

CENTRAL MANUFACTURING TECHNOLOGY INSTITUTE,

Bangalore -560 022

TENDER DOCUMENT FOR

Electrical cable installation works of VM-2 Facility at VSSC, Thiruvananthapuram

TENDER ISSUED TO:

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Last date for receipt of Tender: 17.00 hrs of 06.01.2022

Account Receipt No....., dated for Rs.....

GH(ES)

CENTRAL MANUFACTURING TECHNOLOGY INSTITUTE
Tumkur Road, Bangalore - 560 022

Telephone: 080 22188262/ 261

Date: 20.12.2021

Limited Tender Notice No.ESD/Elec/05/2021

1. Item –rate Tenders are invited for the following work:

Sl. No.	Description	Details
I	Title of work	Electrical cable installation works of VM-2 Facility at VSSC, Thiruvananthapuram
ii	Estimated cost	Rs.9,53,000/-
Iii	Period of completion in months reckoned from the date of commencement of work	30 days
iv	Earnest Money Deposit	Rs. 19,060.00/-
V	Period during which the tender documents will be issued	From : 20-12-2021 - 10:00 hrs To : 06-01-2022 - 12.00 hrs
vi	Last date and time for tender submission	Up to 06-01-2022 - 17.00 hrs
vii	Due date and time of opening of tenders	07-01-2022 or any other further dates as per tender opening committee
Viii	Performance Guarantee	The successful contractor shall deposit before commencement of work, an amount equal to 5% of the tendered value of work as performance guarantee in the form of Demand draft .
ix	Time allowed for the completion of work from the date commencement of work.	30 days from date of commencement of work
x	Rates	Rates to be quoted in Schedule of Quantities only
xi	Security Deposit	A sum @ 5% of gross amount of bill shall be deducted from each running bill, till the sum along with the sum already deposited as Earnest Money, amounts to security deposit @ 5% of the tendered amount of the work
xii	Specifications	The work shall be carried out strictly in accordance with the attached specifications and wherever items are not covered by these specifications, in accordance with the relevant specifications laid down in ISI standards and to the entire satisfaction of the Director, Central Manufacturing Technology Institute. The wording as per specifications' in the Schedule items shall as per General Specification for Electrical works 2013 of CPWD and as per the direction of the Engineer in charge.

2. Eligibility requirement for contractors / firms:

Sl. No.	Eligibility Criteria	Documentary proof for eligibility
A	<p>Should have satisfactorily completed the works as mentioned below during the last Seven years in any Govt. department such as State or Central PWD, MES, DOS, Central/State Public Sector Undertakings, Central/ State autonomous bodies etc.</p> <p>i. Three similar works each costing not less than 40% of the estimated cost of Rs.953000/- (i.e Rs.381200.00) or</p> <p>ii. Two similar works each costing not less than 60% of the estimated cost of Rs.953000/- (i.e. Rs.571800.00) or</p> <p>iii. One similar work costing not less than 80% of the estimated cost of Rs. Rs.953000/- (i.e. Rs.762400.00)</p>	<p>Certified copy of work orders and completion certificates issued by the authority concerned to establish work experience</p>
	<p>i. Similar nature of work shall mean experience in executing Electrical works involved in installation and commissioning of Machines /equipments ,PLC and SCADA and in external cable laying works</p> <p>ii. The validity of partnership/ consortium has to be substantiated with valid proof of documents and if found incorrect the tender will be invariably rejected.</p> <p>iii. The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum, calculated from the date of completion to last date of receipt of application for bids.</p>	
B	<p>Copies of following documents to be scanned and uploaded :</p> <ol style="list-style-type: none"> 1. Work orders issued by the authority concerned to establish work on hand. 2. Completion certificates issued by the authority concerned to establish work experience. 3. Documentary proof for having executed the work of similar nature and comparable magnitude as per the eligibility criteria. 4. Registration certificate of CPWD / State PWD. 5. PAN Card details. 6. GST registration. 7. Earnest Money deposit. 8. Audited financial statement for last three years 9. Solvency certificate certified by banker. 10. Additional Documents, if any. 	

3. Sealed item rate tenders are invited from reputed, licensed electrical contractors for the work of “**Electrical cable installation works of VM-2 Facility at VSSC, Thiruvananthapuram**” at Central Manufacturing Technology Institute, Tumkur Road, Bangalore.
4. Tenders are to be submitted to the **Group Head (Engineering Services)**, Central Manufacturing Technology Institute, Tumkur road, Bengaluru 560013, in sealed covers with the name of the work written on the envelopes and should reach CMTI within the date of submission mentioned in this tender.

