



**Tender for Supply, Installation, Testing and  
Commissioning of 4 Nos. of 3.0 TR 5 Star inverter  
A.C Ceiling mounted Cassette type Split Air-  
conditioner for Smart metrology lab at SMDDC  
workshop,CMTI Bengaluru  
In Two Bid system( Technical bid and Price Bid)**

By  
Central Manufacturing Technology Institute  
Tumkur Road, Bangalore-560022

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**CENTRAL MANUFACTURING  
TECHNOLOGY INSTITUTE**

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**CMTI - CENTRAL MANUFACTURING TECHNOLOGY INSTITUTE**  
Tumkur Road, Bengaluru - 560022, Karnataka, INDIA

**INVITATION FOR BIDS**

No. CMTI/L-1409/KSR/PUR/21-22/SMDDC/RA

Date: 11.03.2022

1. CMTI - Central Manufacturing Technology Institute, Tumkur Road, Bengaluru - 560022, Karnataka, India, Invites sealed Bids from Manufacturers and their Distributors / Indian Agents, if any, for purchase of items listed below.

Sl. No.	Tender No.	Description of items	Qty	Two Bid
1	CMTI/L-1409/KSR/PUR/21-22/SMDDC/RA	Supply, Installation, Testing and Commissioning of 4 Nos. 3.0 TR 5 Star inverter A.C Ceiling mounted Cassette type Split Air-conditioner for Smart metrology lab at SMDDC workshop, CMTI Bengaluru	As per BOQ	Two Bid System [Technical &- Price bid]

2. Interested Bidders may obtain further information from the office of the Group Head, Purchase & Stores, CMTI - Central Manufacturing Technology Institute, Tumkur Road, Bengaluru - 560022, Karnataka, India, mail: [purchase@cmti.res.in](mailto:purchase@cmti.res.in)
3. The Bidding Documents can be downloaded at [www.tenderwizard.com/CMTI](http://www.tenderwizard.com/CMTI). The Techno Commercial Bids opening dates will be intimated later.
4. The Director, CMTI- Bengaluru, reserves the right to accept any or all tenders either in part or in full or to split the order without assigning any reasons there for.

Supply, Installation, Testing and Commissioning of 4 Nos. 3.0 TR 5 Star inverter A.C Ceiling mounted Cassette type Split Air-conditioner for Smart metrology lab at SMDDC workshop, CMTI Bengaluru

BID REFERENCE	CMTI/L-1409/KSR/PUR/21-22/SMDDC/RA
DATE AND TIME OF OPENING OF BIDS (TECHNO- COMMERCIAL BID ONLY)	<b><u>18.03.2022</u></b>
DATE AND TIME OF OPENING OF PRICE BIDS	Will be intimated to Technically Qualified Bidders only
VENUE FOR BID OPENING	E-Tender online opening
ADDRESS FOR COMMUNICATION	Group Head, (Purchase & Stores) Central Manufacturing Technology Institute, Tumkur Road, Bengaluru560022, Karnataka, India Email ID: purchase@cmti.res.in

N.B.:

1. All the pages of the Bidding Document should be signed, stamped and submitted with the offer.
2. This Bidding Document is non-transferable.
3. Bidding Document can be downloaded free of cost from our website [www.cmti.res.in](http://www.cmti.res.in)

