the BG against advance payment shall be forfeited. 4. The rate of interest shall be loaded on option of advance by the bidder for arriving L1.	Yes / No / Explain	
---	--	--------------------	--

9	Warranty/Guarantee: Warranty/Guarantee for the offered item shall be from the date of acceptance of the item at our site for a minimum period of one year or specified in the tender document.	Yes / No / Explain	
10	Liquidated Damages (LD) :- Since delivery is the essence of this order, LD @ 0.5% per week or part thereof subject to a maximum of 10% of the order value for the delayed period of supply.	Yes / No / Explain	
11	Security Deposit (SD) 3% value of the order shall be deposited with SDSC within 10 days from the date of the Purchase Order towards security deposit in the form of Bank Guarantee(BG)/ FDR/DD towards performance of the Contract valid till completion of the contract period plus sixty days towards claim period. (This will be returned by SDSC immediately on execution of the order satisfactorily as per order terms. If not, the amount will be forfeited). NOT REQUIRED FOR LANDED COST BELOW RS.5 LAKHS.	Yes / No / Explain	
12	Performance Bank Guarantee (PBG) You have to submit a BG/DD/FDR in lieu of PBG from a Nationalized / Scheduled Bank for 3% of the order value at the time of supply valid till the completion of warranty period plus 60 days towards claim period.	Yes / No / Explain	
13	Combined BG for PBG cum SD In case, if parties are unable to provide two separate BGs, i.e., one for SD & one for PBG, they can submit a combined BG for SD & PBG for 3% of the Order value valid till the completion of total contractual obligation (i.e., Supply period plus warranty period plus 60 days). Please confirm.	Yes / No / Explain	
14	Insurance Being a Govt. Of India Dept., Insurance is not required at our cost. Please ensure the safe delivery of the ordered item with proper transport worthy packing.	Yes / No / Explain	

15	Validity of Offer In case of single part tender - the validity of offers/tenders should be 90 days. In case of two part tender - 120 days from the date of opening of Part-I bid and 60 days from the date of opening of Part-II bid. Tenders shorter than offer validity mentioned above will not be considered for evaluation.	Yes / No / Explain	
16	The bidder shall provide compliance to Order No. F.No.7/10/2021 PPD dated 23.02.2023 and amendments thereof by Ministry of Finance, Department of Expenditure, Public Procurement Division regarding restrictions on procurement from a bidder of a country which shares a land border with India and comply to all the provisions of the Order. In this regard, you shall certify that the bidder entity is not from such a country or, is from such a country, has been registered with the Competent Authority.	Yes / No / Explain	
17	As per the above Order, are you (the Bidder/Company/Entity) OR offering product/service is from such a Country sharing Land border with INDIA.	Yes / No / Explain	
18	Make-In-India (MII) Clause: Provisions contained in Public Procurement Policy (Preference to Make in India), Order 2017 issued by DPIIT vide OM No. P-45021/2/2017-PP(BE-II) dated 16.09.2020 & directives related including latest amendments (if any) is applicable for this tender. You are requested to provide Self Declaration Certificate that the offered Item meets Local Content Requirement of Class 1 or Class 2 as per Make in India(MII) Policy, clearly indicating the Percentage of local content & the details of Location(s) at which value addition is made in the offered product. It may be noted that Local Content shall not include services such as Transportation, Insurance, Installation, Commissioning, Training and after sales service support like AMC/CMC etc.	Yes / No / Explain	

19	Please mention in PERCENTAGE the Value addition of offered products happened in INDIA in line with Make In India Policy. (Mandatory). You have to upload MII Deceleration mentioning place and percentage of value addition along with Offer.	Yes / No / Explain	
20	Purchase preference to Micro and Small Enterprises (MSEs): Purchase preference will be given to MSEs as defined in Public Procurement Policy for Micro and Small Enterprises (MSEs) Order, 2012 dated 23.03.2012 issued by Ministry of Micro, Small and Medium Enterprises and its subsequent Orders/Notifications issued by concerned Ministry. If the bidder wants to avail the Purchase preference, the BIDDER MUST BE MANUFACTURER OF THE OFFERED PRODUCT in case of bid for supply of goods. TRADERS ARE EXCLUDED from the purview of Public Procurement Policy for Micro and Small Enterprises. In respect of bid for Services, the bidder must be the Service provider of the offered Service. Relevant documentary evidence along with UDYAM REGISTRATION in this regard shall be uploaded along with the bid in respect of the offered product or service. If L-1 is not an MSE and MSE Seller (s) has/have quoted price within L-1 plus 15% (Selected by Buyer) of margin of purchase preference/price band defined in relevant policy, such Seller shall be given opportunity to match L-1 price and contract will be awarded for 25% (selected by Buyer) percentage of total QUANTITY.	Yes / No / Explain	
21	Are you claiming MSME Preference for this tendered item/service? Note: You should have been the MANUFACTURER of the offered product or SERVICE Provider of the said service (in service tender) as per your MSME Registration. (If YES, valid Udyam Registration documents shall be uploaded. Otherwise your claim will not be considered. False declarations will be in breach of the Code of Integrity under Rule 175(1)(i)(h))	Yes / No / Explain	

22	Please Select for the offered Product whether you are: (1) Manufacturer (2) Authorized Agent (3) Distributor (4) Dealer (5) Reseller (6) Others	Yes / No / Explain	
23	ARBITRATION:- The Contract/PO shall be interpreted, construed and governed by the Laws in India. In the event of any dispute/s, difference/s or claim/s arising out of or relating to the interpretation and application of the Contract/PO, such dispute/s or difference/s or claim/s shall be settled amicably by mutual consultations of the good Office of the respective Parties and recognizing their mutual interests attempt to reach a solution satisfactory to both the parties. If such a resolution is not possible, within 30 days from the date of receipt of written notice of the existence of such dispute/s, then the unresolved dispute/s or difference/s or claim/s shall be referred to the Sole Arbitrator appointed by the Parties by mutual consent in accordance with the rules and procedures of Arbitration and Conciliation Act 1996 as amended from time to time. The arbitration shall be conducted in Bengaluru in the Arbitration and Conciliation Centre - Bengaluru (Domestic and International) as per its rules and regulations. The expenses for the Arbitration shall be shared equally or as may be determined by the Arbitrator. The considered and written decision of the Arbitrator shall be final and binding between the Parties. The applicable language for Arbitration shall be English only.	Yes / No / Explain	
24	Do you have Unique GeM Seller ID? If YES, provide details If NO, As per Office Memorandum No 6/9/2020-PPD dated 24/08/2020 of Department of Expenditure, it shall be mandatory for sellers providing Goods and Services to Central Government Organizations to be registered on GeM and obtain a Unique GeM Seller ID, at the time of Placement of Order/acceptance of contract. Tenderers shall ensure the same.	Yes / No / Explain	
25	Address on which PO is to be placed and GSTIN	-	

26	Please provide valid/currently using E-mail Id & Contact no. for seeking further clarifications if any	-	
27	Remarks if any.	-	

C.3 Price Bid

Sl. No.	Item	Quantity	Unit Price	Currency	Total Price	P&F IN PERCENTAGE	FREIGHT PERCENTAGE	Remark
1	Supply & Installation of AC System: Supply & Installation of Common mixing box for AHUs (1 to 6) as per BOQ mentioned in the technical specifications & configuration drawings of RFP	3.00 Nos.		-				
2	Supply & Installation of AC System: Supply & Installation of Return air ducting with insulation and all essential & supporting elements as per the BOQ mentioned in the technical specifications & configuration drawings of RFP	1.00 Lot		-				

3	Supply & Installation of AC System: Testing, Adjustment & Balancing of the Augmented AC system at OMPF	1.00 Lot		-				
---	--	----------	--	---	--	--	--	--

REQUEST FOR PROPOSAL (RFP)
AUGMENTATION OF CM BAY & MAL BAY - OMPF WITH DUCTING FOR AC RETURN AIR & ITS
PERFORMANCE VALIDATION

Annexure to Indent no.: 2025001515 – Augmentation of AC systems at OMPF

TECHNICAL SPECIFICATION AND GENERAL TERMS & CONDITIONS

- | | | |
|-------------|---|-------------------------------------|
| SECTION I | - | AIR DISTRIBUTION SYSTEMS |
| SECTION II | - | INSULATIONS |
| SECTION III | - | MEASUREMENT |
| SECTION IV | - | LIST OF APPROVED MAKES OF EQUIPMENT |
| SECTION V | - | EQUIPMENT PARTICULAR SPECIFICATION |
| SECTION VI | - | BILL OF QUANTITIES |
| SECTION VII | - | GENERAL TERMS & CONDITIONS |

SECTION I - AIR DISTRIBUTION SYSTEM

1. General:

Supply, Fabrication, Installation, Testing and Commissioning of Sheet Metal Ducts with fire retardant phenolic foam insulation, Double skin mixing box, Volume Control Dampers, Motorized Fire & smoke dampers with actuators, duct silencers etc., in accordance with the specifications and the General Arrangement shown on the Tender Drawings.

i. Fabrication Standards:

All duct construction and installation shall be in accordance with SMACNA standards. In addition, ducts shall be factory fabricated utilizing the following machines to provide the requisite quality of ducts.

- a. Coil (Sheet metal in Roll Form) lines to facilitate location of longitudinal seams at corners/folded edges only, for required duct rigidity and leakage free characteristics. No longitudinal seams permitted along any face side of the duct.
- b. All ducts, transformation pieces and fittings to be made on CNC profile cutter for requisite accuracy of dimensions, location and dimensions of notches at the folding lines.
- c. All edges to be machine treated using lock formers, flanges and rollers for turning up edges.

ii. Duct Construction:

All ducts shall be fabricated and installed in workmanlike manner, conforming to relevant SMACNA codes.

- a. Supply and erection of Pre - fabricated Aluminium ducting for return air, Supply side interconnection for AHUs 1-2, 3-4, 5-6, 7-8 (200 SQM) and at supply side of AHU 5 (Comfort side) with VCDs to SM Bay (150SQM) as per IS 655 complete with supporting arrangements including vanes, supports, access doors, neoprene rubber gaskets etc. compatible for cleanroom standards. Joints and duct ends shall be sealed after fabrication and during storage prior to erection to ensure dust proof conditions.
- b. Ducts shall be rigidly and securely supported with SMACNA certified wire rope hanger system, complete with suitable size galvanized high tensile steel wire ropes, ceiling anchors, locks, pre-crimped end fixing arrangement and required accessories. The SMACNA certification shall be applicable for the complete wire rope hanger system including the lock, wire rope and end fixing arrangement.
- c. To ensure the safety of wire rope hangers, the lock shall NOT have inbuilt unlocking mechanism & a separate key shall be provided for unlocking the locking mechanism. The locking mechanism shall be of wedge type, self-locking & double channel type without any wire slippage. The wire rope hangers shall have a minimum safety factor of 5:1. The wire rope hanger system shall comply with manufacturer's load ratings and installation procedure shall be as per recommended standards in approved manner or the ducts shall be supported with threaded fasteners, anchor bolts, tab hangers & all accessories and complete as per IS 655.
- d. The quantities of ducts as mentioned in the BOQ shall be catered for & thickness of the ducts shall be as indicated in the BOQ. Aluminium material shall conform to latest IS:737. All duct joints shall be provided with angle flanges and sheet flanges with suitable self-adhesive gasket and finally sealed with suitable sealant material.

The following points shall be accounted, wherever applicable while constructing the duct.