5. The contractor should quote in figures as well as in words the rates tendered by him. The amount for each item should be worked out and the requisite totals given. All erasures and alterations made while filling the tender must be attested by the initials of the tenderers. Over writing of figures is not permitted. Any discrepancy written in words and figures are found, and then the rate written in words will prevail. GST has to be separately indicated in relevant column in price bid. Bid submitted without indicating GST will be considered inclusive of GST and will be processed accordingly.
6. Item rate tenders showing percentage above or below are liable to be rejected. Canvassing in connection with the tenders is strictly prohibited and the tenders submitted by the contractors, who resort to canvassing will be liable to be rejected. Tender containing additional conditions are also liable to be rejected. No advice of any change in rate or conditions after the opening of the tender will be entertained.
7. Tenders which do not fulfill all or any of the above conditions or incomplete in any respect are liable to summary rejection.
8. The contractor will have to give a declaration in writing to the fact that they are not related to any officer of the Central Manufacturing Technology Institute.
9. Earnest Money is liable to be forfeited if the contractor selected for the work fails to sign the formal agreement or fails to start the work within seven days of order to commence the work.
10. The tenders of contractors who has not furnished the EMD before or along with the submission of tender will be rejected invariably without assigning any reason.
11. The acceptance of the tender will rest with the Central Manufacturing Technology Institute which does not bind itself to accept the lowest tender and reserves to itself the authority to partially accept or reject any or all the tenders received without assigning any reasons. It will rest with the accepting authority to split up the whole work between the two or more contractors or accept it in parts if considered expedient.
12. This "Limited Tender Notice" shall also form part of the tender documents.

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SPECIAL CONDITIONS

1. Sealed tenders should be addressed to GH (ES), Central Manufacturing Technology Institute, Tumkur Road, Bangalore-560 022 and should be super scribed work : **“Electrical cable installation works of VM-2 Facility at VSSC, Thiruvananthapuram”** and so as to reach them not later than **17:00 hours of date 06-01-2022.**
2. Tenders will be opened on the day mentioned in ‘Limited Tender Notice’ Or any other date as per availability of tender opening committee at Central Manufacturing Technology Institute, Bangalore, in the presence of the tenderers or their representatives, if they choose to be present.
3. Rates quoted in the tender should be valid for a period of 90 days from date of opening of tender.
4. The employer does not bind himself to accept the lowest or any tender and reserves to himself the right to accept or reject any or all the tenders, either in whole or in part without assigning any reasons for doing so.
5. Each of the tender documents is required to be signed by the person or persons submitting the tender in token of his/their having acquainted himself/themselves with the general conditions of contract, general specifications, special conditions, etc., as laid down. Any tender with any of the documents not so signed will be rejected.
6. The tender submitted on behalf of a firm shall be signed by all the partners of the firm or by a partner who has the necessary authority on behalf of the firm to enter into the proposed contract, otherwise the tender is liable to be rejected.
7. The tender form must be filled in English and all entries must be made by hand and written in ink. If any of the documents are missing, or is unsigned, the tender will be considered invalid.
8. All erasures and alterations made while filling the tender must be attested by initials of the tenderer. Overwriting of figures is not permitted. Failure to comply with either or these conditions will render the tender void. No advice of any change in rate or conditions after the opening of the tender will be entertained.
9. Within seven days of the receipt of intimation from the employers of the acceptance of his/their tender, the successful tenderer shall be bound to implement the contract by signing the agreement in accordance with the draft agreement and the schedule of conditions and the written acceptance by the employer of the tender will constitute a binding agreement between the employer and the person so tendering whether such a formal contract is or is not subsequently entered into.
10. **Security Deposit :** A sum @**5%** of gross amount of bill shall be deducted from each running bill of the contractor, till the sum along with the sum already deposited as Earnest Money Deposit, amounts to **security deposit @ 5%** of the tendered amount of work.
11. **Performance Guarantee:** The successful contractor shall deposit before commencement of work, an amount equal to **5%** of the tendered value of work as performance guarantee in the form of **Demand draft** of Schedule Bank. The **Performance Guarantee** shall be refunded to contractor soon after the completion of the work, along with final bill.
12. The contractor must not assign the contract, he must not sublet any portion of the contract except with the written consent of the employer failing which the employers may serve a notice in writing rescinding the contract whereupon the security deposit shall stand forfeited and at absolute disposal of the employer.
13. A schedule of probable quantities in respect of each work and specifications accompany these special conditions. The schedule of probable quantities is liable to alterations by omission, deductions or additions to any extent at the discretion of the employer. Each tender should contain not only the rates but also the value of each item of work entered in a separate column and all the items should be totaled in order to show the aggregate value of the entire tender. All correction in the tender rates shall be duly attested by the dated initials of the tenderer. Corrections which

are not attested may entail the rejection of the tender. Rates should be quoted both in figures and words in columns specified.