**CHAPTER-1**  
**General conditions**

1. The Tender is strictly on Item Rate basis.
2. Bidders are advised to visit the site at their cost, conduct survey of existing conditions so as to familiarize themselves with the site conditions, nature of works etc. and get all clarifications as may be necessary from CMTI before quoting the rates.
3. Quantities mentioned in the schedule of quantities may vary to any extent or may be deleted without assigning any reasons and as such, the rates quoted should be firm, workable, reasonable and should include all kinds of Taxes, Duties, Work Contract Tax, Octroi, GST etc. as applicable, overheads and profit etc. No separate charges for carriage or labour would be made. There is no question of extra payment above the quoted rate under any circumstance. In case of any variation in quantity or value, the same will not be made as a subject matter for dispute by the bidder.
4. No escalation shall be allowed on the rates of this contract.
5. The BIS / CPWD specifications shall be followed as applicable and in the absence of the same the decision of CMTI shall be final.
6. The contractor shall at the instructions of the CMTI within such time as notified, open up for inspection any work and should the contractor refuse or neglect to comply with such instructions, the CMTI may employ other workman to open of the same. Such work if it is found not in accordance with approved specifications, or the instructions, expenses of opening up and redoing if required shall be borne by and recoverable from the Contractor from any money due or which may become due to the contractor.
7. The successful tenderer is bound to carry out any or all items of work necessary for the completion of the job even though such items are not included in the quantities and rates
8. The Contractor shall make necessary arrangement for watch and ward.
9. The bidders should quote their rates strictly adhering to Terms and Conditions stipulated in the Tender Document. Unsolicited correspondence after opening of the Tender shall not be entertained.
10. No bidder will be allowed to withdraw his Tender during the validity period.
11. Rates should be filled in the Bidders Schedule of Quantity in the Price –Bid neatly and no correction shall be made. Corrections, if any should be duly authenticated by the signing authority. The rates quoted should be written legibly in words and figures. If on check, differences are observed between the rates given by the Contractor in words and figures or in the amount worked out by him, the following procedure shall be followed.
  - a. When there is a difference between the rates in figures and in words, the rates, which corresponds to the amounts worked out by the Contractor shall be taken as correct.
  - b. When the amount of an item is not worked out by the Contractor or it does not correspond with the rate written either in figures or in words, then the rate quoted by the Contractor in words shall be taken as correct.
  - c. When the rates quoted by the Contractor in figures and in words tallies, but the amount is not worked out correctly, the rate quoted by the Contractor shall be taken as correct and not the amount.
12. No advance shall be paid towards mobilization and cost of materials.
13. No compensation shall be admissible for any loss suffered by the Contractor during the execution of the work. It shall be the Contractor's sole responsibility to protect CMTI's staff, his employees and property against accidents from any cause and he shall indemnify CMTI against any claims for damage for injury to person or property, resulting from any such accidents with necessary Insurance cover.
14. Any damages caused to the building / premises during the execution of the work shall be made good by the Contractor at his risk and cost and if necessary, through suitable Insurance cover.

15. The work is to be undertaken only during working days and during the office timings. The work cannot be undertaken on Saturday, Sunday and any declared holidays except with the written approval of the CMTI.
16. The contractor has to make his own arrangement of stay for his employees outside the CMTI premises.
17. The Contractor shall use necessary safety equipment and maintain all safety measures during the execution of works and ensure compliance of Safety Code as per Rules and Regulations in force.
18. The Contractor shall engage necessary qualified and experienced supervisory staff at his cost during the execution of the work for attending to day to day affairs.
19. The Contractor shall submit the bills along with the accepted and jointly recorded measurement sheets duly certified by CMTI's Engineer.
20. The Contractor should have necessary Contract License and comply with the Labour Laws as applicable.
21. Notwithstanding anything stated above, CMTI reserves the right to assess the bidder's capability and capacity to perform the contract, should the circumstances warrant such assessment in the overall interest of CMTI.
22. The decision of CMTI in awarding the work shall be final and cannot be subjected to arbitration.
23. CMTI reserves the right to accept / negotiate / reject any Quotation either in whole or in part without assigning any reasons therefore whatsoever and without entering into any further correspondence and hence, CMTI shall be under no obligation to accept the lowest or any other Quotations received in response to this Quotation. The decision of CMTI in this regard shall be final and indisputable.
24. CMTI reserves the right of supersession of any of the conditions stipulated in the Quotation Document.
25. The contractor shall require shifting some of the furniture, electrical items, etc., to some other places within the office premises during the time of work and may also be required to place them in the appropriate place after completing the work. This may be factored while quoting the bid, no extra payment shall be made for those works, beyond bid price.
26. There will be other works being carried out by various contractors in the said office premises. Hence Care should be taken not to damage any other works and also to coordinate with the other work contractors.
27. Measurement Book: The payment for all works done and for all materials supplied shall be made on the basis of detailed measurements recorded in MBs.
28. Testing of Materials: The contractors are required to submit samples of various materials, items, fittings, etc for the approval of the CMTI. The materials of brand names, if any, given in the contract shall only be selected.
29. Final bill: The final bill has to be submitted by the contractors as early as possible after the completion of the work along with completion of recording the final measurements.
30. Co-ordination and Monitoring: The contractor's site supervisor/ engineer will be coordinating and monitoring the project and report the progress to CMTI on weekly basis.
31. Site order book: Site order book shall be maintained on the site for issuing instructions to the contractor in the course of day to day supervision of the work.
32. Hindrance register: A hindrance register shall be maintained at the site to have a record of hindrances in the progress of work which may result in delays.
33. Idle Labour Clause:
  - I. In case the proposed work is held up for any site conditions not attributable to the contractor or for any decisions/ instructions/ want of details from CMTI or for any of the untoward situation, the contractor shall be allowed reasonable extension of time by the CMTI but any additional/ extra claim for payment to idle labour/ tools/ establishment/ plant etc, during this period shall not be the liability of the CMTI. The quoted rates should include for all such contingencies.
  - II. Whatever the reasons be, no claim for idle labour, additional establishment, cost of labour charges of tools and plants would be entertained under any circumstances.

