



GOVERNMENT OF INDIA  
CENTRAL PUBLIC WORKS DEPARTMENT  
OFFICE OF THE EXECUTIVE ENGINEER (E)-HYD-I  
HYDERABAD – 500 095.

**NOTICE INVITING "e-TENDER"**

**NIT No. 42/EE(E)-Hyd-I/2026-27**

**Name of Work:** Construction of Special Seeds Storage Structure at IIOR,  
Rajendranagar, Hyderabad.

**Estimated Cost put to Tender: Rs. 93,00,466/-**

**INDEX**

Name of Work:Construction of Special Seeds Storage Structure at IIOR, Rajendranagar, Hyderabad.

<b>S. No.</b>	<b>Contents</b>	<b>Page No.</b>
1.	Index	2
2.	Notice Inviting e-tender	3
3.	Information and instruction for Contractor for tendering	4-9
4.	CPWD-6	10-13
5.	Percentage tender for works (Form CPWD-7) i/c Schedule A to F	14-23
6.	Integrity Pact	24-30
7.	Form of Earnest Money (Bank Guarantee)	31
8.	Format of Receipt of Deposition of Original EMD	32
9.	<a href="#">Modification for Mode of Deposit Earnest Money</a>	33
10.	Form of Performance Security	34-35
11.	MOU, Form –G & Form- H	36-39
12.	Special condition	40
13.	Additional conditions & Specifications	41-45
14.	Commercial & Technical condition of IEI	46-50
13.	Additional conditions & Specifications for Cold storage	51-52
14.	Additional conditions & Specifications for DG Set	53-66
15.	Technical specifications for UPS	67-68
16.	Specifications for Online UPS System ( 3 KVA UPS)	69
17.	List of Approved makes	70-72
17.	Schedule of Work	73-85

Certified that this NIT comprising Page No. 1 to 85

Executive Engineer (E)-HYD-I  
CPWD, Hyderabad

**CENTRAL PUBLIC WORKS DEPARTMENT  
NOTICE INVITING e-TENDERS**

The Executive Engineer (E)-Hyderabad-I, C.P.W.D., 2nd floor, Nirman Bhavan, Sultan Bazar, Hyderabad-500095 (Phone No. 040-24657854, email id: eeecd1.cpwd@gov.in) on behalf of President of India invites online Percentage rate tenders in single bid system from approved & eligible contractors of CPWD of appropriate class under Composite Category for execution of the following work:

NIT No. **42/EE(E)-Hyd-I/2026-27**, Construction of Special Seeds Storage Structure at IIOR, Rajendranagar, Hyderabad. ECPT: **Rs.93,00,466/- EMD: Rs. 1,86,009/-**, Period of Completion: 90 Days, Last date and time of submission of bid: upto 15:00 Hrs on 14/07/2026 , Date of opening of bid: at 15:30 Hrs. on 14/07/2026 .

The Tender forms and other details can be obtained from the website <https://etender.cpwd.gov.in> and [www.eprocure.gov.in](http://www.eprocure.gov.in).

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Executive Engineer (E)-HYD-I  
CPWD/Hyderabad

**INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR e-TENDERING**

The Executive Engineer (E)-Hyderabad-I, C.P.W.D., 2nd floor, Nirman Bhavan, Sultan Bazar, Hyderabad-500095 (Phone No. 040-24657854, email id: [eeehced1.cpwd@gov.in](mailto:eeehced1.cpwd@gov.in)) on behalf of President of India invites online Percentage rate tenders in single bid system from approved & eligible contractors of CPWD of appropriate class under Composite Category for execution of the following work:

S. No.	Description	Details
1	NIT No.	42/EE(E)-Hyd-I/2026-27,
2	Name of work & Location	Construction of Special Seeds Storage Structure at IIOR, Rajendranagar, Hyderabad.
3	Estimated cost put to tender	Rs. 93,00,466/-
4	Earnest Money Deposit (EMD)	Rs. 1,86,009/-
5	Period of completion	90 Days
6	Last date & time of submission of bid, EMD declaration, e-tender processing fee and other Documents	Upto 15:00 Hrs on 14/07/2026
7	Time & date of opening of Price bid	at 15:30 Hrs on 14/07/2026