14. The tenderer must obtain for himself on his own responsibilities and at his own expense all the information which may be necessary for the purpose of making a tender and for entering into a contract and must examine the drawings and must consider **and inspect the site of the work** and acquaint himself with all local conditions, means of access to the work, nature of the work, and all matters pertaining thereto.
15. The rates quoted shall be deemed to be for the finished work to be measured at site. The rates shall also be firm and shall not be subjected to exchange variations, labour conditions, fluctuations in railway freights or any conditions whatsoever. The rates quoted should be inclusive of all applicable taxes as per standard orders of Government of India and State Government. Only GST should be separately shown in relevant column.
16. The successful tenderer should make his own arrangements to obtain all materials required for the work.
17. The successful tenderer is bound to carry out any item of work necessary for the completion of the job even though such items are not included in the quantities and rates. Schedule of instructions in respect of such additional items and their quantities will be issued in writing by the employer.
18. The successful tenderer must co-operate and co-ordinate his work with the work of all other contractors appointed by the employer so that the work shall proceed with the least possible delay and to the satisfaction of the employer.
19. The contractor's co-ordination with other contractors appointed by the employer is essential to maintain smooth progress of the work and any delays which in the opinion of the employer is due to non-co-ordination and inefficient management of the contractor will not be entertained for any extension of time.
20. The security deposit of the successful tenderer will be forfeited if he fails to comply with any of the conditions of the contract.

I / WE HEREBY DECLARE I/WE HAVE READ AND UNDERSTOOD THE ABOVE INSTRUCTIONS FOR THE GUIDANCE OF THE TENDERERS.

Signature of the Tenderer,

Address & Date:

SCOPE OF WORK

1. CABLE INSTALLATION

- A. The cables shall be laid in RCC cable trenches / GI pipes / cable trays / directly buried in the ground. In paved area cable shall be laid in GI pipes only
- B. Cable laying cost includes ladder type cable tray, earth strip, cable lugs, number ferrules and supporting accessories for mounting the cable tray.
- C. Required cables, glands and junction boxes (where ever required) will be supplied by CMTI.
- D. The contractor should understand the layout of the buildings and all electrical elements to be used for cable laying and wiring. (Details of layout and wiring details shall be given by CMTI/VSSC). It is suggested to contractors, to visit the VM2 Facility at VSSC to assess the extent of work and material requirement by comparing to our layout plan.
- E. The scope includes but not limited to,
 - a. Cable inspection and handling.
 - b. Laying, Meggering, termination, dressing and clamping of cables.
 - c. Tagging and marking of cables.
 - d. Connection of equipment.
 - e. Equipments earthing.
 - f. Preparing cable ready for charging after completing all associated works.

IMPORTANT NOTE

- a) Cabling work should be started after placing the equipment in their respective places, in case if equipment is not available. The position will be intimated by CMTI/VSSC Engineers
- b) For cable installation / laying, if cutting of foundations or structures is required, prior permission shall be obtained from the owner/ engineer.
- c) Cable trays / racks shall not be used as a walkway or ladder either during installation or while cable pulling or at any other time of installation.
- d) Cables of different voltage levels and noise classification if any, shall be taken on different trays/racks (or other means specified). When cables of different voltage levels or noise classes are installed on the same tray/ rack/place, the same shall be separated by grounded steel barrier. In no case instrument cables are to be run along with power cables.
- e) CMTI advises to use the following make materials for cable laying and termination work

<u>Materials description</u>	<u>Approved Make</u>
300mmWx60mmH, sheet thickness 2.0mm Hot dip galvanized ladder type Cable tray and mounting accessories (heavy duty type)	Indiana/ Cable Tech or equivalent
Conductor end sleeves AHI insulated cable lugs (for signal cable termination)	Lapp or Equivalent
Copper lugs (for power cable termination)	Dowell's or Equivalent
Copper earth strip 5mm thickness and 25mm width (for strip type Earthing)	Best quality (copper purity greater than 95%)
Copper earth conductor 10 SWG Gauge(for 1 point Earthing and 2 point Earthing)	Best quality (copper purity greater than 95%)

2. CABLE INSPECTION AND HANDLING

- a) Contractor to be present at site while unloading the cable, glands and junction boxes sent by CMTI to VSSC in presence of VSSC/CMTI Representatives .(check as per packing list sent by CMTI)
- b) On receipt of cable drums at site, the contractor shall inspect each cable drum and check for size, length and type with respect to supplier's seal and marking / documents.
- c) Loading and unloading of cable drums shall be done by crane and drums shall be carefully lifted and deposited on ground. If crane is not available then the drum shall be carefully rolled down on a suitable ramp of rails. The drum shall be rolled as per the direction indicated by the arrow on the drum in order to prevent the turns of the cable from loosening on the drum. Under no circumstances shall a drum be dropped to the ground as the shock may cause serious damage to the inner layer of cables.
- d) No cable drum shall be slung, except, by a bar or spindle through the centre of the drum.
- e) In no case, the drum is stored on the flat i.e. with the flanges horizontal.
- f) Only cable jacks shall be employed for removing the cable from the drum. For removing the cables from the drums, the drum should be properly mounted on jacks on a cable wheel, making sure that the spindle is strong enough to carry the weight without bending and that it is laying horizontally in the bearings so as to prevent the drum creeping to the one side or the other while it is rotating. The drums should be mounted such that when the drum is turned against the direction of arrow, the cable is payed out from the top of the drum to avoid any danger of bending and breaking the cable if unreel from the bottom.