**CHAPTER-2**

**SCHEDULE OF REQUIREMENTS**

TO BE FILLED BY BIDDER AND ENCLOSED WITH THE TECHNO- COMMERCIAL BID

<b>Brief Description of Goods and Services</b>	<b>Quantity</b>
Supply, Installation, Testing and Commissioning of 4 Nos. 3.0 TR 5 Star inverter A.C Ceiling mounted Cassette type Split Air-conditioner for Smart metrology lab at SMDDC workshop, CMTI Bengaluru  [Technical Specifications and Other Details as per Chapter 4 of this Bidding Documents]	As per Bill of quantity
Final Destination	CMTI - Central Manufacturing Technology Institute, Tumkur Road, Bengaluru - 560022, Karnataka, India
Period of Delivery shall count from	< TO BE FILLED BY BIDDER >
Time period by which the goods shall be ready at manufacturer's site for pre-dispatch inspection	< TO BE FILLED BY BIDDER >
Delivery Period [ Goods to be delivered in one lot at final destination CMTI - Central Manufacturing Technology Institute, Tumkur Road, Bengaluru, Karnataka, India-560022]	< TO BE FILLED BY BIDDER >
Time frame required for conducting installation, commissioning of the Goods etc. after arrival of the Goods at Final destination	< TO BE FILLED BY BIDDER >

NOTE: The party has to offer their product/equipment strictly based on the specifications asked in the Bidding Documents.

**PART-B**  
**CHAPTER- 3**  
**SPECIFICATIONS AND ALLIED TECHNICAL DETAILS**  
**FOR AIR CONDITIONING UNIT INSTALLATION WORKS**

**Note 1. These specifications are not meant to be exhaustive and prescribe the minimum acceptable standards. Where these do not cover certain items and aspects, the best engineering practice/CMTI engineer's instructions shall be followed.**

**Note 2. All codes and standards means the latest. Necessary I.S. Codes are mentioned along with these specifications and all relevant codes with divisions published on date shall be applicable.**

**1. GENERAL**

1.1 The entire electrical installation work shall be carried out in accordance with approved Drawings and in general conformity with the requirements of the the Indian Electricity rules, 2003, the relevant I.S. codes of practice, as amended to date, wherever applicable and the regulations of the local licensing bodies, CEA, CPB, Electrical safety inspector etc., and where such installations are subject to inspection and approval of fire insurance, the installation shall be planned and executed also confirming to their regulations/rules.