1. Only the enlisted contractors of Class-III, IV & V by the enlisting authority i.e. SDG(Chennai), ADG(Kochi), ADG(Bengaluru) and ADG(Hyderabad) shall tender within their tendering limit and tendering jurisdiction i.e. Tamil Nadu, Andaman & Nicobar, Puduchery, Kerala, Karnataka, Lakshadweep, Andhra Pradesh and Telangana of Southern Region(SR), as per the Rules for Enlistment of Contractors in CPWD,2026. Further, the enlisted contractors of class-III, IV and V shall also have to meet the other requirements of eligibility as per NIT conditions.
2. The work should be carried out by an agency having valid Electrical license of appropriate voltage issued by State Government under Clause 45 of compilation of rule of I.E. Rules 1956 or as amended from time to time. In case main contractor does not have Electrical License then he has to enter into a Memorandum of understanding with the approved associated contractor on Non-Judicial Stamp Paper as per the enclosed proforma and submit this MOU duly completed (duly signed by him and the associated contractor) before commencement of work.
3. The firms/ contractors who fulfill the following requirements shall be eligible to participate in tender. Joint Ventures are not accepted.
3. The intending bidder must read the terms and conditions of CPWD-6 carefully. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.
4. Information and Instructions for bidders posted on website shall form part of bid document.
5. The bid document consisting of specifications and the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and

downloaded from website <https://etender.cpwd.gov.in> or [www.cpwd.gov.in](http://www.cpwd.gov.in) free of cost.

6. Bidders are advised to keep visiting the above-mentioned web-sites from time to time (till the deadline for bid submission) for any updates in respect of the tender documents, if any. Failure to do so shall not absolve the applicant of his liabilities to submit the applications complete in all respect including updates thereof, if any. An incomplete application may be liable for rejection.

**7. For components of E&M works, the eligibility criteria will be as detailed below**

The successful bidder should either himself meet the eligibility component of maintenance work criteria as defined below or will have to associate with agencies for various E&M works who meet the eligibility criteria after award of work and has to submit details of such agency(s) conforming eligibility condition as defined below to Engineer-In-Charge within 5 (Five) days of issue of letter of award. Name of agency to be associated shall be approved by Engineer-in-charge

Sl no	Component of E& M works	Estimated cost in Rs.	Eligibility for contractor association
1	Providing Panels, Cabling & Earthing	<b>32,72,728/-</b>	The main contractor shall associate with contractor registered in appropriate class of composite category in CPWD for execution of this Sub Head of work, possessing valid Electrical contractor license of appropriate Voltage issued by competent authority.
2	SITC of Cold Room Storage	<b>79,95,620/-</b>	<p>The main contractor shall have to associate with agency fulfilling the following eligibility criteria possessing valid electrical license issued by competent authority (if he himself does not fulfill the eligibility criteria) having successfully completed during last seven years ending up to previous day of last date of submission of tender as given below with completion certificate issued by an officer not below the rank of Executive Engineer or equivalent duly attested.</p> <p>i) Three Similar completed works each of value not less than <b>Rs. 31.98 lakhs.</b> or ii) Two Similar completed works each of value not less than <b>Rs.47.97 Lakhs.</b> or iii) One Similar completed work of value not less than <b>Rs. 63.96 Lakhs.</b></p> <p>Similar work shall mean "<b>SITC of Cold Room Storage</b>".</p> <p>However, the Composite category contractor shall also be eligible to carry out himself without associating any specialized agency provided:</p> <p>(a) He fulfills the prescribed eligibility criteria respectively for this work or</p>

			(b) He directly procures the equipment of approved make from manufacturer and gets it installed from authorized agency/service provider of the manufacturer/specialized agency, all as per the eligibility criteria mentioned as above.
3	SITC of 160 KVA DG Set	<b>12,49,613/-</b>	<p>The main contractor shall have to associate with agency fulfilling the following eligibility criteria possessing valid electrical license issued by competent authority (if he himself does not fulfill the eligibility criteria) having successfully completed during last seven years ending up to previous day of last date of submission of tender as given below with completion certificate issued by an officer not below the rank of Executive Engineer or equivalent duly attested.</p> <p>i) Three Similar completed works each of value not less than <b>Rs. 4.99 lakhs.</b> or ii) Two Similar completed works each of value not less than <b>Rs.7.49 Lakhs.</b> or iii) One Similar completed work of value not less than <b>Rs. 9.99 Lakhs.</b></p> <p>Similar work shall mean " <b>SITC of 160 KVA DG Set</b>".</p> <p>However, the Composite category contractor shall also be eligible to carry out himself without associating any specialized agency provided:</p> <p>(a) He fulfills the prescribed eligibility criteria respectively for this work or (b) He directly procures the equipment of approved make from manufacturer and gets it installed from authorized agency/service provider of the manufacturer/specialized agency, all as per the eligibility criteria mentioned as above.</p>
4	SITC of 3 KVA online UPS System	<b>55,233/-</b>	<p>The main contractor shall have to associate with agency fulfilling the following eligibility criteria possessing valid electrical license issued by competent authority (if he himself does not fulfill the eligibility criteria) having successfully completed during last seven years ending up to previous day of last date of submission of tender as given below with completion certificate issued by an officer not below the rank of Executive Engineer or equivalent duly attested.</p>