- e. The fabricated duct dimensions should be in accordance with approved drawings and care should be taken to ensure that all connecting sections are dimensionally matched to avoid any gaps.
- f. Ducts shall be straight and smooth on the inside with longitudinal seams shall be airtight and at corners only which shall be either Pittsburgh or snap button in accordance with SMACNA practice, to ensure air-tightness.
- g. All ducts up to 75cms width within conditioned spaces shall have slip and drive (C & S/SS) joints. The internal ends of slip joints shall be in the direction of airflow. Care should be taken to ensure that S/SS Cleats are mounted on the longer side of the duct and Cleats on the shorter side.
- h. Changes in dimensions and shape of ducts shall be gradual (between 1:4 and 1:7). Air-turns (vanes) shall be installed in all bends and duct collars designed to permit the air to make the turn without appreciable turbulence.
- i. All ducts shall be rigid and shall be adequately supported and braced where required with standing seams, tees, or angles, of ample size to keep the ducts true to shape and to prevent buckling, vibration or breathing.
- j. Plenums shall be shop/factory fabricated panel type and assembled at site. Fixing of galvanized angle flanges on duct pieces shall be with rivets heads inside i.e. towards GS sheet and riveting shall be done from outside.
- k. Self-adhesive Neoprene rubber / UV resistant PVC foam or equivalent lining of 5mm nominal thickness instead of felt, shall be used between duct flanges and between duct supports in all ducting installation.
- l. All bends and elbows shall be neatly fabricated and with a minimum radius of not less than one half of the width of the duct. All bends and elbows shall be provided with properly designed and spaced vanes.
- m. In all branch ducts and at salient locations, suitable splitters and control dampers shall be provided to facilitate air balancing. All dampers shall be provided with suitable links, levers and quadrants with position indicators and locking arrangement.
- n. Supporting of Ducting shall be provided by the Air Conditioning Contractor, it shall be generally supported from Roof Slab, Beams, Bottom Members of Truss and OR Additional MS Structural frame work as per the site conditions. MS Angles and threaded rods shall be utilised for supports. Further, anchor grip bolts shall be utilised wherever the supports are to be taken from concrete members. The support MS Structures should be duly painted with two coats on zinc chromate primer and two coats of black enamel paint. The spacing of hangers shall be as under:

Duct Size (mm)	Spacing (Mts)	Size of MS Angle (mm)	Size of Rod dia (mm)
Up to 750	2.5	40 x 3	10
751 to 1500	2.0	40 x 3	12
1501 to 2250	2.0	50 x 3	15
2251 and above	2.0	50 x 3	15

- o. Before carrying out the site fabrication of ducts, the contractor should study the structural details of the site and should make all allowances & provisions for beams, pipes or other obstructions in the buildings, whether shown in the tender drawings. If found necessary, to avoid beams, plumbing pipes, conduits and pipes of other services or any other structural obstructions, the contractor should suitably transform the duct sizes, but however, without sacrificing the design cross sectional area of the ducts, all as approved by the Dept. Access doors shall be provided in ducts and plenums for access to dampers, splitters etc.
- p. When ducts are connected to mechanical equipment like AHUs, Fans Ductable etc., the termination should be accomplished by providing a double canvass connection (Fire retardant) for a length of minimum 150 mm. A 150 mm plastic "ZIP" shall be provided in the canvass for providing access to measure the air flow, discharge temperature of the equipment.

iii. Duct Installation:

- a. The contractor shall provide and neatly erect all sheet metal ducting works as shown in the drawings and as may be required to carry out the intent of this specifications, so that his work shall meet with the approval of the Dept., in all its parts and details. The duct sheet metal shall be kept clean during course of installation and fabrication. No water marks and dirty ducts shall be allowed to be erected at site. The same shall be cleaned before installation.
- b. Before carrying out the site fabrication of ducts, the contractor should study the structural details of the site and should make all allowances & provisions for beams, pipes or other obstructions in the buildings, whether shown in the tender drawings. If found necessary, to avoid beams, plumbing pipes, conduits and pipes of other services or any other structural obstructions, the contractor should suitably transform the duct sizes, but however, without sacrificing the design cross sectional area of the ducts, all as approved by the Dept. Access doors shall be provided in ducts and plenums for access to dampers, splitters etc.
- c. All ducts shall be totally free from vibration under all conditions of operation. Whenever duct work is connected to fans, air handling units or blower coil units that may cause vibration in the ducts, ducts shall be provided with a flexible connection, located at the unit discharge. Flexible connections shall be constructed of flame retardant, water proof, silicon rubber impregnated flexible connection at least 150 mm long securely bonded, and flange bolted on both sides. Sleeve shall be made smooth and the connecting duct work rigidly held by independent supports on both sides of the flexible connection. The flexible connection shall be suitable for pressure at the point of installation. A 150 mm plastic "ZIP" shall be provided in the canvass for providing access to measure the discharge temperature of the equipment.

2. Volume Control Dampers:

All duct dampers shall be opposed blade louver dampers with aerofoil construction of robust 16G GSS construction and tight fitting. The dampers shall be placed in ducts at every branch supply or return air duct connection.

3. Motorized Combined Smoke and Fire Dampers:

The dampers shall have at least 90 minutes fire rating in accordance with UL555/1995 & certified by CBRI and should be of multi - leaf construction. The scope of work includes "Supply and fixing of Motorized fire and smoke dampers that are compatible with clean room standards. The dampers shall be complete with built sensor & smoke sensors and the auxiliary switch to trip the AHU & close the damper simultaneously. These fire dampers shall also actuate in response to the smoke detection sensor signal operating the shunt trip coil of the MCCB and thus closing the damper. The fire damper shall suit for duct size as mentioned in the BOQ." The following points shall be accounted, wherever applicable while installing & commissioning the motorized fire dampers.

- a. Fire Damper blades and outer frames shall be form of 1.6 mm galvanised sheet. The damper blades shall be pivoted on both ends using chrome plated spindles in self-lubricated bronze bushes. Stop seals will be provided on top and bottom of the damper housing made of 16G galvanised sheet metal. For preventing smoke leakage suitable seals shall be provided.
- b. In normal conditions, the damper blades shall be held in open position with the help of a spring and latch arrangement. The motorized damper shall activate from an air sampling type electronic smoke detector, mounted in the air stream. An electric actuator shall be provided, which upon receiving a signal from smoke detectors installed in AHU Room / RA Duct / Damper which is part of the damper supply, shall release the latch and make the damper to close. The sensor shall be factory set to send signals when the environmental temperatures reach 75 deg C. Micro switches/ limits switches shall be installed and wired to stop the AHU motor and give open close status indication signal at remote panel.
- c. Each such motorized damper shall have its own control panel which will incorporate the necessary circuitry required to feed power to the actuators. The power supply to these actuators shall be derived from a separate UPS or an emergency power supply. The panel shall also indicate the status of operation of dampers should allow remote testing of dampers etc., Further, additional terminals should be provided to have signal (sound or visual) in central control room.
- d. The fire dampers shall be mounted (with derived supports) in fire rated walls with a duct sleeve 400/ 500 mm long, depending upon the wall thickness. The sleeve shall be factory fitted on the fire damper. The joints at sleeve ends shall be slip-on type. Minimum thickness of GI/ Aluminium shall be 18 Gauge size.

4. Measurements:

Only finished exterior surface area will be considered for measurement and pro-rata payment purposes. However, any openings made in the duct for branch duct, grilles etc., shall not be deducted. Also, no area shall be recorded for control dampers, louvers and guide vanes.

5. Testing & Balancing:

After completion of duct works, the entire air distribution system should be balanced by adjusting the VFD controls for drive motors, control dampers in the ducts and in the grilles / diffusers, if required. Air flow measurements at AHU inlet, VCD setting & equal distribution among 2 AHUs connected with Common mixing box, shall be carried out & values shall be recorded after completing ducting works. The air discharge at the fan outlet and the air terminals should be recorded and adjusted, so as to achieve design air quantities at fan outlet and at all terminals. Further, the ducts should have less

leakage so that the air intake at AHU inlet and the sum of air discharge at all terminal outlets shall not vary beyond 5 % of the total air flow.

6. Leak Testing:

During the courses of installation, the ducts shall be leak tested using "light dispersion". ***Total duct lengths shall be leak tested on the bare duct before insulation and recorded.*** Any leaks observed shall be rectified and test conducted again till no leaks are observed. The test thus conducted shall be properly documented, indicating the date of testing, engineers conducting and supervising the tests, the duct piece reference for which tests are conducted and the result of tests. The documents shall be submitted along with the handing over manuals.

7. Other terms & conditions:

1. The schedule of quantities mentioned against various items is tentative and may change as per the site conditions & shaft drawings. Shaft drawings shall detail the total duct layout including supports drawn, duct routing etc., and it shall be duly approved by Dept. before commissioning of duct fabrication & installation.
2. Contractor shall maintain the material entry register and delivery challan (DC) copies. Material brought by the contractor shall be made entry in CISF gates as applicable. The items are to be shown to the consignee at VALF- stores before unloading at site.
3. **Inspection:** Shaft drawings shall be generated by the vendor considering the site conditions & the tender drawings and submitted for approval by department. Items/ equipment are to be dispatched from supplier/ manufacturer premises after intimation of readiness for movement and submitting required documents like Material test certificates, drawings, catalogues, brochures. All BOQ items like Mixing box, motorized fire dampers with actuators, duct silencers, thermal insulation, Aluminum ducting sheets, Volume Control Dampers, cables, wires for supporting ducts etc., shall be inspected during & after installation, testing & commissioning at site. Contractor shall inform the readiness of equipment and to depute the inspection team during erection & testing. All items shall be of approved make as per the tender requirements or equivalent with prior approval from Dept.
4. **Site visit:** The bidder shall visit SDSC SHAR during Office working hours and acquaints himself with the requirements and no claims whatever will be entertained on the plea of ignorance of difficulties in the execution of the work. Before submitting the tender, the bidder shall be deemed to have clearly understood and satisfied himself regarding the work and services; all conditions liable to be encountered during the execution thereof and that prices, and or compensation quoted in the offer are adequate and all-inclusive with respect to all factors, circumstances and conditions likely to be incidental, both direct and indirect, to the work and services.
5. **Testing:**
 - a. Manufacturer Test Certificate shall be produced in respect of all deliverables.
 - b. Test certificates shall be submitted to all the items supplied by the contractor as required.

- c. Measurements shall be done with instruments to be brought by contractor along with calibration certificate. Payment also will be based on actual measurements & pro-rata basis.
- d. After integration, performance test run shall be carried out for the specified time period as per the CMG-AC team, SDSC SHAR after commissioning.
- e. Inspection and Performance certificates to be submitted post successful testing.

6. Commissioning and Testing of AC Systems:

Test certificates for the FIM will be submitted by Dept. to the vendor so that vendor shall submit complete warranty for total work including ducting with FIM & workmanship. After satisfactory completion of erection, commissioning & testing along with trial run, contractor has to handover the equipment along with test readings report, commissioning report duly signed by the contractor, handing over document, Warranty certificate for next 12 months from the date of handing over. Until submission of mentioned reports, responsibility of safeguarding and handling of equipment lies with the contractor. Warranty comes into picture after complete handing over of the plant and not individual sub system.

7. Site conditions & works:

The following minor modifications are envisaged in the AHU room at 23m EL for carrying out the proposed work.

- a. Modular wall panels in AHU room are to be cut open as per the configuration drawings for duct routing and existing cut outs to be closed for which modular wall panel supply & erection is considered in the BOQ.
- b. Ducting from Treated Fresh Air (TFA; AHU-09) is to be slightly rerouted to accommodate return air ducting of CM bay within AHU room as per configuration drawing for which additional ducting is considered in BOQ.
- c. Any other minor changes & modifications required as per site conditions shall be carried out by the vendor at no additional cost.

Vendor is recommended to visit the OMPF site during office working hours at SDSC SHAR and assess the site conditions for the work proposed.

SECTION II - INSULATIONS

1. General:

The scope of this section covers the supply, installation, testing and commissioning of insulation for sheet metal ducting of return air. The material to be used for duct insulation purposes shall be as under:

Thermal Insulation of Supply Air/ return Air AC ducting carried out of 25 mm thick fire-retardant phenolic foam insulation. The duct insulation shall have aluminium foil on one side and craft paper on the other side. Insulation shall be covered with 28 G chicken wire mesh and finished with 26SWG Aluminium cladding. All cladding joints shall be sealed with suitable aluminium self-adhesive tape. The insulation shall be stuck with adhesive as per manufacturer standards. The thermal conductivity shall not exceed 0.021W/mK at an average temperature of 10 deg C. density of phenolic foam shall be a minimum 32 Kg/m³. Insulation material shall be fire-rated for class 0 as per BS476 part 7.

2. Duct Thermal Insulation:

Where ducts are to be insulated the same shall be carried out with the insulation material and thickness as under:

- a. The duct to be insulated shall be cleaned thoroughly and cleaned and specified thickness of fire-retardant phenolic foam insulation shall be stuck to the duct using cold adhesive, as specified.
- b. All joints shall be properly sealed with 50 mm wide aluminium tape/ 50 mm wide PVC packing tapes.
- c. If any insulated portion of the ducts are visible through the return grilles/ continuous grilles, the insulation shall be painted with black Matt finish paint.

3. Cold Adhesives to be used for sticking insulation materials to the parent (to be insulated) materials:

Parent (to be insulated) material	Insulation Material	Cold Adhesive to be used
GI /Al Sheet metal	XLPE / Nitrile Rubber	Fevicol AC Duct King Eco Fresh
GI /Al Sheet metal	RPUF	Fevicol 1K PUR FR

SECTION III - MEASUREMENT

For variable items like sheet metal ducting, insulation, cabling etc., the following measurement procedure shall be adopted for billing purposes.