3. CABLE PULLING AND LAYING

- a) Cable rollers shall be used for pulling and laying of cables. Cable shall be properly handled while laying to avoid damage to the cables.
- b) Cables may be pulled by hand or by the use of pulling eye securely clamped to the conductors. Jacket armour or outer jacket shall be secured to the clamp to prevent relative movement. If mechanical means are used to pull on the conductors, force must not exceed values recommended by the manufacturer.
- c) When pulling cables, the bending radius, pulling tensions and wall pressure at bends shall be strictly in accordance with cable manufacturer's recommendations.
- d) The pulling eye shall be securely fastened to the ends of all the conductors so that the load is evenly distributed. The ends of all cables to which pulling eyes are attached shall be cut off before terminations are made. Bending radius for permanent bends shall not be less than 15 (fifteen) times outer diameter of the cable.

4. CABLE CUTTING AND SPLICING

- a) Cables cut from the drums, and distributed for various route lengths shall be carefully planned bearing in mind that splices shall not be allowed except on specified approval for larger length (cable splices are not permitted normally).
- b) All cables shall be cut to required lengths only after assessment of correct lengths required, by actual measurement at site. The contractor shall ensure that wastage of cables as short lengths is minimized, by resorting to most economical cable cutting schedule. Keeping maintenance aspect extra length of 2 meter at both ends added to the actual length(only for signal cables)

5. CABLING ON TRAYS/RACKS

Cabling may have to be carried out

- a) On ladder type (GI / FRP) cable trays/slotted channels.
 - b) In rigid steel conduits/ GI pipes.
 - c) in duct banks or embedded conduits, and
 - d) Buried underground/in concrete cable trenches.
- Power and control cables shall be properly segregated and clamped on the trays/racks.

- Laying of cables(in trenches in ground subject to owner's Consultant's permission)
- Cable racks for cable trays shall be fixed at a maximum interval of 1.5m
- A clearance equal to one diameter of the bigger cables shall be maintained between two adjacent higher rated power cables on the trays/racks/ risers and clamped by separate clamps which shall follow the profile of the cable. Common clamping/ strapping shall be done for a bunch of control cables and small power cables.
- Cables shall be laid direct in ground in all kinds of soil or in the prepared RCC ducts. If required, 50 mm dia (min.) GI pipe shall be provided wherever these cables cross the roads/water lines, sewerage lines etc. GI pipe shall also be provided wherever the cables enter the building.
- The trench cut through the road-ways or other paved areas inside building shall be restored to the same density and materials as in the surrounding areas at no extra cost. Black-topping of the road will, however, is not done by the contractor.
- All associated materials like sand, bricks, clamps and route markers etc., shall be supplied by the contractor. The cost for laying of cables shall be inclusive of all these items.
- Cable route markers shall be provided along straight runs of the cable and at locations approved by the engineer-in-charge, at intervals generally not exceeding 30 meters
- Approximately 2 m of surplus cable shall be left on each end of the cable, on each side of the underground joint, at entries and places as may be decided by the engineer-in-charge. The surplus cable shall be left in the form of a loop.
- All necessary frame works and fixings for the support of cables And accessories shall be supplied.
- Cables shall be suitably protected against heat & Mechanical damages.
- Cables shall be clamped at every 1 meters on the trays/racks slotted channels in trenches.
- Cable leading to cable box of equipment shall be supported at a distance of 450 mm from cable gland/cable box and cable gland shall be suitably earthed.
- Cable shall be clamped only after the cables are neatly arranged, dressed and kept in position.

6. CABLING IN CONDUITS/PIPES

- a) Cables through floor slabs/walls are to be passed through rigid, galvanized steel conduit wherever required.
- b) Cables entering or leaving the conduits shall be sealed with non-hardening silicon compounds. It is also contractor's responsibility to satisfy him-self regarding the conditions of the embedded conduits. Prior to pulling cables, each duct shall be rodded by suitable means. After rodding a 8 gauge pulling wire is to be left in each duct. The ends of the conduits shall be plugged when work is halted for any period of time.
- c) Cables leaving the ground / floor shall be protected up To 2m height by conduits / metallic guards.
- d) Wherever cables are taken in conduits both ends of the conduits shall be sealed after laying the cable to avoid the ingress of water.
- e) Laying of cables on walls/columns/ceiling/structures
- f) All the cables are to be neatly bunched and laid on surface of walls/ columns/ ceiling / structures. All the cables laid on surface of walls / columns / ceiling shall be supported by using clamps / rawl plugs and screws / cable hooks. No wooden plugs shall be used.
- g) All the cables laid on structures shall be fixed with suitable clamps.
- h) Care is to be taken while laying/ pulling so that insulation of cables does not get damaged.
- i) Cables are to be supported at minimum regular intervals of 0.5 m horizontal and 1 m vertical run.