		<p>i) Three Similar completed works each of value not less than <b>Rs. 0.22 lakhs.</b> or ii) Two Similar completed works each of value not less than <b>Rs.0.33 Lakhs.</b> or iii) One Similar completed work of value not less than <b>Rs. 0.44 Lakhs.</b></p> <p>Similar work shall mean " <b>SITC of 3 KVA Online UPS System</b>".</p> <p>However, the Composite category contractor shall also be eligible to carry out himself without associating any specialized agency provided:</p> <p>(a) He fulfills the prescribed eligibility criteria respectively for this work or (b) He directly procures the equipment of approved make from manufacturer and gets it installed from authorized agency/service provider of the manufacturer/specialized agency, all as per the eligibility criteria mentioned as above.</p>
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Note1: Components of work executed other than those included in definition of similar work shall be deducted while calculating cost of similar work. Bidder shall submit abstract of cost of work in support of this.

Note 2: For the purpose, "Cost of works" shall mean gross value of the completed work including the cost of material supplied by the Government / client , but excluding those supplied free of cost. This should be certified by an officer not below the rank of Executive Engineer / project manager or equivalent.

Note-3: The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple interest rate of 7% per annum, calculated from the date of completion to the previous day of the last date of receipt of application for tender.

8. The main contractor will submit MOU signed with eligible registered composite contractor of CPWD or eligible and approved agency. The MOU in the enclosed form shall be signed by both the parties" i.e. main contractor as 1<sup>st</sup> party and associated approved agency as 2<sup>nd</sup> party. Independently for "Construction of Special Seeds Storage Structure at IIOR, Rajendranagar, Hyderabad. " If the main contractor fails to associate agency for execution of minor components of work within 7 days of award of work or furnishes incomplete details or furnishes details of ineligible agencies even after the tenderer is given due opportunity, the entire scope of such component of work shall be withdrawn from the tender and the same shall be got executed by the Engineer-in-Charge without any notice at the risk and cost of the main contractor.
- i. Verifiable completion certificates of the work, registration/approval documents as the case may be, duly attested by the applicant shall be submitted within 7 days of award of work Valid.
  - ii. Self-attested GST registration documents in respect of the associated agencies shall be submitted within 7 days of award of work.

9. Earnest Money in the form of Treasury Challan or Demand Draft or Pay order or Bankers Cheque or Deposit at Call Receipt or Fixed Deposit Receipt drawn in favour of **Executive Engineer (E), HCED-I, C.P.W.D., Hyderabad** shall be scanned and uploaded to the e-tendering website within the period of bid submission. The original EMD should be deposited either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission. The EMD receiving Executive Engineer (including NIT issuing EE/AE) shall issue a receipt of deposition of earnest money deposit to the bidder in a prescribed format (enclosed) uploaded by tender inviting EE in the NIT. This receipt shall also be uploaded to the e-tendering website by the intending bidder upto the specified bid submission date and time.

A part of earnest money is acceptable in the form of bank guarantee also. In such case, minimum 50% of earnest money or Rs. 20 lakh, whichever is less, shall have to be deposited in shape prescribed above, and balance may be deposited in shape of Bank Guarantee of any scheduled Bank having validity for six months or more from the last date of receipt of bids which is to be scanned and uploaded by the intending bidders.