Sheet Metal Ducting:

1. Payment for ducting shall be based on the finished external measurement of the duct pieces & on pro-rata basis. The rate per sq.m. of duct shall be charged for individual gauges of sheet metal being utilized for the duct pieces. The rates shall be inclusive of the basic sheet metal, flanges, gaskets, bolts & nuts, duct supports and hangers, dampers, inspection doors, splitter dampers, straightening vanes, flexible connections, vibration isolation members provided in duct suspenders and any other item required to make the ducting complete. Thermal insulation and Acoustic lining shall be measured and paid for separately.
2. The external area of the ducting shall be calculated by measuring the overall width and depth of the duct piece and the central line length between flange face-to-face of the duct piece. This method will be adopted for ducts having uniform cross section. The corner joints shall be included whilst measuring the width and depth.
3. In case of taper pieces, the width and depth shall be equal to the average of bigger and smaller side width and depth respectively. Duct length & area shall be calculated as that for straight duct pieces.
4. For bends and elbows, the duct length shall be measured at the curved central line of the bends and elbows. The area shall then be calculated as that for straight duct pieces.
5. Measurement of ducts & insulation shall be carried out before applying insulation. The recorded measurements duly certified by the authorizing Dept. Engineer in-charge and vendor shall be attached to the bill and will be paid accordingly.

Duct Insulation (Thermal lining of duct):

6. The duct areas to be insulated should be measured and recorded as bare duct surface. Then, the thickness of insulation shall be added twice to the depth and width and the insulation area shall be calculated and paid for.
7. The rate per sq.m of insulation shall be inclusive of basic insulation material; all finishes as specified.

Cabling:

8. Payment for Cabling works shall be affected based on linear measurement from gland to gland. Any looping provided in cables near to the terminations shall also be measured and paid for. However, such looping shall not exceed 2 RMT per termination. No payment shall be made for left out and installed cut cable pieces.
9. The rates for cable termination works shall include the costs of copper/ aluminium termination sockets of suitable type, brass single compression cable glands, copper earth clamps for glands, taping, crimping, yellow pasting, all labour charges etc.,
10. The payment for cable trays shall be affected based on the linear measurement of the cable trays of different sizes. The cost shall be inclusive of basic cable tray, suspenders, labour for tray fitting, fabrication and erection.

SECTION- IV - List of Approved Makes for High side Equipment

1. List of Approved Makes for Low Side Equipment & Clean room Accessories

S.No	Equipment / Item	Approved Makes
a.	<i>Ducting and allied accessories:</i>	
1	Aluminium Sheets	Nalco/ Jindal/ Indal/ Balco/ Hindalco
2	Factory fabricated GSS / Aluminium / stainless steel Rectangular ducts	Rolastar/ Karthila/ Zeco / Bhoopathy / Camduct/ GPSpira / Western air ducts/ DS DuctoFab Systems/Seven star/ Cosmic equipments / Shree Venus Energy System
3	Factory fabricated double skin plenum	Voltas / Blue star / Zeco / Cosmic equipments / Shree Venus Energy System
4	Self-adhesive sealing Gasket for ducts	Primakool or equivalent
5	Anchor fasteners	Hilti / Fischer or equivalent
6	Wire rope hanger system for Ducts/ Pipes	Gripple Hanger / Hilti or equivalent
7	Volume control dampers	Caryaire/ Ravistar/ Air Master/ Moosa Haji/ Tristar/ Cosmic equipments/ Spry air equipments/ Systemair/ Crescendo India
8	Duct Noise Attenuators	Intertec/Caryaire/Ravistar/Tristar/ Air master/ Cosmic equipments/ Systemair
9	Fire dampers	Caryaire/ George Rao & Co./ Air master/ Ravistar/ Tristar/ Cosmic equipments/ Systemair
10	Actuators for fire dampers	Joventa/ Belimo/ Anergy
	<i>Clean Room Accessories</i>	
11	Modular clean room panels	Fabtech/ M+W zander/ Rinac/ SRP/ I Clean/ SML/ Sri modular clean rooms/ GMP Technical Solutions/ Crescendo India/ Microflow Devices India Pvt Ltd / Cosmic equipments/ Dyna Filters

2. List of Approved Makes for Insulation and Vibration Isolators

S.No	Equipment / Item	Approved Makes
a	<i>Insulation:</i>	
12	PUF	Lloyd Insulation / Beardsell / Bakelite Hylam / VND Cell Plast
13	Phenolic Foam	Bakelite Hylam / VND Cell Plast
14	Nitrile rubber	Armaflex / ALP Aeroflex / Vidoflex / K Flex
15	Adhesive for insulation	Birla 3M FB 42 NF plus NV/MAS-17 / Pidilite
16	Fire sealants	Birla 3M / Hilti or equivalent

3. List of Approved Makes for Electrical Items

S.No	Equipment / Item	Approved Makes
17	Armoured power cable	Fort Gloster/ Indian Aluminium Cable/ UNICAB/ Universal/ ICC/ Finolex/ CCI/ RPG/ Torrent/ Nicco/ Havells/ KEI Industries/ Polycab/ Unistar/ Rallison

NOTE:

- All Equipment / Components used in execution of work shall be of approved make listed above.
- Items of equivalent make category shall be clearly intimated to Dept. with test certificates and due approval shall be taken from Dept. before procurement itself.

SECTION- V - EQUIPMENT PARTICULAR SPECIFICATIONS

1. AHUs 1,2,3 & 4 – Details

S.No	Parameter	Value
1.	Overall Dimension of each AHU	5000mm L x 2750mm W x 2850mm H
2.	Total Air quantity	33000 CFM
3.	Static pressure	145 mm wg
4.	Frame Work	Spcl. Aluminium hollow profile

2. AHUs 5&6 – Details

S.No	Parameter	Value
1.	Overall Dimension	4750mm L x 3400mm W x 2850mm H
2.	Total Air quantity	40000 CFM
3.	Static pressure	145 mm wg
4.	Frame Work	Spcl. Aluminium hollow profile

3. Common Mixing box:

- Common Mixing Boxes 2 nos. each of size 8000mm Width x 2850mm Height x 900mm Depth is to be formed at the inlet of the AHUs 1&2, 3&4.
 - Common Mixing Box of size 9050mm Width x 2850mm Height x 900mm Depth is to be formed at the inlet of the AHUs 5&6.
 - Modifications required like repositioning of small AHU control panel, taking structural support using anchor fasteners from floor etc., to install the box at inlet of AHUs.
4. Specification of items as listed in BOQ & Tender drawings shall be taken as reference and resizing shall be carried out while preparing the shaft drawings.
5. Site conditions shall be considered while generating the shaft drawings. Shaft drawings shall be submitted for approval from the Department before finalizing the scheme & procurement of the same.

SECTION- VI - BILL OF QUANTITIES

A. Detailed BOQ (SECTION VI-A) with unit supply & installation cost break up shall be filled.

ISRO (OMPF SDSC SHAR), SRIHARIKOTA								
HVAC WORK - CM BAY AND MAL BAY								
SECTION VI - A – DETAILED BILL OF QUANTITIES								
S. NO	DESCRIPTION	UNIT	QTY		SUPPLY		INSTALLATION	
			Supply	Installation	RATE (INR)	AMOUNT (INR)	RATE (INR)	AMOUNT (INR)
I.	<u>DOUBLE SKIN COMMON MIXING BOX WITH SERVICE ACCESS DOOR & RA DAMPER FOR EXISTING AHU-(AHU NO. - 1&2, 3&4, 5&6).</u>							
1.	Supply & Installation of Double Skin Mixing Box in the Existing AHU Compact Horizontal type. Duty Conditions as per "Particular Specifications" with all accessories like RA, VCDs, and inlet canvas connections. Mixing Box with service Access Door, Inner Skin 0.6mm GI Sheet & outer Skin 0.8mm thick pre-coated sheet (To match the existing AHU Colour) with 50mm thick PUF insulated.							
	Common mixing boxes one for AHU No - 1 & 2 and other for AHU 3 & 4 - MATERIAL AIR LOCK BAY - Each AHU of 33000 CFM@ 150mm STATIC - (COMMON MIXING BOX SIZE: 8000MM Width x 2850MM Height x 900MM Depth) along with Canvas for vibration isolation- (Check with site for Size confirmation)	NOS	2	2				
	Common mixing box for AHU No - 5 & 6 - CM BAY - Each AHU of 40000 CFM @ 150mm STATIC - (COMMON MIXING BOX SIZE: 9050MM Width x 2850MM Height x 900MM Depth) along with Canvas for vibration isolation- (Check with site for Size confirmation)		1	1				
	Sub - Total for Supply & Installation of Common Mixing boxes for AHUs (1 & 2, 3 & 4, 5 & 6)							
II.	<u>Ducting Work for AC:</u>							
2.	Supply and erection of Pre - fabricated Aluminium ducting for return air connecting CM & MAL bays to AHUs 1 to 6, Supply side							

interconnection for AHUs 1-2, 3-4, 5-6, 7-8 (200 SQM) and at supply side of AHU 5 (Comfort side) with VCDs to SM Bay (150SQM) as per IS 655 complete with supporting arrangements including vanes, supports, access doors, neoprene rubber gaskets etc. compatible for cleanroom standards. Joints and duct ends shall be sealed after fabrication and during storage prior to erection to ensure dust proof conditions.

The ducts shall be rigidly and securely supported with SMACNA certified wire rope hanger system, complete with suitable size galvanized high tensile steel wire ropes, ceiling anchors, locks, pre-crimped end fixing arrangement and required accessories. The SMACNA certification shall be applicable for the complete wire rope hanger system including the lock, wire rope and end fixing arrangement.

To ensure the safety of wire rope hangers, the lock shall NOT have inbuilt unlocking mechanism and a separate key shall be provided for unlocking the locking mechanism. The locking mechanism shall be of wedge type, self-locking and double channel type without any wire slippage. The wire rope hangers shall have a minimum safety factor of 5:1. The wire rope hanger system shall comply with manufacturer's load ratings and the installation procedure shall be as per recommended standards in approved manner or the ducts shall be supported with threaded fasteners, anchor bolts, tab hangers and all accessories and complete as per IS 655.

The following quantities of ducts shall be catered for and the thickness of the ducts shall be as indicated below. Aluminium material shall conform to the latest IS:737.

All duct joints shall be provided with angle flanges and sheet flanges with suitable self-adhesive gasket and finally sealed with suitable sealant material.

	CM bay	1.5 mm thick	SQM	850	850				
		1.8 mm thick	SQM	1250	1250				
	MAL bay	1.8 mm thick	SQM	20	20				
3.	Thermal Insulation of Supply Air/ return Air AC ducting carried out of 25mm thick fire retardant phenolic foam insulation. The duct insulation shall have aluminium foil on one side and craft paper on the other side. Insulation shall be covered with 28 G chicken wire mesh and finished with 26SMG Aluminium cladding. All cladding joints shall be sealed with suitable aluminium self-adhesive tape. The insulation shall be stuck with adhesive as per manufacturer standards. The thermal conductivity shall not exceed .021W/mK at an average temperature of 10 deg.C. Destiny of phenolic foam shall be a minimum 32 Kg/m3. The insulation material shall be fire-rated for class 0 as per BS476 part 7.		SQM	700	700				
4.	Fire retardant phenolic foam insulation pads of 25mm thick & 1800 SQM will be issued as Free Issue Material for erection works. Insulation shall be covered with 28 G chicken wire mesh and finished with 26SMG Aluminium cladding. All cladding joints shall be sealed with suitable aluminium self-adhesive tape. The insulation shall be stuck with adhesive as per manufacturer standards. All required items like adhesive, rivets, Aluminium tape, chicken wire mesh, sealants, aluminium sheet for external cladding etc., for installation shall be in the scope of supplier as part of installation.		SQM	0	1800				
5.	Supply & installation of Modular wall panels of 50mm thick with Polyurethane foam sandwiched between Aluminium foil of thickness 0.8 to 1.2mm. The insulation material shall have thermal conductivity of 0.018-0.021 W/mK at mean temperature of 20 deg. C and density 45 ± 3 kg/m3. The fire propagation property shall confirm to class O, according to BS 476 part 6 & part 7 and shall be free from CFC & HSFC. Panel shall have a width of 1200mm (approx.) and length as		SQM	200	200				

	required as per site conditions. Installation of the panels shall be carried out using reinforced GI washer at intermediate intervals and at corners from edges to fix to the ceiling with screws of self-threaded type anticorrosive; finishing the edges of the board with joint paper complete with accessories & finishing as per the site conditions. Note: All the elements like tools, support elements etc., required for erection of these panels shall be included in your scope of work.							
6.	Supply, installation and testing of extruded Aluminium construction volume control dampers within ducts to be provided with suitable ducts lever and quadrants for manual control of volume of air flow and for proper balancing of the air distribution. (Check with site for Size confirmation)	SQM	56	56				
7.	Supply and fixing of fire dampers should be compatible with clean room standards. Testing of fire dampers shall be as per UL 555 and certified by CBRI. The dampers shall be complete with built sensor & smoke sensors and the auxiliary switch to trip the AHU & close the damper simultaneously. These fire dampers shall also actuate in response to the smoke detection sensor signal operating the shunt trip coil of the MCCB and thus closing the damper. (CMB-2800X1600 and MAL - 2650X1250) - (Check with site for Size confirmation)	SQM	20	20				
8.	Supply and installation of actuators with 240V/24V power supplies for the above fire dampers including the step down transformer for the incoming power supply to the actuator and control wiring to the actuator till electrical room and complete as required (CMB-2800X1600 and MAL -2650X1250) - (Check with site for Size confirmation)	NOS	10	10				
9.	Supply & installation of duct silencers to be provided in Return Air duct suitable to fire damper size. The silencers shall be designed to attenuate noise to meet NC-50 curve in cleanrooms. Material of construction of silencer internal and external shall meet	SQM	25	25				

	cleanroom standard. Silencer shall consist of incombustible, inorganic, inert non-shedding glass fibre as acoustic fill to obtain sufficient density for the above noise reduction. (CMB-2400mm X 1600mm and MAL - 2650mm X 1250mm) - (Check with site for Size confirmation)						
10.	Scaffolding for erection of ducts, clamps & other elements - CM BAY and MAL BAY	Lot	1	1			
11.	Supply, fabrication and installation of necessary MS structure work (Support etc.,). Same shall be primer coated and then painted with 2 coats of PU paint in a good workmanship manner	Kg	1000	1000			
12.	1.5 sq. mm x 6 core XLPE Cu UG Cable with glands, lugs	RMT	800	800			
	Sub - Total for Supply & Installation of Return air ducting with insulation						
III.	Testing, Adjusting, Balancing (TAB System):						
13.	Testing ,Adjusting & Balancing HVAC system by third party and Provide the readings and report for the systems in CM BAY and MAL Bays	Lot	1	1			
	Sub - Total for Testing, Adjusting, Balancing (TAB System)						
	GRAND TOTAL						