7. EARTHING CONNECTION TO THE EQUIPMENTS/PANELS.

- a) All the equipments like junction boxes, flame proof push button stations, hydraulic power pack motors, plc cabinet, MCC cabinet and console earthing to be done with suitable copper conductor/ strip .
- b) It should be noted that earthing should be maintained in the following fashion.
- c) Type of the earthing with 10 SWG copper conductor.
 - Single point Copper conductor earthing for - all transmitters JB3,JB4 and JB5.
 - Two point Copper conductor earthing for - All Flameproof Push button stations, Machine Junction Box, Vibro screen 1 & 2 .
- d) Type of the earthing with 25mmWx5mmT copper strip.
 - PLC Cabinet, Console, MCC Cabinet, HPP Body, Agitator Motor , cooler and mixer machine body.
- e) All associated materials required for earthing shall be supplied by the contractor. The cost for laying of cables shall be inclusive of all these items.
- f) **Certificate of Purity of Copper (95%) need to be produced and got approved by Engineer in charge before commencement of Work.**

8. CABLE TERMINATION WORK

- a) All end termination to be done as per drawing provided by CMTI.
- b) Engraved metal tags to be tied at both the end of the cables ease of identification.
- c) Cables taken for termination work in any equipment/panel must be fixed with required size of cable gland with armoured locking arrangement. Individual core/wire identification to be done with number tags and has to be crimped with suitable lugs at both the ends.

9. CABLE ENTRY AT BUILDINGS

- a) Pressure seals and fire barriers shall be provided at the places where cables enter pressurized electrical rooms.
- b) All wall openings shall be effectively sealed after installation of cables to avoid water leakage.
- c) Wherever buried cables enter the buildings the same shall be taken through GI pipes embedded at the entry portion. After taking cables through the above pipes, the same shall be sealed by using suitable compound so as to avoid ingress of water.

SCHEDULE "A "

TERMS AND CONDITIONS OF CONTRACT

1. Definitions:

In ensuring these conditions, the specifications, Schedule of quantities and Contract Agreement, the following words shall have the meanings herein except where the context otherwise requires:

EMPLOYER	:	Shall include its successors and assigns and all the persons for the time being in the management of the Institute.
CONTRACTOR	:	Shall mean and shall include his/their legal representative, assigns or successors.
SITE	:	Shall mean the site of the contract works prescribed by institute.
THIS CONTRACT Conditions	:	Shall mean invitation to Tender, General Instructions and of Tender, Letter of Acceptance, Agreement and Conditions of Contract, The Appendix, Specifications, the Schedule of Quantities attached hereto and duly signed.
COMMISSIONING	:	Shall mean carrying out 'Performance tests' and for providing trouble free operation of electrical installations and equipments.
NOTICE IN WRITING or WRITTEN NOTICE	:	Shall mean a notice in writing typed or printed characters sent (unless delivered personally or otherwise proved to have been received) by Registered post to the last known private or business address or registered office of the addresses and shall be deemed to have been received when in the ordinary course of post it would have been delivered
ACT OF INSOLVENCY	:	Shall mean any Act of Insolvency defined by the Presidency Towns Insolvency Act, or the Provincial Insolvency Act or any act amending such original.
THIS WORKS	:	Shall mean the LT Electrical works

2. EXTRA WORK TO BE APPROVED BY THE EMPLOYER:

Notwithstanding anything herein contained, the contractor or their representative shall not, without the prior concurrence in writing of the employer, issue any instructions, verbal or in writing for extra work. The contractor shall submit to employer a statement of such extra work giving quantities and rates duly supported by an analysis of such rates, vouchers etc., The employer shall not be liable for payment for such extra work until such work is sanctioned by him.

3. AGREEMENT COPIES TO BE SUPPLIED:

A certified copy of the contract shall remain in the custody of the employer and shall be produced by them at their office as and when required by the contractor. The contractor on the signing hereof shall be furnished by the employer free of cost with a certified copy of the agreement, one copy of the specifications, two copies of the said drawings and two copies of all further drawings issued during the progress of the works. Any further copies of such drawings required by the contractor shall be paid for by him. The contractor shall keep one copy of all the drawings on the works and the employer, or their representative shall at all reasonable times have access to the same. Before the issue of final certificate to the contractor, he shall forthwith return to the employer all drawings and specifications.