10. Copy of Enlistment Order / Certificate of work experience / other documents as specified in the press notice shall be scanned and uploaded to the e-tendering website within the period of bid submission. However, certified copy of all the scanned and uploaded documents as specified in press notice shall have to be submitted by the lowest bidder only within a week physically in the office of tender opening authority.
11. Online bid documents submitted by intending bidders shall be opened only of those bidders, whose EMD deposited with any division office of CPWD and other documents scanned and uploaded are found in order.
12. The bid can only be submitted after depositing e-tender Processing Fee as applicable in favor of ITI Limited through their e-gateway by credit/debit card, internet banking or RTGS/NEFT facility.

The contractor already registered on the e-tendering portal will have option to continue by paying tender processing fee upto one year from the date of registration, or to switchover to (new) registration without tender processing fee any time. All new registrations from 01.04.2015 will be without tender processing fee.

Those contractors not registered on the website mentioned above, are required to get registered beforehand. If needed they can be imparted training on online bidding process as per details available on the website

13. The intending bidder must have valid class-III digital signature to submit the bid.
14. On opening date, the contractor can login and see the bid opening process. After opening of bids, he will receive the competitor bid sheets
15. Contractor can upload documents in the form of JPG format and PDF format.
16. Contractor must ensure to quote the percentage above/below /at par. Therefore, if the cell percentage is left blank, the amount shall be computed as "0" (ZERO). Bidder has to take care of this point. The rates quoted by the tenderer, shall be firm and inclusive of all the prevailing taxes and GST etc.

17. The department reserves the right to reject any prospective application without assigning any reason and to restrict the list of qualified contractors to any number deemed suitable by it, if too many bids are received satisfying the laid down criterion.
18. If any information furnished by the applicant is found incorrect at a later stage, he shall be liable to be debarred from tendering/taking up of works in CPWD. The department reserves the right to verify the particulars furnished by the applicant independently.
19. The prospective bidder shall use all information relating to the Tender which is Obtained, whether in writing, pictorially form in connection with the Tender and other commercial information of a confidential nature exclusively for the purpose of Tender and not for any other purposes.
20. The bid submitted shall become invalid if;
  - 1 The bidder is found ineligible.
  - 2 The bidder does not deposit original EMD with division office of any Executive Engineer, CPWD (The EMD Document shall only be issued from the place in which the office of receiving division office is situated).
  - 3 **The bidder does not upload all the documents (including GST registration/ Undertaking as applicable) as stipulated in the bid document including the copy of receipt for deposition of original EMD.**
  - 4 If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies as submitted physically by the lowest tenderer in the office of tender opening authority.

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

- i Treasury Challan/Demand Draft/Pay order or Banker`s Cheque / Deposit at Call Receipt / FDR / Bank Guarantee of any Scheduled Bank against EMD.
- ii. Enlistment Order of the Contractor.
- iii. Bidder to upload receipt of deposition of EMD.
- iv. ERP Training Certificate
- v. **Valid GST Registration for work contract**  
GST registration certificate of the state in the work is to be taken up, if already obtained by the bidder.

If the bidder has not obtained GST registration in the Telangana State in which the work is to be taken up or as required by GST authorities, then in such a case the bidder shall scan and upload following undertaking along with other bid documents.

“If work is awarded to me, I/we shall obtain GST registration certificate of the State in which the work is to be taken up, within one month from the date of receipt of award letter or before release of any payment by CPWD, whichever is earlier, failing which I/We shall be responsible for any delay in payments which will be due towards me/ us on account of the work executed and / or for any action taken by CPWD or GST department in this regard.

Executive Engineer (E)-HYD-I  
CPWD, Hyderabad

### CPWD 6 for e-Tender

The Executive Engineer (E)-Hyderabad-I, C.P.W.D., 2nd floor, Nirman Bhavan, Sultan Bazar, Hyderabad-500095 (Phone No. 040-24657854, email id: [eeehced1.cpwd@gov.in](mailto:eeehced1.cpwd@gov.in)) on behalf of President of India invites online Percentage rate tenders in single bid system from approved & eligible contractors of CPWD of appropriate class under Composite Category for execution of the following work: "Construction of Special Seeds Storage Structure at IIOR, Rajendranagar, Hyderabad. "

1.1 The work is estimated to cost **Rs. 93,00,466/-**. This estimate however is given merely as a rough guide.

1.1.1 The authority competent to approve NIT for the combined cost and belonging to the major discipline will consolidate NITs for calling the bids. He will also nominate Division which will deal all matters relating to the invitation of bids.