B. SUMMARY SHEET (SECTION VI-B) of the cost for the BOQ followed thereafter as asked below.

ISRO (OMPF SDSC SHAR), SRIHARIKOTA.				
Air-Conditioning & Ventilation System - CM Bay and MAL Bay				
Section VI-B - Summary Sheet - CM Bay and MAL Bay				
S.No	Description	Sub-Total Amount in .Rs	Sub-Total Amount in .Rs	Total Amount in .Rs
		Supply	Installation	Supply + Installation
I	Supply & Installation of Common Mixing boxes for AHU's (1&2,3&4 and 5&6) as per the BOQ			

II	Supply & Installation of Return air ducting with insulation, Motorized fire dampers with actuators, Duct silencers, Volume Control dampers, power cables etc., with supporting elements as per the BOQ			
III	Testing, Adjusting, Balancing (TAB System) of the augmented AC system in SM Bay			
	TOTAL AMOUNT (I + II + III)			
	TOTAL AMOUNT + 5 % GST			
	GRAND TOTAL			

C. Configuration drawings for the proposed AC modification works as per the tender are attached as annexure to this tender. Shaft drawings shall be prepared taking into account of the configuration drawings and actual site condition. Drawings attached with the tender includes the following:

- i. **CM Bay (CMB) Return Air Duct layout (5 sheets)**
- ii. **MAL Bay (Air Lock room) Return Air Duct Layout (3 sheets)**
- iii. **AHUs 1 to 8 – Supply Duct interconnection (1 sheet)**
- iv. **Duct routing from AHU 5 (Comfort side) to SM Bay (1 sheet)**

Note:

1. Tender specification document along with Detailed BOQ & item wise cost estimation as per **SECTION VI-A**, Summary sheet as per **SECTION VI-B** for cost break up as per BOQ and configuration drawings shall be verified, signed and submitted **without indicating prices during Unpriced Techno-Commercial bud submission along with the Tender.**
2. The signed & submitted tender document with section from I to VII & configuration drawings will be considered as acceptance of vendor as technical compliance for item BOQ, specifications, purchase terms & conditions.
3. During submission of priced commercial bid only, Prices shall be indicated in the Detailed BOQ & item wise cost estimation as per **SECTION VI-A** and Summary sheet as per **SECTION VI-B** for cost break up as per BOQ.

SECTION- VII - GENERAL TERMS AND CONDITIONS

NAME OF WORK: *Ducting of return air & AC systems performance validation at CM Bay and MAL Bay of OMPF, SLP Area, SDSC SHAR*

PROPOSAL DOCUMENT, CLARIFICATION AND ADDENDUM

Online Quotations are invited from the interested bidders for the entire scope of work in Two-Part Bid.

Part-1: Technical & Unpriced part

Part-2: Priced commercial part

1. PROPOSAL DOCUMENT & BID PREPARATION:

- i. Bidder shall sign & stamp each page of the tender document (RFP) as token of his acceptance and submit the same along with his offer.
- ii. Proposal documents shall remain the property of SDSC SHAR and shall not be used for any another purpose without the consent of SDSC SHAR.
- iii. The Proposals shall be submitted on-line in ISRO e-procurement portal before the time limit for bid submission specified in the Letter Inviting Bid.
- iv. Supplier shall submit the open authorization on line with in the time limit Specified in the Letter Inviting bid.
- v. The Proposal will be opened on the date and on the time specified in the Letter Inviting Bid or as soon thereafter as convenient. Proposal not received in time will not be considered.
- vi. Bidders shall set their quotations in firm figures and without variations/ additions in the terms of the Proposal documents.

vii. Ambiguity

Should there be any ambiguity or doubt as to the meaning of any of the tender clause/condition or if any further information is required, the matter shall be immediately brought to the notice of Sr. Head, Purchase & Stores of SDSC SHAR in writing.

viii. Validity of Offer

Bid shall remain valid for acceptance for a minimum period of 4 (Four) months from the due date of submission of the Bid. The Bidder shall not be entitled during the said period to revoke or revise his Bid or to vary the Bid except and to the extent required by SDSC SHAR in writing. Bid shall be revalidated for extended period as required by SDSC SHAR in writing. In such cases, unless otherwise specified, it is understood that validity is sought and provided without varying either the quoted price or any other terms & conditions of Bid finalized till that time.

ix. Cost of Bidding

All direct and indirect costs associated with the preparation and submission of bid shall be to Bidder's account and SDSC SHAR will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bid process.

x. Arrangement of Bid

The Bid and all details submitted by the Bidder shall be signed and stamped on each page as token of acceptance, by a person legally authorized to enter into agreement on behalf of the Bidder. (Corrections / alteration, if any, shall also be signed by the same person).

2. BID SUBMISSION:

Un-priced Techno-commercial and Price Bids shall be submitted in the following manner.

Part-I: UN PRICED TECHNO-COMMERCIAL PART OF THE BID

Complete Techno-commercial part of the bid shall be filled online in the "vendor Specified Terms" form of the e-tender. Any documents related, technical literature, guarantee / warrantee certificates and any other relevant documents as per the tender shall be scanned in lower resolution format and uploaded to the e-tender under 'Documents solicited from Vendor' form only in ISRO e-procurement portal (<https://eproc.isro.gov.in>).

- **Unpriced Techno-commercial bid with a complete set of the required documents including technical & commercial specifications compliance by vendor, shall be up-loaded in ISRO e-procurement portal under 'Documents solicited from Vendor'.**
- **Price bid annexures shall not be enclosed/uploaded along with Unpriced Techno-commercial bid in e-procurement/ hard copy.**
- The tenderer shall furnish **confirmation on Technical Compliance** for the technical specifications given in the tender specification document and BOQ as per **SECTION VI-A & SECTION VI-B** by duly signing & stamping on every page with acceptance comments. However, change of specifications/ deviations (if any) shall be brought out in the offer with detailed justification.
- The tenderer shall necessarily furnish the details of previously executed orders as per the Vendor's Minimum Qualification criteria (stated under pt.4 of Section VII) for participating in the tender. Necessary documentary evidence shall be submitted along with offer as a mandatory requirement. **Non-compliance of this requirement shall lead to rejection of the offer.**
- Tenderer need to furnish the details related to commercial terms indicating payment terms, details of bank guarantee in case of advance payments.

- In case, the tenderer is not interested to participate in the tender, the tenderer shall submit regret letter giving reasons, failing which future enquiries will not be sent.
- The Bidders shall indicate clearly the delivery/ time period for supplying the items to SDSC SHAR.
- Bidder need to submit unpriced price bid copy of **SECTION VI-A & VI-B** indicating the description of quantity & all the cost elements considered, **without indicating the price.** Tenderer shall note that indication of price in the techno-commercial bid shall lead to disqualification of bid.
- The price bids will be opened only after evaluation and acceptance of the technical bid of the respective tenderer.

Part-II: PRICE PART OF THE BID

Price bid shall be filled in the on-line form (**as shown in TABLE**) of the e-tender only in ISRO e-procurement website <https://eproc.isro.gov.in>. **Annexures duly signed and uploaded in price bid supporting documents in e-procurement portal only. Price bid shall not be enclosed along with Technical & Un-priced Commercial Bid in e-procurement/ hard copy.**

Any other terms and conditions given in this part shall not be considered and if insisted upon by the Bidder, bids are liable for rejection.

No deviations, terms and conditions, assumptions, conditions, discounts etc. shall be stipulated in price bid. Department will not take cognizance of any such statement and may at their discretion reject such bids.

3. BID EVALUATION:

- SDSC SHAR may open Part – I (UN PRICED TECHNO-COMMERCIAL PART OF THE BID) of the bid on the due date of opening subject to meeting the minimum evaluation criteria. Price Bids (Part-II) of technically and commercially acceptable offers shall be opened at a later date.
- In respect of Two-Bid system, the technical Bids forwarded by the Bidders will be evaluated by the Department with reference to the technical specifications. The compliance of Technical Bids would be determined on the basis of the parameters specified in the tender document. The Price Bids of only those Bidders will be opened whose Technical Bids would clear the technical evaluation.
- SDSC SHAR reserves the right to reject any bid if not meeting the technical/commercial requirements and terms & conditions. Such decisions by the SDSC SHAR shall bear no liability whatsoever consequent upon such decision.
- Any bids/offers with price details in Techno-Commercial Offer (Part –I) shall be rejected.***

- v. During evaluation, SDSC SHAR may request Bidder for any clarification on the bid OR additional documents.
- vi. Performance of Bidder on similar nature of works executed/ under execution will be taken into consideration before selecting the Bidder for opening his price bid (as per qualification criteria).
- vii. Techno-commercial discussion shall be arranged with Bidder, if needed. Bidder shall depute his authorized representatives for attending discussions. The representatives attending the discussions shall produce authorization from his organization to attend the discussion and sign minutes of meeting on behalf of his organization if required. The authorized representative must be competent and empowered to settle/decide on all technical and commercial issues.
- viii. The time schedule for completion is given in the Proposal document. Bidder is required to confirm the completion period unconditionally.
- ix. **SDSC SHAR reserves the right to accept a bid other than a lowest and to accept or reject any bid in full or part without assigning any reasons. Such decisions by SDSC SHAR shall bear no liability whatsoever consequent upon such decision.**
- x. **Total price including fabrication & supply along with erection, commissioning, testing & balancing charges inclusive of rate of interest on option of advance by the bidder, all taxes & duties of all items will be considered for arriving at L1 (Overall lowest) and awarding the contract as per the procedures.**
- xi. The Bidder, whose bid is accepted by SDSC SHAR, shall be issued a Letter of Intent (LOI)/ Purchase Order (PO) to proceed with the work. Successful Bidder shall confirm acceptance by returning a signed copy of the LOI/ PO.
- xii. Purchaser reserves the right for evaluation of any bidder by visiting his manufacturing premises towards acceptance of the techno-commercial bid. The decision of the purchaser is final in this regard.
- xiii. Preference will be given to MSME as per public procurement policy.

4. VENDOR'S MINIMUM QUALIFICATION CRITERIA:

- i. Tenderers should have satisfactorily executed the following AC works during the last 5 years.
 - a. Single order of value not less than Rs.1.0 Crores. (or)
 - b. Two orders of value not less than Rs.0.8 Crores each. (or)
 - c. Three orders of value not less than Rs.0.6 Crores each.
 - d. Details of the last five years purchase orders shall be submitted along with offer
- ii. Tenderers should have average annual turnover for the last three years (FY: 2022-23, 2023-24 & 2024-25) of Rs.0.6 Crores.