4. CONTRACTOR TO CONFORM TO LOCAL REGULATIONS:

The contractor shall conform to the provisions of any Act of the legislature relating to the works and to the regulations and bye-laws of any authority and of other companies with whose systems structure is proposed to be connected and shall before making any variations from the drawings or specifications that may be necessitated by so conforming give to the employer written notice, specifying the variations proposed to be made and the reasons for its, and apply for instructions thereon. In case the contractor shall not, within ten days, receive such instruction, he shall proceed with the work conforming to the provisions, regulation, or Bye-laws in question and any variation so necessitated shall be dealt with Under Clause No.10.

The contractor shall bring to the attention of the employer all notices required by the said Act, Regulations, or Bye-laws to be given to any authority and pay to such authority, or to any public office all fee that may be properly chargeable in respect of the works, and lodge the receipts with the employer. The contractor shall indemnify the employer against all the claims in respect of patent rights and shall himself pay all royalties, license fees, damages, costs and charges of all and every sort that may be legally incurred in respect thereof.

5. CONTRACTOR RESPONSIBLE FOR SETTING OUT WORKS AND FOR RECTIFYING BAD WORKS:

The contractor shall set out the works and shall be responsible for the true and perfect setting of the same and for the correctness of the positions, levels, dimensions and alignment of all parts thereof. If at any time any error in this respect shall appear during the progress of the works, the contractor shall at his own expense rectify such error to the satisfaction of the employer.

6. MATERIALS AND WORKMANSHIP TO CONFORM TO DESCRIPTION:

All materials and workmanship shall be of the respective kinds described in the schedule of quantities and or specifications and in accordance with the employers instructions and the contractor shall upon the request of the employer furnish them with all invoices, accounts, receipts and other vouchers, accounts to prove that the materials comply therewith. The contractors shall at his own cost arrange for and or carryout any test of any materials which the employer may require.

7. ASSIGNMENT AND SUBLETTING:

The whole of the works included in the contract, shall be executed by the contractor and the contractor shall not directly or indirectly transfer, assign or sublet the contract or any part share thereof or interest therein without the written consent of the employer, and no undertaking shall relieve the contractor from the full and entire responsibility of the contractor or from active superintendence of the works during their progress.

8. VARIATIONS NOT TO VIOLATE THE CONTRACT:

No alteration, omission or variation shall vitiate this contract but in case the employer think proper at any time during the progress of the works to make any alteration, or additions to or omissions from the works or any alteration in the kind or quality of the materials to be used therein and shall give notice thereof in writing under their hand to the contractor, the contractor shall alter, add to or omit from the works, as the case may require, in accordance with such notice, but the contractor shall not do any work extra to or make any alterations or additions or to omit from the works or any deviations from any of the provisions of the contract, stipulations, specification of contract drawings without the previous consent in writing of the employer and the value of such extras, alterations, additions or omissions shall in all cases be determined by the employer with the prior approval in writing of the employer in accordance with the provisions of clause 10 hereof and the same shall be added to or deducted from the contract amount accordingly.

9. SUFFICIENCY OF SCHEDULE OF QUANTITIES:

The contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the prices stated in the schedule of quantities and or the schedule of rates and prices which rates and prices shall cover all his obligations under the contract, and all matters and things necessary for the proper completion of the works.

10. PRICES FOR EXTRA WORK:

Should it be found after the completion of the works from measurements taken (in accordance with the previous paragraph) that any of the quantities or amounts or works thus ascertained are less or greater than the quantities or amounts specified for

the works in the priced schedule of quantities and / or tender or that any variation is made, the valuation of such quantities, amounts or variations, unless previously or otherwise agreed upon, shall be made in accordance with the following rules:

- a) The net rates or prices in the original tender shall determine the valuation of the extra works, where such extra work is of similar character and executed under similar conditions as the work priced therein.
- b) The net prices of the original tender shall determine the value of items omitted provided if omissions vary the conditions under which any remaining items of the works are carried out the prices for the same shall be valued under sub-clause (c) hereof.
- c) Where the extra works are not of similar character and / or executed under similar conditions as aforesaid or where the omissions vary the conditions under which any remaining items of works are carried out or if the amount of any omissions or additions relative to the amount of the whole of the contract works or to any part thereof shall be such that in the opinion of the employer the net rate or price contained in the priced schedule of quantities or Tender for any item of the works involved loss or expense beyond that reasonably contemplated by the contractor is by reason of such omissions or additions rendered unreasonable or inapplicable, the employer shall fix such other rate or price as in the circumstances they shall think reasonable and proper, with the prior approval in writing of the employer. The payment will be made on actual data rates worked out by the employer on actual cost of materials and labour with allowance of 5% overhead and 10% contractors profit.

The measurement and valuation in respect of the contract shall be completed within the “period of final measurements” stated in the Schedule ‘B’.