For composite bid, besides indicating the combined estimated cost put to bid, should clearly indicate the estimated cost of each component separately. The eligibility of bidders will correspond to the combined estimated cost of different components put to bid.

2. Only the enlisted contractors of Class-III, IV & V by the enlisting authority i.e. SDG(Chennai), ADG(Kochi), ADG(Bengaluru) and ADG(Hyderabad) shall tender within their tendering limit and tendering jurisdiction i.e. Tamil Nadu, Andaman & Nicobar, Puduchery, Kerala, Karnataka, Lakshadweep, Andhra Pradesh and Telangana of Southern Region(SR), as per the Rules for Enlistment of Contractors in CPWD,2026. Further, the enlisted contractors of class-III, IV and V shall also have to meet the other requirements of eligibility as per NIT conditions.
3. Agreement shall be drawn with the successful bidders on prescribed Form No.CPWD7/8 (or other Standard Form as mentioned) which is available as a Govt. of India Publication and also available on website [www.cpwd.gov.in](http://www.cpwd.gov.in). Bidders shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.
4. The time allowed for carrying out the work will be **90 Days** from the date of start as defined in schedule "F" or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the bid documents.
5. The site for the work is available.
6. The bid document consisting of ~~plans~~, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents, except Standard General Conditions Of Contract Form, can be seen from website <https://etender.cpwd.gov.in> or [www.cpwd.gov.in](http://www.cpwd.gov.in) free of cost.
7. After submission of the bid the contractor can re-submit revised bid any number of times but before last time and date of submission of bid as notified.
8. While submitting the revised bid, contractor can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the items) but before last time and date of submission of bid as notified.

8. The bid can only be submitted **after depositing e-tender Processing Fee as Applicable in favour of ITI Limited through their e-gateway by credit/debit card, internet banking or RTGS/NEFT facility.**

The contractor already registered on the e-tendering portal will have option to continue by paying tender processing fee upto one year from the date of registration, or to switch over to (new) registration without tender processing fee any time. All new registrations from 01.04.2015 will be without tender processing fee.

9. Earnest Money in the form of Treasury Challan or Demand Draft or Pay order or Bankers Cheque or Deposit at Call Receipt or Fixed Deposit Receipt (drawn in favour of **Executive Engineer(E),HCED-I, CPWD, Hyderabad** shall be scanned and uploaded to the e-tendering website within the period of bid submission. The original EMD should be deposited either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission. The EMD receiving Executive Engineer shall issue a receipt of deposition of earnest money deposit to the bidder in a prescribed format (enclosed) uploaded by tender inviting EE in the NIT.

This receipt shall also be uploaded to the e-tendering website by the intending bidder up to the specified bid submission date and time.

Apart of earnest money is acceptable in the form of bank guarantee also. In such case, minimum 50% of earnest money or Rs.20lac, whichever is less, shall have to be deposited in shape prescribed above, and balance may be deposited in shape of Bank Guarantee of any scheduled Bank having validity for six months or more from the last date of receipt of bids which is to be scanned and uploaded by the intending bidders.

Copy of Enlistment Order / Certificate of work experience / other documents as specified in the press notice shall be scanned and uploaded to the e-tendering website within the period of bid submission. However, certified copy of all the scanned and uploaded documents as specified in press notice shall have to be submitted by the lowest bidder only within a week physically in the office of tender opening authority.

Online bid documents submitted by intending bidders shall be opened only of those bidders, whose EMD deposited with any division office of CPWD and other documents scanned and uploaded are found in order.

The bid submitted shall be opened at 15:30 Hrs on **14/07/2026** .

10. The bid submitted shall become invalid if;
- i) The bidder is found ineligible.
  - ii) The bidder does not deposit original EMD with division office of any Executive Engineer, CPWD.
  - iii) **The bidder does not upload all the documents (including GST registration/ Undertaking as applicable) as stipulated in the bid document including the copy of receipt for deposition of original EMD.**

- iv) If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies as submitted physically by the lowest tenderer in the office of tender opening authority.