- iii. The Bidders shall submit Profit & Loss Accounts, Balance Sheets duly certified by the auditor and IT returns for the last three financial years with acknowledgement from IT Department up to last 3 years (ending with 31-03-2025). Necessary documents shall be submitted.
- iv. Latest Solvency certificate from any Nationalized/Scheduled bank shall be submitted for a value of minimum Rs. 0.5 Crores. The Solvency certificate must have been issued during current financial year.
- v. The firm must provide a self-declaration that there is no complaint/vigilance inquiry against them in any Govt./Department/PSU and they have not been black listed by any Govt. Department/PSU.
- vi. Technical proposal of the bidder, which is not able to substantiate/satisfy the claims made by it with respect to the technical requirements laid down in tender document, will be summarily rejected.

5. ERECTION, TESTING & COMMISSIONING:

- i. Supplier's staff shall include adequate number of competent erection engineers with proven experience on similar works to supervise the erection works and sufficient skilled, unskilled and semiskilled labour to ensure completion of work in time.
- ii. Supplier's erection staff shall arrive at site on date agreed by SDSC SHAR. Prior to proceeding to work, Supplier shall however, first ensure that required/sufficient part of his supply has arrived at site.
- iii. Erection of equipment may be phased in such a manner so as not to obstruct the work being done by other Suppliers and / or operating staff who may be present at that time.
- iv. During erection, Department's quality team / their engineer will visit site from time to time with or without Supplier's engineer to establish conformity of the work with specification. Any deviations, deficiencies or evidence of unsatisfactory workmanship shall be corrected as instructed by Department.
- v. Supplier shall carry out work in a true professional manner and strictly adhere to the approved drawings. Any damage caused by Supplier during erection to new or existing building / environment shall be made good at no extra cost to Department.
- vi. Supplier shall carry out the works in accordance with the specific instructions given on the approved drawings, method statements, manufacturer's drawings / documents or as directed by Department. Equipment shall be erected in neat manner so that they are level, plumb, square and properly aligned and oriented. Tolerances shall be as established in manufacturer's drawings or as stipulated by Department. No equipment shall be welded or bolted, until its alignment is checked and found acceptable by Department.
- vii. Supplier shall provide all supervision, labour, tools, machines, cranes, equipment, scaffolding, rigging material and incidental material such as bolts, wedges, anchors, etc. required to

complete the works. Supplier shall also provide at his own cost all such consumables like oxygen - acetylene gas, welding rods, grinding wheels, temporary supports, shims etc. required to complete work.

- viii. Supplier shall take utmost care while handling instruments, delicate equipment, panels etc. and protect all such equipment on erection.

ix. Safety

As this work involves erection of items above 10m, sufficient safety protocols of SDSC SHAR to be followed for high rise works. Supplier shall follow the safety regulations/ codes and shall take necessary measures at his own cost. All safety gear like safety shoe, safety belts, helmets, goggles, hand gloves etc., required for executing the work shall be arranged by the vendor at his own cost. Safety team of SDSC SHAR will visit the site regularly and audit for safety compliance during work execution.

x. Work rules at SDSC SHAR

The work shall be carried out on SDSC SHAR on working days (Monday- Friday) only. Permission to be obtained from Dept./ Concern authority for working late hours / holidays.

xi. Site clearance:

There are frequent launch programs and hence there may be interruption in carrying out works. Actual work schedules shall be clearly noted down with Dept. approval for claiming LD charges, if any. So, the Modification activities shall be taken up and completed within the clearance time given which may require late working hours and working on holidays. Upon completion of work contractor shall remove all his equipment and materials at site within 7 days of handing over of the plant. Contractor always shall keep site in clean condition and remove all unwanted materials at regular intervals. In case contractor fails to remove all his equipment and materials within the mutually agreed time it is deemed that Department will arrange to remove the same at the contractor's cost.

xii. Accommodation

Accommodation will not be provided by SDSC SHAR to Contractors. Supplier shall make their own arrangement for accommodation, transportation & canteen facility for all his staff, technicians, labour & workers.

xiii. Medical Facilities

No medical facilities will be provided by SDSC SHAR. Supplier shall make their own arrangement at their own expenses for medical facilities for site personnel.

xiv. Work Programme

- a) Supplier shall prepare a detailed programme schedule for review / approval by SDSC SHAR. Supplier as per exigencies of work shall revise and update programme periodically.

- b) Changes and modification to specifications, drawings and qualitative / quantitative requirements
- c) Supplier shall obtain approval from SDSC SHAR before initiating the action for procurement of bought out items.
- d) During the fabrication review, supplier has to carry out the mutually agreed minor modifications to meet the overall requirement without any extra cost.

6. TAXES AND DUTIES

i. IGST

The procurement intended for the bonafide use in Systems/Sub-systems of Launch Vehicle Project of Indian Space Research Organization, Government of India, Department of Space and eligible for IGST@5% as per guiding principles conveyed by the Ministry of Finance Dept. of Revenue Notification No. 25/2018-Integrated Tax (Rate) Schedule-I; Sl. No. 243B dated 31.12.2018 (Amendment to Notification No. 07/2018-Integrated Tax (Rate) dated 25.01.2018 and Notification No. 01/2017- Integrated Tax (Rate) dated: 28.06.2017). End user certificate shall be issued in this effect.

ii. INCOME TAX

Income tax at the prevailing rate as applicable and if applicable from time to time shall be deducted from the supplier's bills as per Income Tax Act and a certificate issued (TDS Certificate).

7. STATUTORY VARIATION:

Statutory variation for CGST/SGST/UGST/IGST is applicable, provided the actual completion of services does not occur beyond the period stipulated in the order/contract or any extension (without levy of penalty). For variation after the agreed completion periods, the service provider alone shall bear the impact for the upwards revisions. For downward revisions, the Department shall be given the benefit of reduction in CGST/SGST/UGST/IGST.

8. RISK COVERAGE:

The Supplier shall arrange comprehensive risk coverage at his own cost covering the value of equipment including transportation to the site from manufacturer's works, storage at site, erection, testing and commissioning at site. The period of such coverage shall be up to contractual completion period or any extension granted by Department thereof.

9. SECURITY DEPOSIT (SD):

- i. The supplier, whose tender is accepted, will be required to furnish by way of Security Deposit for the due fulfilment of the contract such a sum as will amount to **3 %** of the contract price of the work awarded.

- ii. The security deposit (bearing no interest) shall be held by the Department as security till satisfactory completion, testing and handing over of all the system and for the due performance of all suppliers' obligations under the contract as per delivery period or extension granted thereof by the Department.
- iii. The supplier within 10 days of release of Purchase Order or signing of Contract, deposit with the Accounts officer, Satish Dhawan Space Centre SHAR, Sriharikota as detailed above by any one or more of the following modes namely
 - a) By a crossed demand draft in favour of Accounts officer, Satish Dhawan Space Centre SHAR drawn on SBI and payable at Sriharikota.
 - b) By an acceptance bank guarantee. The bank guarantee shall be from a nationalized bank for & shall be valid for 60 days beyond completion period.
- iv. In case of breach of contract, the Security deposit shall be forfeited in addition to other relief available to the Department under this contract.

10. PERFORMANCE BANK GUARANTEE:

- i. The supplier shall guarantee for the performance of the system/workman ship by providing bank guarantee from a Nationalized / Scheduled Bank in favour of the Department for an amount equivalent to **3 % (three percent)** of the total value of this contract valid till the completion of warranty period plus 60 days.
- ii. The performance bank guarantee shall be submitted by the supplier with in **fifteen days from the date of accepting the material** as per the contract. The format for the performance bank guarantee shall be obtained from the Department.

11. PACKING AND FORWARDING:

- i. The Supplier shall arrange to have all the material suitably packed as per the standards and as specified in the contract. Unless otherwise provided for in the contract, all containers (including packing cases, boxes, tins, drums, and wrappings) used by the Supplier shall be non-returnable.
- ii. All packing and transport charges, transit handling costs, transit risk coverage and transport fees of agents employed at the place of delivery or elsewhere, shall be deemed included in the price to be paid to the Supplier.

12. APPLICABLE LAW AND JURISDICTION:

The laws of India shall govern this purchase order for the time being in force. The Courts of Andhra Pradesh, India only shall have jurisdiction to be with and decide any legal matters or disputes what so ever arising out of the purchase order.

13. FORCE MAJEURE:

Should a part or whole work covered under this purchase order be delayed due to reasons of Force Majeure which shall include legal lockouts, strikes, riots, civil commotion, fire accident, quarantines, epidemic, natural calamities and embargoes the completion period for work, equipment referred to in this agreement shall be extended by a period not in excess of the duration of such Force Majeure. The occurrence shall be notified within reasonable time.

14. GUARANTIES:

The Supplier shall guarantee that the equipment furnished by him is in conformance with the requirement of the specifications. Goods covered by the contract shall be free from defects in materials or workmanship for a period of **Twelve Months** from the date of successful commissioning, testing & acceptance by Department.

15. DISCOUNTS:

Tenderer shall not indicate any discount separately and quoted price should be after deducting the discount.

16. MODE OF PAYMENT:

All the payments due to Supplier will be made in Indian currency by crossed "Account Payee" Cheque sent to the registered office of the Supplier. Bidders can submit the banker details and payments can also be made through ECS.

17. DELIVERY PERIOD:

All the items as per PO specifications and quantity shall be supplied at SDSC SHAR, Sriharikota. The following delivery schedule shall be strictly followed:

S.No	Delivery event	Delivery schedule
1.	Date of release of PO	T ₀
2.	Submission & approval of Shaft drawings, Supply of ducts & bought out items within 10 weeks from the date of release of Purchase Order i.e., within T₀ + 10 weeks.	T ₀ + 10 weeks
3.	Site clearance for initiation of ducting	T ₁
4.	Ducting from ground to AHU room level at 23M EL and within AHU room shall be completed within 6 weeks from the date of site clearance after site clearance for initiation of ducting (T₁).	T ₁ + 6 weeks

5.	Site clearance for initiation of connecting ducts to AHUs & modifications in AHU room	T₂
6.	Connecting of ducts with AHUs including installation of Fire dampers, actuators with power supplies, VCDs, duct silencers etc., inside AHU room and completion of testing & inspection shall be completed within 6 weeks from the date of site clearance after ducting completion (T₂).	T₂ + 6 weeks

Vendor should be accommodative in carrying out the proposed works in line with facility occupancy. However, overall delivery period as stated in the requirement document will be given to the vendor for completing the proposed work. Site clearances w.r.t launch schedules & facility occupancies shall be clearly accounted for future references.

18. TERMS OF PAYMENT:

- a. In general, **our payment terms will be 100% within 30 days after commissioning & testing.**
- b. However, if Vendors/Suppliers are requesting for advance payment, department may consider as given below,
 - i. **After placement of confirmed Purchase Order:**
30% of supply payment as advance against submission of bank guarantee for an equal amount from a reputed nationalized/scheduled bank and shall be valid till Contract completion period + 60 days. Format of Bank guarantee shall be obtained from Department after award of contract.
 - ii. **After receipt at SDSC SHAR, Sriharikota:**
60% of supply payment on pro-rata basis will be paid for the cost of the Purchase order against receipt of materials at Purchasers / Department site along with GST (including for advance portion) within 30 days from the day of clearance by Department.
 - iii. **After commissioning, testing & balancing at SDSC SHAR, Sriharikota:**
10% of supply and **100%** of erection cost + service tax (including for advance portion) on pro-rata basis after successful erection, commissioning, testing, balancing and acceptance by Department and against submission of performance bank guarantee of an equal amount valid for guarantee/warranty period.

Note:

Penal Interest:

- i. If the vendor fails to execute the Order after drawing Advance, the vendor should return the Advance amount in full with interest at Bank lending rate plus 2% beyond delivery period and all BG/FDR/etc. shall be forfeited.
- ii. In case of delay in execution of contractual obligations beyond delivery period, the seller is liable to pay interest on advance paid beyond the delivery period till the completion of scope of contract.
- iii. **The rate of interest shall be loaded on option of advance by the bidder for arriving L1.**

19. LIQUIDATED DAMAGES:

In the event of the Supplier failing to complete the work within the delivery period specified in the contract agreement or in extension agreed thereto, Department shall reserve the right to recover from the Supplier as liquidated damages, a sum of 0.5 percentage per week of the total contract price of equipment or work. However, the total liquidated damages shall not exceed 10.0 percentage of the total Contract price. The LD reckoning date shall be after $T_2 + 6$ weeks where T_2 is the date of site clearance given by the department for initiation of connecting ducts to AHUs & modifications in AHU room.

20. DISCLOSURE AND USE OF INFORMATION:

- i. If the documents supplied by SDSC SHAR are marked "Strictly Confidential", supplier shall take all necessary steps to ensure the same.
- ii. Supplier shall guarantee that all information and data received during execution of Purchase Order from SDSC SHAR shall be classified as "confidential" within the meaning of the Official Secrets Act and will not be divulged to any third party without prior written permission of SDSC SHAR. All drawings & documents shall be returned after execution of work.
- iii. No publicity of any kind whatsoever regarding this work shall be given without prior clearance from SDSC SHAR.