1.2 All the supply & work shall be in accordance with the relevant IS Specifications, recognized standards, modern approved practice and shall meet the requirements of the latest issue of applicable codes, factory rules and regulations, supply codes.

1.3 All the materials & accessories provided by Contractor under terms of this contract shall confirm to relevant IS Specifications samples of all equipment's, materials and accessories to be supplied by Contractor shall be submitted for the approval of CMTI Engineer before the use.

1.4 Contractor shall provide all necessary labor, tools, scaffolding and requisite work like drilling, cutting, welding at his cost. CMTI shall provide free water and electricity for execution of the said work.

1.5 Good workmanship is the essence of this contract and shall be complied with at all times. The Contractor shall have the works supervised by qualified &experienced Engineer. All the defects pointed out by the Engineer shall be rectified immediately by the contractor free of cost.

1.6 No alteration which may affect the structures and architecture of building shall be done without the prior approval From CMTI engineer. All work shall be carried out in such a manner that it should not cause any inconvenience to other works which are under progress. The Contractor shall cooperate with other agencies in the area for the smooth execution of all works.

1.7 Accidental damage to any property shall be reported immediately to site engineers and letter confirmed in writing.



## **1.GENERAL SPECIFICATION A.C WORK**

**Note :** Vender should Agree/confirm to maintain the workshop temperature of 20°C +/- 2 in all weather condition for the given BOQ before accepting the Purchase order/Quote.

- 1(a) The definition of terms used in these specifications shall be in accordance with IS: 3615.
- 1(b) **Site Information**  
The tenderer should, in his own interest, visit the site and familiarize with the site conditions before tendering. For any clarification, tenderer may discuss with the Consultant / customer.
- 1(c) **CONFORMITY WITH STATUTORY ACTS, RULES, STANDARDS AND CODES**
- i) All components shall conform to relevant Indian Standard Specifications, wherever existing, amended to date.
  - ii) All electrical works shall be carried out in accordance with the provisions of Indian Electricity Act, 2003 and Indian Electricity Rules, 1956 amended to date.
- 1(d) **SAFETY CODES AND LABOUR REGULATIONS**
- i) In respect of all labour employed directly or indirectly on the work for the performance of the air conditioning contractor's part of work, the contractor at his own expense, will arrange for the safety provisions as per the statutory provisions, B.I.S. recommendations, factory act, workman's compensation act, instructions issued from time to time. Failure to provide such safety requirements would make the tenderer liable for penalty for each violation. In addition the customer, shall be at liberty to make arrangements and provide facilities as aforesaid and recover the cost from the contractor.
  - ii) The contractor shall provide necessary barriers, warning signals and other safety measures while laying pipelines, ducts cables etc. or wherever necessary so as to avoid accident. He shall also indemnify OWNER against claims for compensation arising out of negligence in this respect. Contractor shall be liable, in accordance with the Indian Law and Regulations for any accident occurring due to any cause. The Owner shall not be responsible for any accident occurred or damage incurred or claims arising there from during the execution of work. The contractor shall also provide all insurance including third party insurance as may be necessary to cover the risk. No extra payment would be made to the contractor due to the above provisions thereof.
- 1(f) **WORKS TO BE ARRANGED BY THE CMTI**  
Unless otherwise specified in the tender documents, the following works shall be arranged by the CMTI:
- i) Required Power supply and Water supply for the work.

### **LIST OF IS STANDARDS:**

The following IS specifications and standards will be applicable for the work.