The Contractor, whose bid is accepted, will be required to furnish performance guarantee of i) 5% of tendered value or Estimated Cost Put to Tender (ECPT) (whichever is higher). (ii) Where the tendered amount is less than eighty percent (80%) of the Estimated Cost Put to Tender (ECPT), the Performance Guarantee, in addition to the requirement under (i) above, shall be increased by an amount equal to the difference between eighty percent (80%) of the ECPT and the tendered amount within the period specified in Schedule "F". This guarantee shall be in the form of cash (in case guarantee amount is less than Rs.10000/-) or Deposit at Call receipt of any scheduled bank/ Banker's Cheque of any scheduled bank/ Demand Draft of any scheduled bank/ Pay order of any Scheduled Bank of any scheduled bank (incase guarantee amount is less than Rs.1,00,000/-) or Government Securities or Fixed Deposit Receipts or Guarantee Bonds of any Scheduled Bank or the State Bank of India in accordance with the prescribed form. In case the contractor fails to deposit the said performance guarantee within the period as indicated in Schedule „F“ including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor. The earnest money deposited along with bid shall be returned after receiving the aforesaid performance guarantee. The contractor whose bid is accepted will also be required to furnish either copy of applicable license/ registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC and BOCW Welfare Board and Programme Chart (Time and Progress) within the period specified in Schedule F.

11. The description of the work is as follows:

Construction of Special Seeds Storage Structure at IIOR, Rajendranagar, Hyderabad.

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

13. The competent authority on behalf of the President of India does not bind itself to accept the lowest or any other bid and reserves to itself the authority to reject any or all the bids received without the assignment of any reason. All bids in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidders shall be summarily rejected.

14. Canvassing whether directly or indirectly, in connection with bidders is strictly prohibited and the bids submitted by the contractors who resort to canvassing will be liable to rejected.
15. The competent authority on behalf of President of India reserves to himself the right of accepting the whole or any part of the bid and the bidders shall be bound to perform the same at the rate quoted.
16. The contractor shall not be permitted to bid for works in the CPWD Circle (Division in case of contractors of Horticulture /Nursery category) responsible for award and execution of contracts, in which his near relative is posted a Divisional Accountant or as an officer in any capacity between the grades of Superintending Engineer and Junior Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any gazette officer in the Central Public Works Department or in the Ministry of Urban Development. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of this Department.
17. No Engineer of Gazetted rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as a contractor for a period of one year after his retirement from Government service, without the prior permission of the Government of India in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of India as aforesaid before submission of the bid or engagement in the contractor's service.
18. The bid for the works shall remain open for acceptance for a period of **90 Days (Thirty Days)** from the date of opening of bid.  
Further
  - i) If any tenderer withdraws his tender or makes any modification in the terms & conditions of the tender which is not acceptable to the department within 7 days after last date of submission of bids, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 50% of the earnest money absolutely irrespective of letter of acceptance for the work is issued or not.
  - ii) If any tenderer withdraws his tender or makes any modification in the terms and conditions of the tender which is not acceptable to the department after expiry of 7 days after last date of submission of bids, then the Government shall be without prejudice to any other right or remedy, be at liberty to forfeit 100% of the earnest money absolutely irrespective of letter of acceptance for the work is issued or not.
  - iii) In case of forfeiture of earnest money as prescribed in para (i) and (ii) above, the bidders shall not be allowed to participate in the rebidding process of the same work.
19. This notice inviting bid shall form a part of the contract document. The successful bidder/contractors, on acceptance of his bid by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract consisting of:
  - a) The Notice Inviting Bid, all the documents including additional conditions, specifications and drawings, if any, forming part of the Bid as uploaded at the time of invitation of bid and the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence leading thereto.
  - b) Standard C.P.W.D. Form 7 or other Standard C.P.W.D. Form as applicable.

Executive Engineer (E)-HYD-I  
CPWD, Hyderabad

**GOVERNMENT OF INDIA**  
**CENTRAL PUBLIC WORKS DEPARTMENT**

STATE: - Telangana.  
BRANCH: - E & M

ZONE :- Hyd- Region  
DIVISION :- EE(E)-HYD-I

**Percentage Rate Tender & Contract for Works**

(A) Tender for the work of:

Name of Work: Construction of Special Seeds Storage Structure at IIOR, Rajendranagar, Hyderabad.

To be submitted online upto 15:00 Hrs on **14/07/2026** .

To be opened online in the presence of tenderers who may be present at 15:30 Hrs on **14/07/2026** in the office of the Executive Engineer (E)-HYD-I, CPWD, Hyderabad.

Issued to ..... Tender document made available Online

Signature of the Officer issuing the documents.

Designation: Executive Engineer (E)-HYD-I, CPWD, Hyderabad.