21. ACCEPTANCE AND REJECTION:

On completion of the work or part of the work as specified in the contract, the representative of the Department referred to, shall check as soon as possible, but in any event within one month of notification of readiness for acceptance that the work performed complies with the contract requirements as regards quantity and quality. In the event of rejection of any of the articles, whereby the Supplier feels himself aggrieved, he may within eight days of the receipt of notification of rejection and before such articles have been removed from the place of inspection, give the Department notice of objection. Such objection shall be considered by a Board of Appeals of the Department. The Department shall, without prejudice to the arbitration clause in the contract, take a decision upon presentation of the Board's findings. On completion of tests, the members of the Inspection Organization of the Department or Inspection agency appointed by Department shall prepare a report, which must be countersigned by the Supplier.

22. SUSPENSION:

- i. Department may notify the Supplier to suspend performance of any or all of his obligations under the Contract. Such notice will specify the reasons for suspension and the effective date of suspension. Supplier there upon shall suspend the performance of such obligations until ordered in writing to resume performance of Contract by Department.
- ii. If Supplier's performance or his obligations remain suspended or the rate of progress is reduced, then, the time of completion will be suitably extended and all costs incurred by Supplier as a result of suspension or reduction in rate of progress will be paid to Supplier provided that the suspension or reduction in the rate of progress is not by reasons of Supplier's default or breach of Contract.

23. Arbitration:

In the event of any dispute/s, difference/s or claim/s arising out of or relating to the interpretation and application of the Contract, such dispute/s or difference/s or claim/s shall be settled amicably by mutual consultations of the good Offices of the respective Parties and recognizing their mutual interests attempt to reach a solution satisfactory to both the parties. If such a resolution is not possible, within 30 days from the date of receipt of written notice of the existence of such dispute/s, then the unresolved dispute/s or difference/s or claim/s shall be referred to the Sole Arbitrator appointed by the Parties by mutual consent in accordance with the rules and procedures of Arbitration and Conciliation Act 1996 as amended from time to time. The arbitration shall be conducted in Bengaluru in the Arbitration and Conciliation Centre –Bengaluru (Domestic and International) as per its rules and regulations. The expenses for the Arbitration shall be shared equally or as may be determined by the Arbitrator. The considered and written decision of the Arbitrator shall be final and binding between the Parties. The applicable language for Arbitration shall be "English" only.

Work under the Contract shall be continued by the CONTRACTOR during the pendency of arbitration proceedings, without prejudice to a final adjustment in accordance with the decision of the Arbitrator unless otherwise directed in writing by the DEPARTMENT or unless the matter is such that the works cannot be possibly continued until the decision (whether final or interim) of the Arbitrator is obtained.

24. WARRANTY:

Test certificates for the FIM will be submitted by Dept. to the vendor so that vendor shall submit complete warranty for total work including ducting with FIM & workmanship. The bidder shall provide **twelve months' warranty** for the entire system for a defect liability, after final official handing over, at his cost. During the warranty period contractor must provide and adhere to following:

- a. This period shall include maintenance replacement of defective/ failed parts at free of cost.

- b. Contractor must attend maintenances in case of issue and breakdown with the items supplied by the vendor during the warranty period. Service report for maintenance to be submitted.
- c. Break down maintenance should be responded within 48 hours' time and shall be completed within 48 hours after response.
- d. Contractor must prepare any kind of transport/ accommodation for this purpose
- e. Upon oral or written notification of defects in or malfunctioning of the goods during the warranty period which require corrective action, contractor shall send the necessary skilled personal to job site to supervise and assume responsibility for repairs and /or replacement, if necessary, of the defective goods or materials at his own cost
- f. Even after 96 hours of notification of system breakdown, if the contractor fails to bring the system to normal working condition, starting from fifth day until rectification of the break down, for the same duration, warranty period of the plant will be extended.
- g. Department has no obligation to discover defects, patent or otherwise and this shall be sole responsibility of contractor. Inspection and clearance for shipment by department inspectors or inspection agency appointed by department shall not relive contractor of any of his obligation & duties under terms & conditions herein.
- h. Where defects in item are remedied under warranty, the period for which the warranty operates shall be extended by such period, as the items were not available to department where defective items are replaced by new ones, the full warranty period stipulated in the contract shall apply to such replacement items.

25. Make in India (MII) Clause:

- a. For this procurement, bids from Class-I & class-II Local Suppliers are admissible. Hence provisions contained in Public Procurement (Preference to Make in India), Order 2017 issued by Department for Promotion of Industry and Internal Trade (DIPP), Ministry of Commerce & Industries vide letter No. P-45021/2/2017-PP(BE-II) dated 04.06.2020 and subsequent amendment & directives shall be followed. Accordingly, offer will be evaluated & processed in conformation with above referred GOI order (Specially mentioned below). The bidder shall provide compliance and undertaking as per order and hereafter amendments:
- b. Order no: 07/10/2021-PPD dtd. 23.02.2023 of Department of Expenditure), Ministry of Finance Under Public procurement division for the General Financial rule (GFRs).
- c. Class-I local supplier means a supplier or service provider, whose goods, service or works offered for procurement, has local content equal to or more than 50%, as defined under order.
- d. Class-II local supplier means a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%, as defined under this Order.

Verification of local content

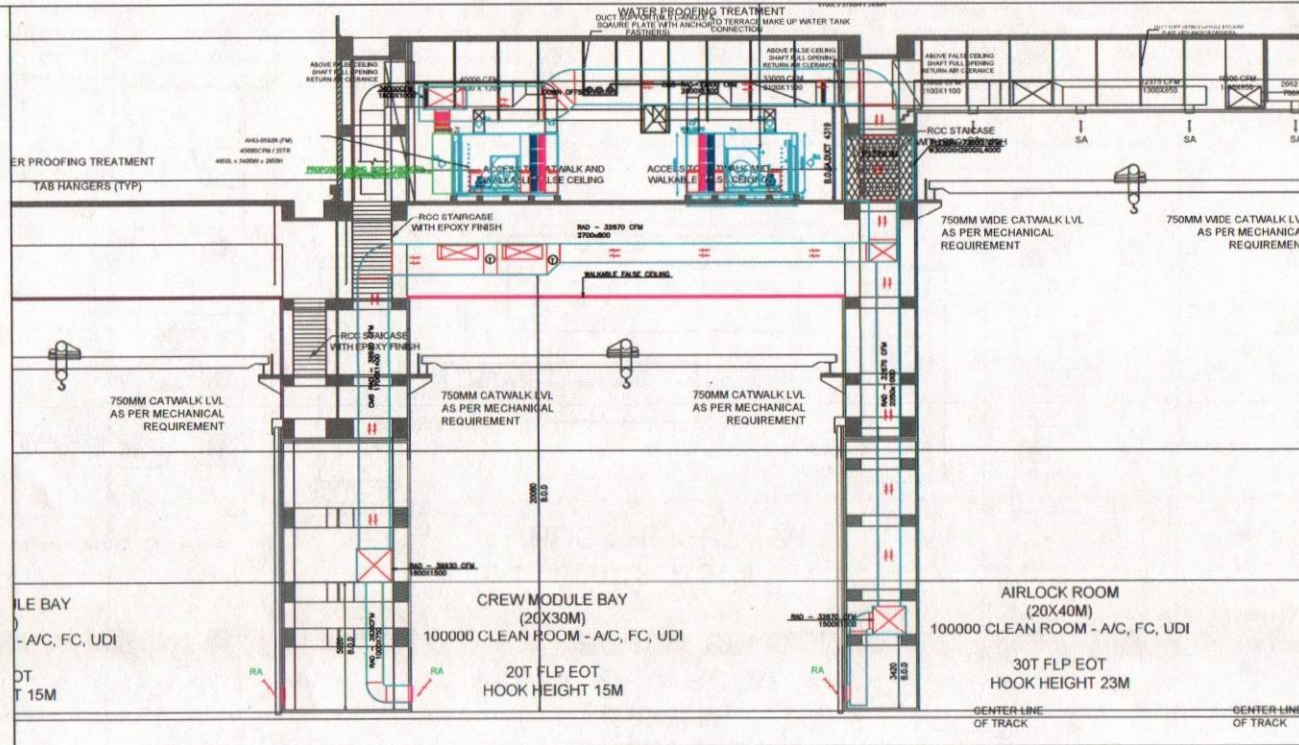
- a. The Class I local supplier/ Class- II local supplier at the time to tender, bidding or solicitation shall be required to indicate percentage of local content and provide self-certification that the item offered meets the local content requirement for Class-I local supplier / Class II local supplier as the case may be. They shall also give details of the location(s) at which the local value addition is made.
- b. In case bid value is in excess of Rs. 10 Cr., Class-I local supplier / Class-II local supplier shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.
- c. False declarations will be in breach of the code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules (GFR) for which a bidder or its successors can be debarred for up to two years as per Rule 151(iii) of the general Financial Rules along with such other actions as may be permissible under Law.
- d. A supplier who has been debarred by any procuring entity for violation of this order shall not be eligible for preference under this order for procurement by any other procuring entity for the duration of the debarment.
- e. The percentage of local content should be specifically mentioned in the offer; without which it will be summarily rejected.
- f. Preference will be given to Class-I Local supplier and in their absence, Class-II Local supplier will be considered.

Note: The purchaser has right to cancel the order at any stage, if the supplier is not meeting the specifications and QAP.

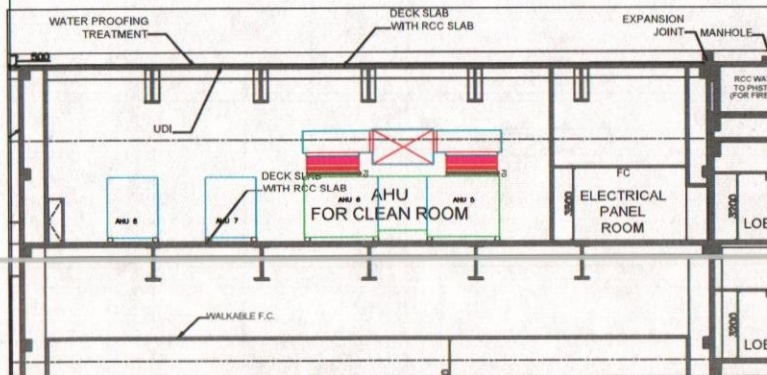
- 26. Electricity and water:** Will be extended by department free of cost. However, on ward distribution shall be made by the contractor with Extension board, MCCB etc., with due approval from Dept.
- 27. Material handling equipment:** Material handling equipment for site erection of equipment will be provided by the department on chargeable basis subject to availability at SDSC SHAR. Otherwise, contractor shall make his own arrangements.
- 28. Tools and Equipment:** All Tools and Equipment required for carrying out the erection, testing and commissioning of the above supplied AC equipment are to be brought by the contractor at their own cost. Arranging welding set, brazing set/gas cutting set along with cylinders viz. oxygen, acetylene, nitrogen gas (for pressure testing) and any other required tools or equipment is under the scope of the contractor.
- 29.** Transportation of men, material etc. is under the scope of contractor.
- 30.** Any damages during transportation are to be rectified by the supplier at free of cost. No transit insurance charges will be borne by the purchaser. Final inspection and acceptance of the systems will be at site in SDSC SHAR, Sriharikota.
- 31. Other terms and conditions:**

- i. Contractor shall follow all the labor rules and regulations during the contract period. The minimum wages as fixed by the government from time to time must be paid to the workers engaged in the work. In case, any complaint has been received from workers about non-payment/ less payment, the contractor shall produce the documentary evidence having paid the minimum wages; failing which suitable action will be taken for payment due to workmen by deducting the amount from the bill due to the contractor.
- ii. The contractor shall furnish the details of personal who shall undertake the job at site for obtaining departments clearance. The contractor and antecedent of all workers to be deputed by the contractor will be subject to appropriate verification and clearance from the department.
- iii. Successful vendor shall submit design calculation on demand along with fabrication drawing for department's clearance. No extra payment will be made for submission of design calculation.
- iv. In case any clarification on the scope of the tender for any items of work, orders, tenderers shall get clarified the same from the Department before submission of their tenders.