11. DEFECTS LIABILITY PERIOD:

Any defect, shrinkage, settlement or other faults which may appear within the “Defects Liability Period” after the actual completion of the work, arising in the opinion of the employer from materials or workmanship not in accordance with the contract, shall upon the directions in writing of the employer, and within such reasonable times as shall be specified therein, be amended and made good by the contractor, at his own cost and in case of default the employer may employ and pay other persons to amend and made good such defects, shrinkage, settlements or other faults, and all damages, loss and expenses consequent thereon or incidental thereto shall be made good and borne by the contractor and such damage, loss and expenses shall be recoverable from him by the employer or may be deducted by the employer from any moneys due or that may become due to the contractor.

12. COMPLETION CERTIFICATE:

The works shall not be considered as complete until the employer have certified in writing that they have been virtually completed and the defects liability period shall commence from the date of such certificate.

13. OTHER PERSONS ENGAGED BY EMPLOYER:

The employer reserves the right to use the premises and any portion of the site for the execution of any work not included in this contract which he may desire to have carried out by other persons, and the contractor is to allow all reasonable facilities for the execution of such work but is not required to provide any plant or materials for the execution of such work except by special arrangement with the employer, such work shall be carried out in such manner as not to impede the progress of the works included in the contract.

14. LIABILITY FOR ACCIDENTS AND DAMAGE AND INSURANCE:

- i) The contractor shall, during the execution of the work, properly cover up and protect any part of the work liable to damage by exposure to the weather, and shall take every reasonable precaution against damage to the work from any cause.
- ii) All contractor’s equipment shall be at the sole risk of the contractor.
- iii) The contractor will insure all his personnel employed for the execution of the work, against any personal injury may be sustained by them as a result of the execution of the works and present satisfactory evidence that such insurance is in force.

The contractor shall be responsible for workman’s compensation insurance and all other statutory requirement in regard to the personnel in the contractor’s employment.

15. DATE OF COMMENCEMENT:

The contractor shall be allowed admittance to the site on the 'Date of commencement' stated in the Schedule ' B ' and he shall thereupon and forthwith begin the works and shall regularly proceed with and complete the same on or before the 'Day of Completion' stated in the Schedule ' B ' subjected to the provisions for extension of time hereinafter contained.

16. LIQUIDATED DAMAGES FOR NON-COMPLETION:

If the contractor fails to complete the works by the date stated in the Schedule ' B ' hereof and the employer certifies that in his opinion the same ought to have been reasonably completed, the contractor shall pay or allow the employer the sum named in the Schedule ' B ' as 'Liquidated Damages' for the period during which the said works shall so remain incomplete and the employer may deduct such damages from any moneys due to the contractor.

17. FORCE MAJEURE:

The right of the contractor to proceed with the work shall not be terminated because of any delay in the completion of the work due to unforeseen causes beyond the control and without the fault or negligence of the contractor, including but not limited to acts of God, or the public enemy, restraints of the Sovereign State, fires, floods, unusually severe weather and acts of the employer.

If the contractor is wholly prevented from performance of the contract for a period in excess of thirty (30) consecutive days because of a Force Majeure, the employer may terminate this contract by thirty (30) days written notice delivered to the contractor and if the period of the Force Majeure exceeds ninety (90) consecutive days, the contractor may terminate this contract by thirty (30) days written notice to the employer. In the event, this contract is so terminated, the contractor shall be paid all costs actually incurred (which costs shall not include any other expenses of the contractor such as loss or profits, salaries of contractor's employees, expenses of contractor towards maintenance of his establishment etc.) for the work executed up to the date of termination. Failure to agree on an equitable adjustment shall be deemed to be dispute.

18. DELAY AND EXTENSION OF TIME:

If in the opinion of the employer the works to be delayed:

- a) by force majeure; or
- b) by reason of any exceptionally inclement weather of;
- c) by reason of proceedings taken or threatened by or dispute with adjoining owners or public authorities arising otherwise than through the contractor's own default.
- d) by the works or unavoidable delays of other contractors or tradesmen engaged or nominated by the employer and not referred to in the schedule of quantities and / specifications, or
- e) by reasons of civil commotion, local combination of workmen of strike or lock out affecting any of the building traders.
- f) in consequence of the contractor not having received or in due time necessary instructions from the employer for which he shall have specifically applied in writing.

The employer may make a fair and reasonable extension of time for completion of the contract works; in case of such strike or lockout the contractor shall as soon as may be, give written notice thereof to the employer, but the contractor shall nevertheless constantly use his endeavor to prevent delay and shall do all that may reasonably be required to the satisfaction of the employer to proceed with the work.

19. TERMINATION FOR DEFAULT:

If the contractor fails to fulfill the terms of contract and or, where employer is satisfied that it is not in the interest of the employer to persist with the contract with the defaulting contractor, the employer is at liberty to rescind the contract where upon **Security Deposit & Performance Guarantee** amount of the contractor stands forfeited.