IS : 659 - 1964	Safety code for Air conditioning
IS : 8148	Specification for packaged air conditioning units.
IS : 660 - 1963	Safety code for Mechanical Refrigeration
IS : 732 III - 1982	Inspection and testing of installation
IS : 4894	Test code for Centrifugal fan

IS : 1239 I & II - 1982	MS tube , GI pipes, tubular and other wrought steel fittings
IS : 823 - 1964	Code of procedure for manual metal arc welding
IS : 3589	Electrically welded steel pipe for water, gas and sewage.
IS : 5111 - 1969	Code of practice and measurement procedure for testing Refrigerant
CompressorsIS : 732	Code of practice for electrical wiring and fitting for building
IS : 694 - 1977	PVC insulated(HD) electric cable for working up to of including
1100 voltsIS : 1248	Direct acting electrical indicating instruments
IS : 1822	Motor starters and voltage not exceeding 1000 Volts
IS : 8544 - I to IV 1979	Starters
IS : 2208 - 1979	HRC fuse and links, up to 650 Volts
IS : 655 - 1963	Ducting work
IS : 277	Galvanized steel sheets
IS : 4671 - 1984	Expanded polystyrene for thermal insulation purpose
IS : 7240 - 1981	Code for practice for application and finishing of thermal
IS : 7413 - 1981	Insulation material at temp. from -80°C to 40°C.& 40°C to 700°C
IS : 8183 - 1976	Specifications for Bonded Mineral Wool

**CHAPTER-4**  
**TECHNICAL BID**

**1.SCOPE OF WORK:**

Supply, Installation, Testing and Commissioning of 4 Nos. 3.0 TR 5 Star inverter A.C Ceiling mounted Cassette type Split Air-conditioner for Smart metrology lab at SMDDC workshop, CMTI Bengaluru

Note : Vender should Agree/confirm to maintain the workshop temperature of 20°C -/+ 2 and existing condition in all weather condition for given BOQ before accepting the Purchase order.

The scope of above work shall also include the following:

Unless otherwise mentioned in the tender documents, the following works shall be done by the contractor and therefore, their cost shall be deemed to be included in their tendered cost- whether specifically indicated in the schedule of work or not: -

1. Foundation bolts and vibration isolation spring/pads,
2. Suspenders, brackets and floor/ wall supports for suspending / supporting for pipes,
3. Suspenders and/or cable trays for laying the cables,
4. Painting of all exposed metal surfaces of equipments and components with appropriate colour.
5. Making openings in the walls/ floors/ slabs or modification in the existing openings wherever provided for carrying pipe line, cables etc.
6. Excavation and refilling of trenches in soil wherever the pipes are to be laid directly in ground, including necessary base treatment and supports.
7. Necessary **Concrete bed Foundations** for A.C Outdoor units

**TECHNICAL COMPLY LIST**

**ACCEPTENCE TO ACHIEVE THE REQUIRED TEMPERATURE IN ALL WEATHER  
CONDITION**

ACCEPTENCE	DATA TO BE FILLED BY BIDDERS YES OR NO if NO please specify
Vender should Agree/confirm to maintain the workshop temperature of 20°C -/+ 2 in all weather condition for given BOQ before accepting the Purchase order.	

Description	As per Tender	DATA TO BE FILLED BY BIDDERS YES OR NO if NO please specify
Make & Model	BLUE STAR / DAIKIN	
Indoor Type	Ceiling mounted Cassette	

	type	
Tonnage Capacity	3 TR	
Power saving rating	5 star and Inverter type	
Refrigerant	R410A or R32	
Compressor type	Scroll/Rotary	
Compressor make	DANFOSS/EMERSON/COPLAND	
Power Consumption (IKW) at 44 DEG C AMBIENT & 21 DEG C ROOM TEMP. (incl. Compressor & Condenser Fans)	To be filled by vender	
Condenser coil material	Copper	
Condenser coil Fins material	Aluminum with dust free coating	
Physical Dimensions & Weight	To be filled by vender	

**(A) WARRANTY.**

	<b>DATA TO BE FILLED BY BIDDERS YES OR NO if NO please specify</b>
Entire System supplied shall be covered under a warranty period of not less 12 months from the date of commissioning of the unit at site.	

**(B) SAFETY.**

	<b>DATA TO BE FILLED BY BIDDERS YES OR NO if NO please specify</b>
In the course of the work, personnel working in the system at site should take utmost care for their safety and work purely at individual's/ party's risk. CMTI will not be responsible for any untoward accidents for the party's working personnel.	