Date of issue **06/07/2026** As per INFORMATION AND INSTRUCTIONS FOR BIDDERS

**TENDER**

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

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

I/We agree to keep the bid open for **90 Days** from the date of opening of bid and not to make any modifications in its terms and conditions.

A sum of **Rs. 1,86,009/-** is here by forwarded in Receipt Treasury Challan/Deposit at call Receipt of a Scheduled Bank/fixed deposit receipt of schedule bank/demand draft of a Scheduled bank / Bank Guarantee issued by a schedule bank, as earnest money. If I/we, fail to furnish the prescribed performance guarantee within prescribed period. I/we agree that the said President of India or his successors in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I/we fail to commence work as specified, I/we agree that President of India or his successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said earnest money and the performance guarantee absolutely, otherwise the said earnest money shall be retained by him towards security deposit to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be ordered, up to maximum of the percentage mentioned in schedule "F" and those in excess of that limit at the rates to be determined in accordance with the provision contained in clause 12.2 and 12.3 of the tender form. Further I/we agree that in case of forfeiture of Earnest money or both earnest money & Performance Guarantee as aforesaid, I/we shall be debarred for participation in the re-tendering process of the work.

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

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

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

Dated.....

Signature of Contractor

Postal Address #

Witness : #

Address: #

Occupation : #

**ACCEPTANCE**

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

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

- i) \*
- ii) \*
- iii)\*

For & on behalf of the President of India.

Signature .....

Dated \*.....

Designation .....

**SCHEDULES FOR WORKS****SCHEDULE "A"** Schedule of quantities (Enclosed)**SCHEDULE "B"** Schedule of materials to be issued to the contractor.

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S.No.	Description of item	Quantity	Rates in figures & words at which the	Place of
			material will be charged to the contractor	Issue

1	2	3	4	5
-----NIL-----				

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**SCHEDULE "C"**

Tools and plants to be hired to the contractor

Sl. No.	Description	Hire charges per day	Place of issue
1	2	3	4

-----NIL-----

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**SCHEDULE "D"**

General conditions and requirements /documents for the work, if any, specification of work, if any etc.

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As attached.

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**SCHEDULE "E"**

1. Reference to General Conditions of contract. General Conditions of Contract- 2023 Construction work for CPWD amended up to the last date of submission of online tender.

Name of Work: Construction of Special Seeds Storage Structure at IIOR, Rajendranagar, Hyderabad.

- |                             |   |
|-----------------------------|---|
| (b) Estimated cost of work: | Rs. 93,00,466/-   |
| (c) Earnest money:          | Rs. 1,86,009/-  |
| (d) Performance guarantee:  | i) 5% of tendered value or Estimated Cost Put to Tender (ECPT) (whichever is higher). (ii) Where the tendered amount is less than eighty percent (80%) of the Estimated Cost Put to Tender (ECPT), the Performance Guarantee, in addition to the requirement under (i) above, shall be increased by an amount equal to the difference between eighty percent (80%) of the ECPT and the tendered amount. |
| (e) Security Deposit:       | 2.5% of tendered amount   |

**SCHEDULE "F"**

General Rules & Directions: General Conditions of Contract- 2023 Construction Work for CPWD with up to date amendments (As on Date of opening of price bid) shall be read with NIT.

Officer inviting tender **Executive Engineer (E)-HYD-I/CPWD/ Hyderabad.**

Maximum percentage for quantity of items of work to be executed beyond which rates are to be determined in accordance with Clauses 12.2 & 12.3. **100%**

**Definitions:**

- 2(v) Engineer-in-Charge **Executive Engineer (E)-HYD-I CPWD, Hyderabad.**
- 2(viii) Accepting Authority **Executive Engineer (E)-HYD-I CPWD, Hyderabad.**
- 2(x) Percentage on cost of materials and labour to cover all overheads and profits. **15%**
- 2(xi) Standard schedule of Rates: **DSR 2025 (E& M) and Market rates**
- 2(xii) Department: **Central Public Works Department**
- 9(ii) Standard CPWD contract form: **CPWD form 7/8 as modified and corrected up to last date of receipt of bid**

**Amendments up to last date of submission of online tender shall be read with NIT**

**Clause1**

- (i) Time allowed for submission of Performance Guarantee Programme Chart (Time and Progress) and applicable labour licenses, registration with EPFO, ESIC and BOCW Welfare Board including provident fund code No if applicable or Proof of applying thereof from the date of issue of letter of acceptance. **7 Days**
- (ii) Maximum allowable extension with late fee @ 0.1% per day of Performance Guarantee amount beyond the period provided in (i) above **3 Days**