Further the employer is at liberty :

- a) to employ labour paid by the employer and supply the materials to carry out the work for and on behalf of the contractor and
- b) to measure up the work of the contractor and to take such part there of as shall be unexecuted out of his hand and to give to another contractor at the risk and cost of the original contractor.

20. ARBITRATION:

- i) If at any time, question, dispute, or difference shall arise between the employer and the contractor under or in connection with the contract either party shall as soon as reasonably practicable give to the other, notice in writing of the existence of such question, dispute or difference specifying its nature and the point of issue and the same shall be referred to arbitration in accordance with the provisions of the Indian Arbitration Act 1940. The award of such arbitration shall be final and binding on the parties hereto.
- ii) Performance of the contract shall continue during arbitration and any subsequent proceedings.
- iii) The venue of all arbitration shall be in Bangalore.

21. RIGHT OF TECHNICAL SCRUTINY OF FINAL BILL:

The employer shall have a right to cause a technical examination of the works and the final bill of the contractor including all supporting vouchers, abstracts, etc, to be made at the time of payment of the final bill. If as a result of this examination or otherwise, any sum is found to have been overpaid or over-certified it shall be lawful for the employer to recover such overpayments.

SITE WORKING CONDITIONS

1. SITE ESTABLISHMENT:

The security of the contractor's equipment and material is his own responsibility. He will ascertain the security arrangements that are made on site by the owner and take any further precautions he may think necessary. The owner accepts no liability for loss or damage to the contractor's plant, tools, or materials, unless caused by the proven negligence of the owner's staff. When the work has been taken over by the owner, responsibility is accepted for the permanent work.

The contractor shall make it a point to hand over to the Security Staff at gate a list of their tools and equipment while bringing them to the site of work. While taking out such tools and equipment after the completion of the jobs, the same will be checked by the Security Staff with the list given at the time of taking them in. If such a list is not given the burden of proof that such tools and equipment belong to the contractor will be on the contractor and without such proof such tools and plants will not be allowed to be taken out.

It may please be noted that the work need to be carried out at M/s Vikram Sarabhai Space Centre, ISRO, Thiruvananthapuram, Kerala. All safety and security related matters need to be taken care by the successful contractor including entry and exit of their materials and labours at VSSC.

1.2 First Aid :

The contractor may make use of the owner's qualified first-aid personnel and ambulance where such facilities are available. An agreed charge will be made for each service rendered from date of commencement of contract.

1.3 COMPLETION OF WORK

Before finally leaving site all the contractor's huts, plants, tools and rubbish must be removed and the site left clean and tidy.

1.4 WORKING AND SAFETY REGULATIONS

1.5 The contractor will observe all statutory and legal requirement by Central and State Governments applying to the work as well as any local regulations applying to the site issued by the employer or other authority.

1.6 Particular attention is drawn to the following:

- i) In case of accident, the employer will be informed in writing forthwith. The contractor will strictly follow regulations laid down by factory inspector, Government and State authorities in this regard.
- ii) Fencing all contractor's plant, platforms, excavations etc.,
- iii) Compliance with all electricity regulations.

1.7 Staircase, doors or gangways must not be obstructed in any way that will interfere with means of access or escape.

1.8 No excavation will be started without the permission of employer who will inform the contractor of the position of any pipes or cables now to be buried in the area. All excavations must be effectively relied off at all times, or completely boarded over and properly marked during the hours of darkness by red warning lamps, using flame proof warning lamps in non-smoking areas. During the hours of darkness heaps of debris or material which cannot be immediately removed must be heaped in such a way as to leave adequate passage way.

SCHEDULE "B"

PAYMENT AND PENALTY

1	Name of work	Electrical cable installation works of VM-2 Facility at VSSC, Thiruvananthapuram
2	Date of commencement of work	15 days from the date of handing over of site
3	Date of completion	30 days from the date of commencement of work.
4	Defects liability period	Twelve months from the date of completion of work
5	Minimum value of work for interim Certificate of payment	Rs.3,00,000/-
6	Security Deposit	A sum @ 5% of gross amount of bill shall be deducted from each running bill, till the sum along with the sum already deposited as earnest money, amounts to security deposit @ 5% of the tendered amount of the work.
7	Release of Security Deposit	At the expiry of defects liability period
8	Refund of Performance Guarantee Deposit	The Performance Guarantee Deposit shall be refunded soon after completion of work, along with final bill.
9	Compensation for delay of work	1% (one percent) of tender value per week, limited to 10% (Ten percent) of tendered value.
10	Period of submitting the final bill by the contractors.	Within TWO months from the date of actual completion.
11	Terms of contract and specifications	As per schedules.

Contractors seal & signature