**(C) WORK INSTRUCTIONS.**

	<b>DATA TO BE FILLED BY BIDDERS YES OR NO if NO please specify</b>
○ All the welding works should be done by the qualified welders.	
○ Only the qualified electricians should do the other Electrical works.	
○ The party shall bring all the necessary tools and instruments required for erection, installation, commissioning and testing.	
○ For all electrical works such as crimping, terminal connections, tinning... etc right size and proper tools should be used.	
○ Interconnection of all copper flats should be done only after end surface tinning.	
○ Reputed brand SS hardwares only to be used.	

○ All other works should be done strictly as per standard code of practice.	
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**(D) PAINTING.**

	<b>DATA TO BE FILLED BY BIDDERS YES OR NO if NO please specify</b>
All fabricated items should be painted after proper surface finish & treatment. Two coat of zinc metal primer to be applied. Standard colour as specified in IS should only be used wherever applicable. High quality brand of paints should only be used.	

**Payments Terms and conditions:**

1. 100% payment after successful completion of work.
2. Performance Security/ Performance Bank Guarantee: The amount of the Performance Security shall be 5 % (Five percent) of the contract value.
3. The Performance Security will be discharged by the Purchaser and returned to the Supplier not later than 60 days following the date of completion of the Supplier's performance obligations, including any warranty obligations, unless specified otherwise in SCC, without levy of any interest.

**Work schedule.**

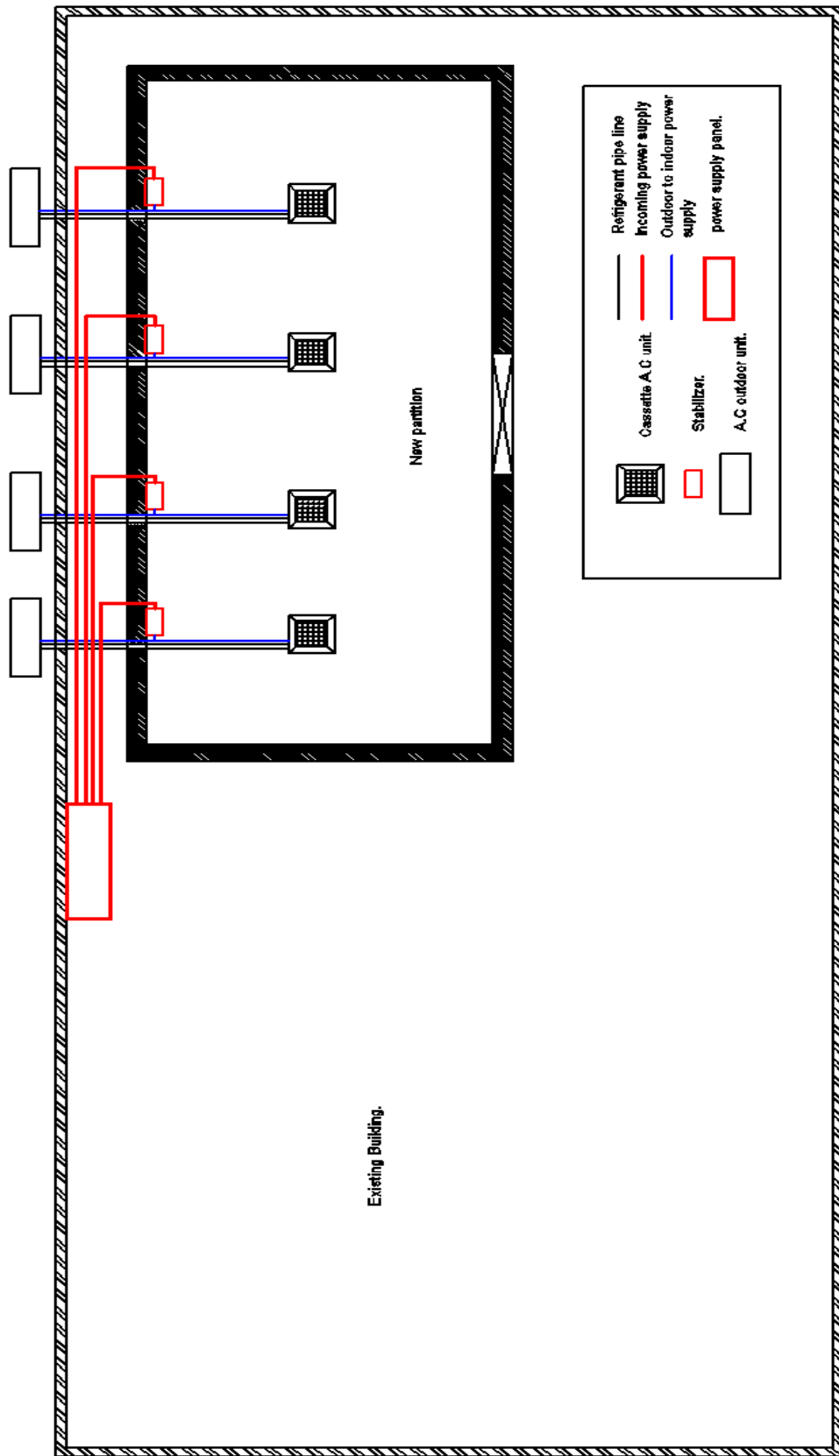
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|---|---------|
| 1. Delivery of materials at site from the date of PO issued:                | 30 Days |
| 2. Installation of compressor as per drawing attached after site clearance: | 15 Days |
| 3. Testing, Commissioning and Acceptance:                                   | 07 Days |
| 4. Submission of all documentation:   | 05 Days |