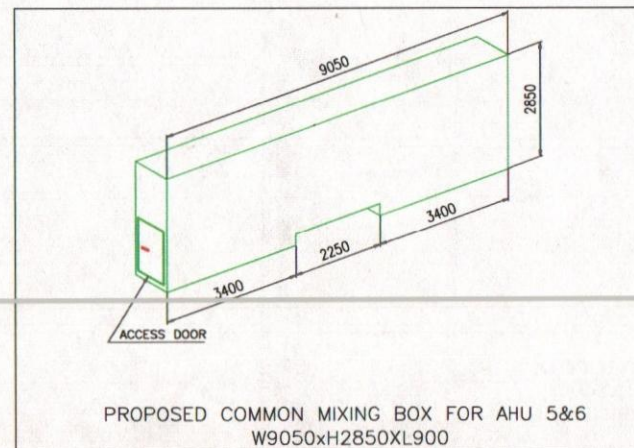
CM Bay (CMB) Return A:n Duct Layout (Sheets 1 to 5)



SECTION - AA



SECTION - BB



PROPOSED COMMON MIXING BOX FOR AHU 5&6
W9050XH2850XL900



SYMBOL	HVAC LEGENDS
	AIR HANDLING UNIT
	RETURN AIR DUCT
	AIR TIGHT PARTITION
	RETURN AIR PATH
	FIRE DAMPER
	VOLUME CONTROL DAMPER
	SOUND ATTENUATOR

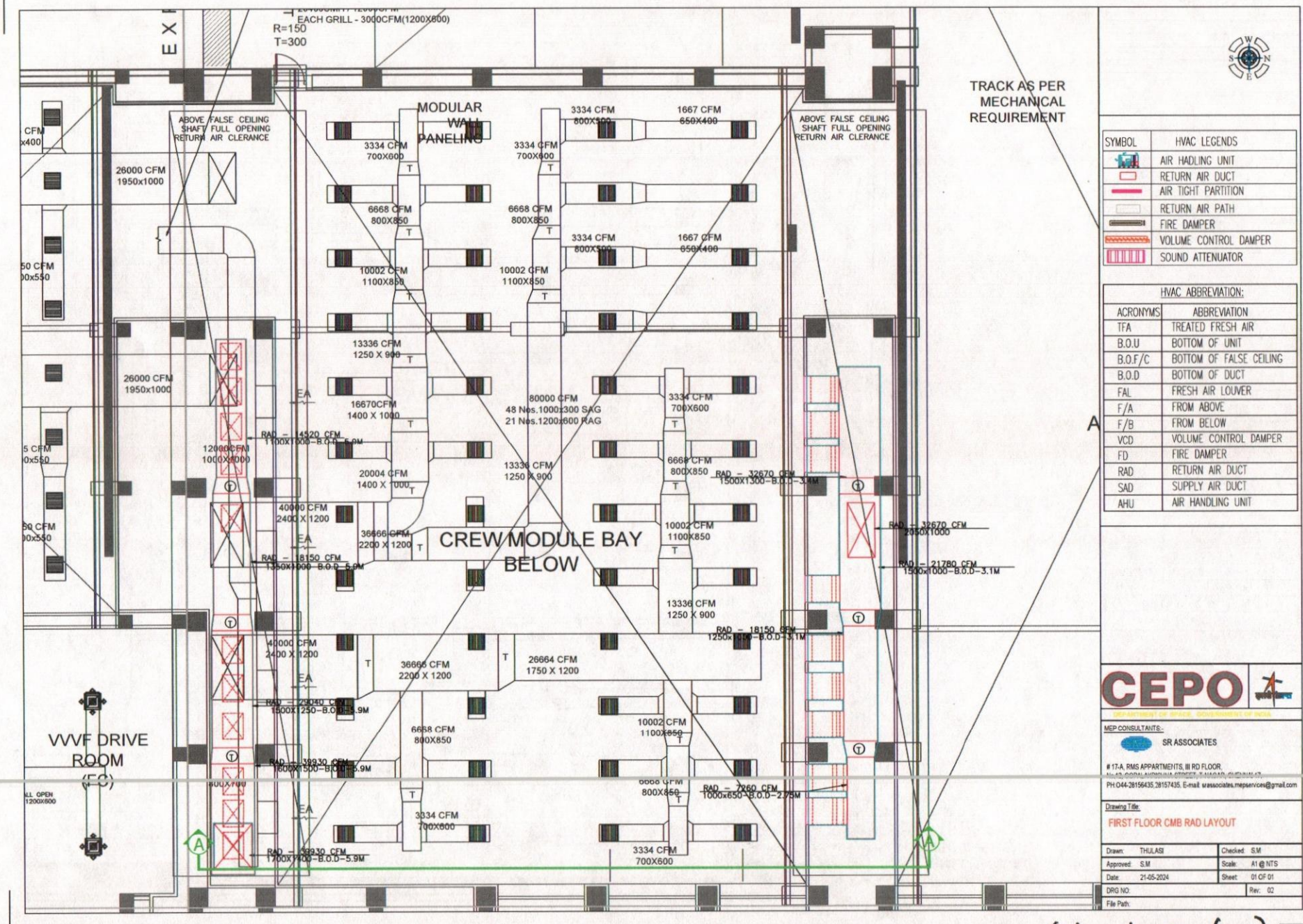
ACRONYMS	ABBREVIATION
TFA	TREATED FRESH AIR
B.O.U	BOTTOM OF UNIT
B.O.F/C	BOTTOM OF FALSE CEILING
B.O.D	BOTTOM OF DUCT
FAL	FRESH AIR LOUVER
F/A	FROM ABOVE
F/B	FROM BELOW
VCD	VOLUME CONTROL DAMPER
FD	FIRE DAMPER
RAD	RETURN AIR DUCT
SAD	SUPPLY AIR DUCT
AHU	AIR HANDLING UNIT



MEP CONSULTANTS:
SR ASSOCIATES
17A, RMS APARTMENTS, III RD FLOOR,
No. 53, 0200A, ANANDHAR STREET, 2 HAZAR, CHENNAI-60
PH:044-28156435, 28157435, E-mail: srassociates.mepservices@gmail.com

Drawing Title:
CMB RAD SECTION LAYOUT

Drawn: THULASI	Checked: S.M
Approved: S.M	Scale: A1 @ NTS
Date: 21-05-2024	Sheet: 01 OF 01
DRG NO:	Rev: 02
File Path:	



SYMBOL	HVAC LEGENDS
	AIR HANDLING UNIT
	RETURN AIR DUCT
	AIR TIGHT PARTITION
	RETURN AIR PATH
	FIRE DAMPER
	VOLUME CONTROL DAMPER
	SOUND ATTENUATOR

HVAC ABBREVIATION:	
ACRONYMS	ABBREVIATION
TFA	TREATED FRESH AIR
B.O.U	BOTTOM OF UNIT
B.O.F/C	BOTTOM OF FALSE CEILING
B.O.D	BOTTOM OF DUCT
FAL	FRESH AIR LOUVER
F/A	FROM ABOVE
F/B	FROM BELOW
VCD	VOLUME CONTROL DAMPER
FD	FIRE DAMPER
RAD	RETURN AIR DUCT
SAD	SUPPLY AIR DUCT
AHU	AIR HANDLING UNIT



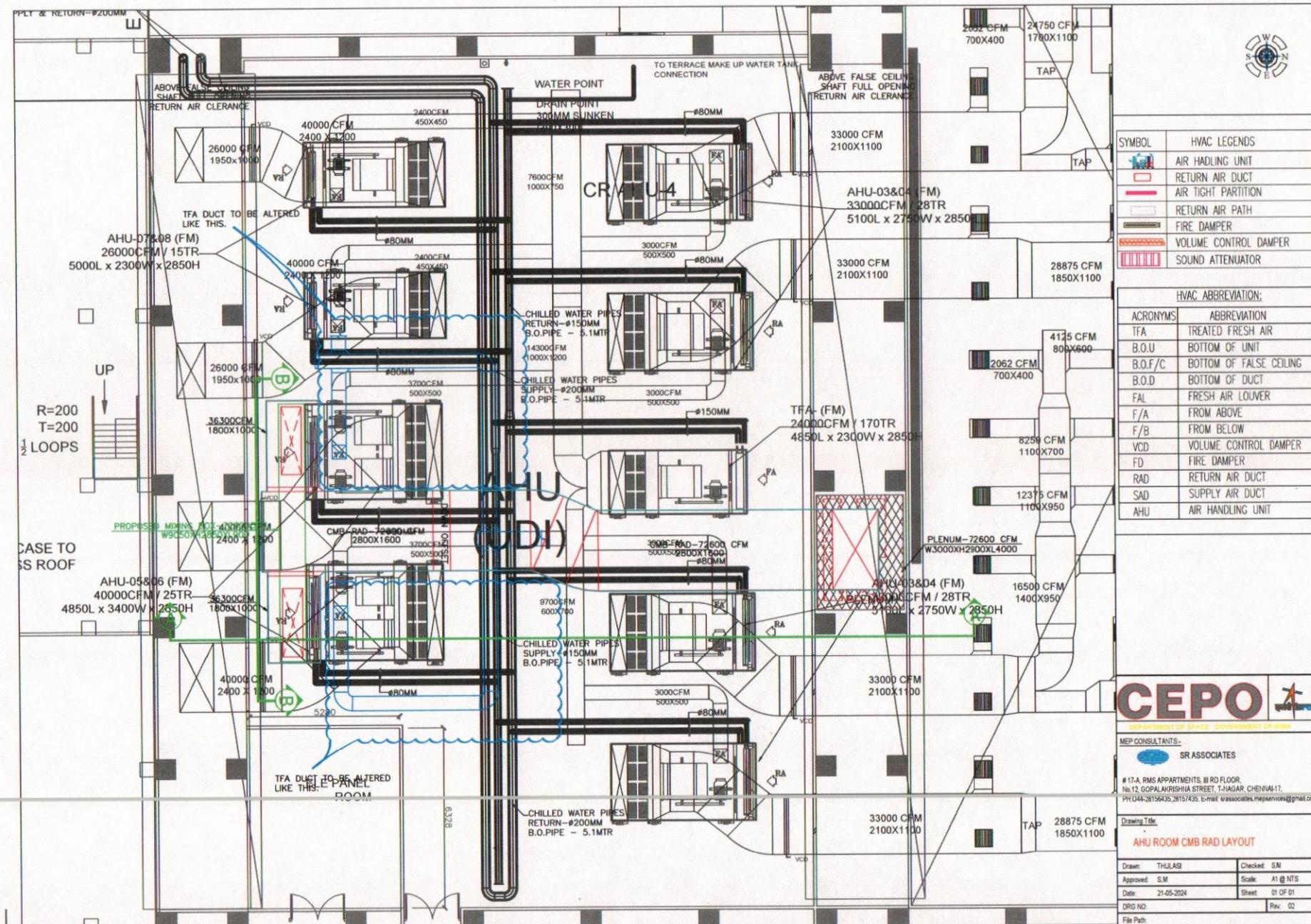
MEP CONSULTANTS:

 SR ASSOCIATES
 # 17-A, RMS APARTMENTS, III RD FLOOR,
 H-42, CONNAught PLACE, NEW DELHI-110028
 PH 044-28156435, 28157435, E-mail: srassociates.mepservices@gmail.com

Drawing Title:
FIRST FLOOR CMB RAD LAYOUT

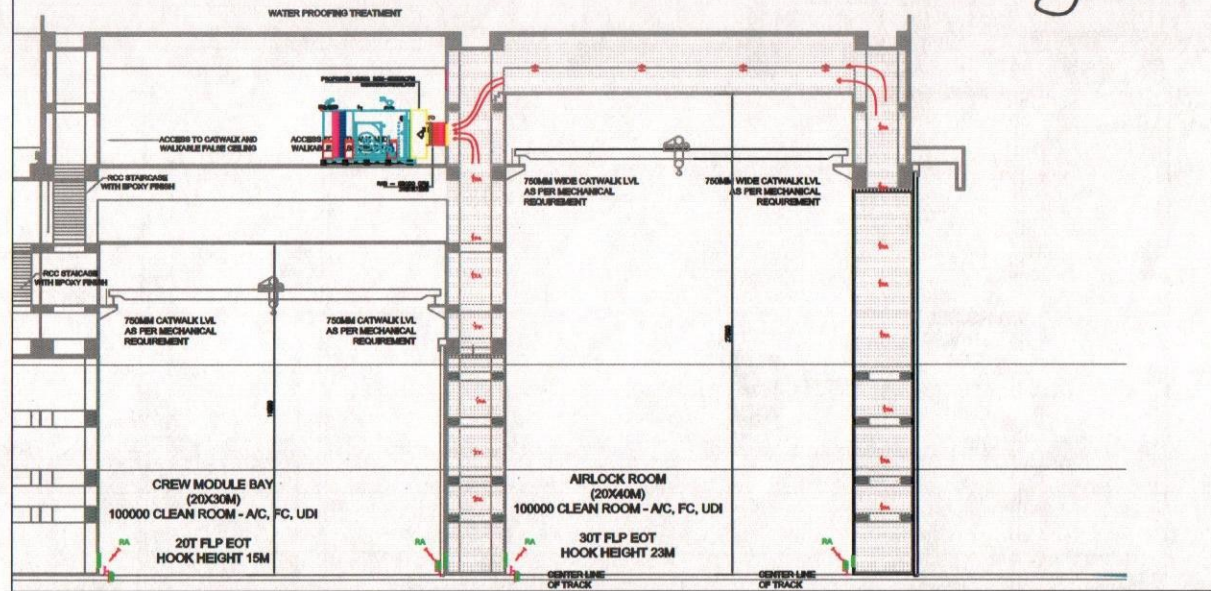
Drawn: THULASI	Checked: S.M
Approved: S.M	Scale: A1 @ NTS
Date: 21-05-2024	Sheet: 01 OF 01
DRG NO:	Rev: 02
File Path:	

(sheet 3 of 5)



MAL Bay (A:9 Lock Room) Return Air Duct Layout

(Sheet 1 to 3)

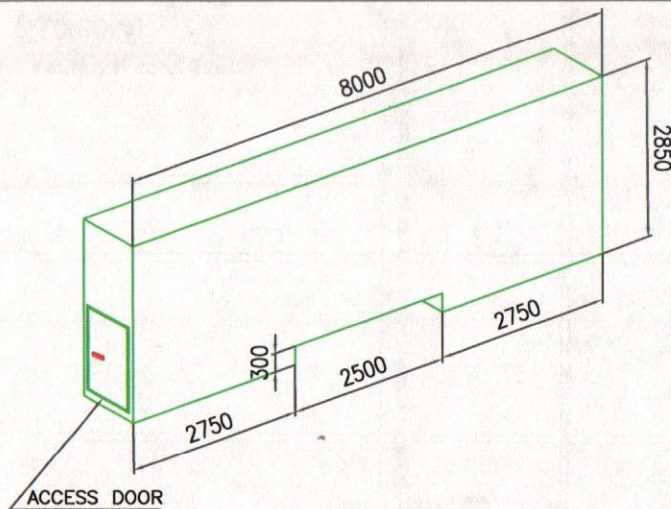


SECTION AA

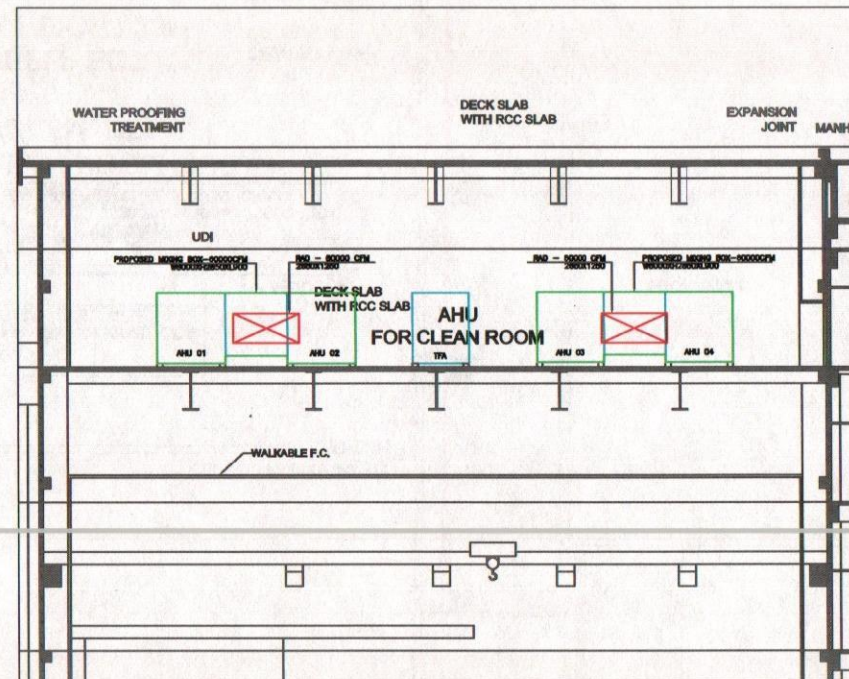
SYMBOL	HVAC LEGENDS
	AIR HANDLING UNIT
	RETURN AIR DUCT
	AIR TIGHT PARTITION
	RETURN AIR PATH
	FIRE DAMPER
	VOLUME CONTROL DAMPER

HVAC ABBREVIATION:

ACRONYMS	ABBREVIATION
TFA	TREATED FRESH AIR
B.O.U	BOTTOM OF UNIT
B.O.F/C	BOTTOM OF FALSE CEILING
B.O.D	BOTTOM OF DUCT
FAL	FRESH AIR LOUVER
F/A	FROM ABOVE
F/B	FROM BELOW



PROPOSED COMMON MIXING BOX FOR AHU 1&2
W8000xH2850XL900



SECTION BB



MEP CONSULTANTS:
SR ASSOCIATES

17-A, RMS APPARTMENTS, III RD FLOOR,
No.12, GOPALAKRISHNA STREET, T-NAGAR, CHENNAI-17.
Ph:044-28156435, 28157436, E-mail: srassocdata.mepservices@gmail.com

Drawing Title:
SMB RAD SECTION LAYOUT

Drawn: THULASI	Checked: S.M
Approved: S.M	Scale: A1 @ NTS
Date: 09-04-2024	Sheet: 01 OF 01
DRG NO:	Rev: 01
File Path:	

(sheet 1 of 3)

20
EXIT

R
L
G

TRACK AS PER
MECHANICAL
REQUIREMENT

EPOXY PAINT
FINISH

BRICK WALL

SAG : 64 NOS
SIZE : 1000X300
TOTAL SUPPLY AIR QTY : 132000 CFM
AIR QTY PER GRILL : 2060 CFM

RAG : 31 NOS
SIZE : 1000X750
TOTAL SUPPLY AIR QTY : 132000-12000=120000 CFM
AIR QTY PER GRILL : 3630 CFM

100000 CLEAN ROOM - A/C,
FC-27.5M, UDI

30T FLP EOT
HOOK HEIGHT 23M

CENTER LINE
OF TRACK
900MM HIGH
SS RAILING
750MM WIDE
CAT WALK

CENTER LINE
OF TRACK
900MM HIGH
SS RAILING
750MM WIDE
CAT WALK

CREW MODULE BAY
(20X30M)
100000 CLEAN ROOM - A/C,
FC-19M, UDI

20T FLP EOT
HOOK HEIGHT 15M

EPOXY PAINT
FINISH

MODULAR
WALL
PANELING

MODULAR
WALL
PANELING

MODULAR
WALL
PANELING

MODULAR
WALL
PANELING

EPOXY PAINT
FINISH

R=150
T=300

EMERGENCY EXIT

AIR LOCK

DRESS

AIR SHO



SYMBOL	HVAC LEGENDS
	AIR HANDLING UNIT
	RETURN AIR DUCT
	AIR TIGHT PARTITION
	RETURN AIR PATH
	FIRE DAMPER
	VOLUME CONTROL DAMPER

HVAC ABBREVIATION:

ACRONYMS	ABBREVIATION
TFA	TREATED FRESH AIR
B.O.U	BOTTOM OF UNIT
B.O.F/C	BOTTOM OF FALSE CEILING
B.O.D	BOTTOM OF DUCT
FAL	FRESH AIR LOUVER
F/A	FROM ABOVE
F/B	FROM BELOW



MEP CONSULTANTS:-

SR ASSOCIATES

17-A, RMS APARTMENTS, III RD FLOOR,
No.12, GOPALAKRISHNA STREET, T-NAGAR, CHENNAI-17.
Ph:044-26156435, 26157435, E-mail: srassociates.mepservices@gmail.com

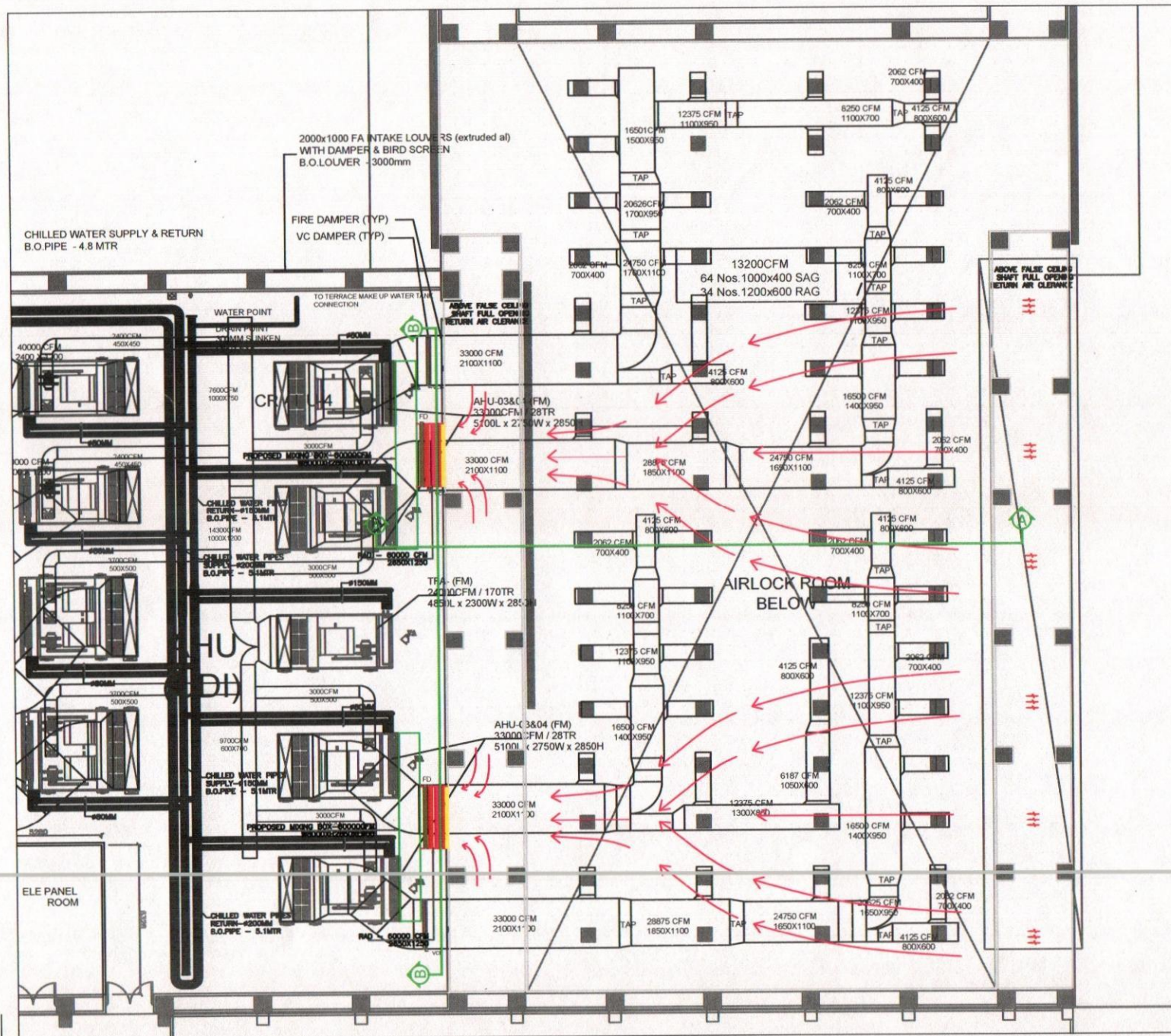
Drawing Title:

GROUND FLOOR AIR LOCK ROOM RAD LAYOUT

Drawn: DHINESH	Checked: S.M
Approved: S.M	Scale: A1 @ NTS
Date: 06-04-2024	Sheet: 01 OF 01
DRG NO:	Rev: 01

File Path:

(Sheet 2 of 3)



SYMBOL	HVAC LEGENDS
	AIR HANDLING UNIT
	RETURN AIR DUCT
	AIR TIGHT PARTITION
	RETURN AIR PATH
	FIRE DAMPER
	VOLUME CONTROL DAMPER

ACRONYMS	ABBREVIATION
TFA	TREATED FRESH AIR
B.O.U	BOTTOM OF UNIT
B.O.F/C	BOTTOM OF FALSE CEILING
B.O.D	BOTTOM OF DUCT
FAL	FRESH AIR LOUVER
F/A	FROM ABOVE
F/B	FROM BELOW



MEP CONSULTANTS:
 SR ASSOCIATES
 # 12-A, BMC APARTMENTS, 8th FLOOR,
 No.12, GOPALAKRISHNA STREET, THAGAR, CHENNAI-17.
 PH:044-28158435, 28157435. E-mail: srassociates.mepservices@gmail.com

Drawing Title:
 TERRACE FLOOR AIR LOCK ROOM RAD LAYOUT

Drawn: THULASI	Checked: S.M.
Approved: S.M.	Scale: A1 @ NTS
Date: 09-04-2024	Sheet: 01 OF 01
DRG NO:	Rev: 01
File Path:	

AHU 1 to 8 - Supply Duct Interconnects (Sheet 1 of 1)