**LIST OF MAKES FOR EQUIPMENT AND MATERIAL**

Sr. No	Details of Materials / Equipment		Approved Makes	Offered by Bidder
1.	A.C make	:	BLUE STAR / DAIKIN	
2.	Compressor	:	DANFOSS / EMERSON/Copland	
3.	MS Structure/beam/gurdar/channel	:	TATA/JINDAL	
4.	C-PVC/ U-PVC Pipes	:	SUPREME / PRINCE / ASTRAL	
5.	Cables	:	POLYCAB/ FINOLEX/ ANCHOR	
6.	Copper piping	:	TOTALINE / GODREJ / PARASMANI	
7.	Stabilizer	:	V-GAURD	

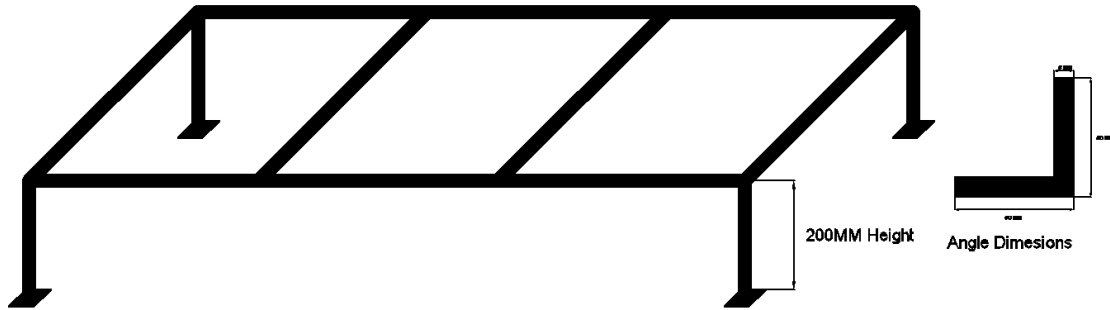
**CHAPTER-5**  
**Tentative A.C Installation Layout drawing**

**SMDDC Workshop New PUF panel partition Air conditioning unit Layout.**



**MS BASE STAND FABRICATION DRAWING**

**MS Base stand for A/C. Outdoor units**



Note : Fabrication as per drawing attached with L angle bar size of 50mmx50mmx5mm