**Clause 2**

Authority for fixing compensation under clause 2 **Chief Engineer-Hyderabad CPWD, Hyderabad.**

Whether Clause 2A shall be applicable. **No**

**Clause 5**

Number of days from the date of issue  
of letter of acceptance for reckoning date of start. **7 Days**

**Table of Milestones:**

<b>S. N O.</b>	<b>Description of Milestone (Physical)</b>	<b>Time allowed in days (from the date of start)</b>	<b>Amount to be with held in case of non-achievement of milestone. ( % of tendered amount of respective Electrical component )</b>
1	Submission of drawings & data sheets for approval.	07 days	1%
2	Supply of Cold storage, UPS, DG Set & AMF Panel	60 days	2%
3	Installation of Whole system, Testing, commissioning & Handing over	90 Days	2%

Time allowed for execution of work

**90 Days**

Authority to reschedule Milestones

**Executive Engineer (E)-HYD-I  
CPWD, Hyderabad**

Authority to give fair and reasonable extension of  
time for completion of work

**Executive Engineer (E)-HYD-I,  
CPWD, Hyderabad**

**Clause6**

Clause applicable

**CMB (Computer Measurement  
Book) / EMB (Electronic  
Measurement Book) through ERP  
(As per circular DG/CON-  
Maintenance-2020/338 dt.  
13.04.2023)**

**Clause 7**

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

**Rs.25.00 Lakhs or mutually  
agreed by both parties**

Clause 10 B(ii)- Whether Clause 10 B(ii) shall be applicable: **No**

**Clause 10CA** - Whether clause 10CA shall be applicable N.A.

**Clause 10C** - Whether clause 10C shall be applicable **N.A.**

<b>Materials covered under this clause</b>	Nearest Materials ( <b>other than cement, reinforcement bars and structural steel</b> ) for which All India Wholesale Price Index to be Followed	<b>Base Price of all the materials covered under clause 10CA*</b>
----- <b>Not applicable</b> -----		

Clause 10CC- Clause 10CC to be applicable in contracts with stipulated period of completion exceeding the period shown in the next column. **N.A.**

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

Component of Civil - Xm.....% **N.A.**  
**(Except material covered under clause 10CA)**

Electrical construction materials expressed as percent of total value of work

Component of Labour expressed as percent of total value of work Y.....% **N.A.**

Component of POL expressed as percent of total value of work Z.....% **NIL**

Specifications to be followed:

C.P.W.D. General Specification as amended upto date, Additional Conditions, General Conditions of Contract and Technical Specifications

Clause 12

Type of work:-

**Construction Work**

12.2 & 12.3	Deviation limit beyond which clause 12.2 & 12.3 shall apply for electrical works.	<b>100%</b>
12.5	Deviation limit beyond which clause 12.2 & 12.3 shall apply for foundation work.	<b>N.A</b>

**Clause 16**

Competent Authority for deciding reduced rates. **Chief Engineer -Hyderabad  
CPWD, Hyderabad.**

**Clause 18**

List of mandatory machinery, tools & plants to be deployed by the contractor at site:  
**As required for timely execution of work.**

**Clause-25 : Constitution of Dispute Redress Committee (DRC) As per clause 25 GCC 2023.**

**CHIEF ENGINEER-HYDERABAD, CPWD, Hyderabad"**

a) FOR TOTAL CLAIMS UPTO 25 LAKHS

<b>Dispute Redressal Committee</b>			
<b>Chairman</b>	<b>Member</b>	<b>Member</b>	<b>Presenting Officer</b>
Superintending Engineer (Works cum TLQA), O/o ADG-RH	Executive Engineer(C), Office of CE-Hyderabad, CPWD	Executive Engineer & Senior Manager(E), Hindupur	Executive Engineer in charge of the work

b) FOR TOTAL CLAIMS MORE THAN 25 LAKHS

<b>Dispute Redressal Committee</b>			
<b>Chairman</b>	<b>Member</b>	<b>Member</b>	<b>Presenting Officer</b>
Chief Engineer-Vijayawada, CPWD	Superintending Engineer (Works cum TLQA), O/o ADG-RH	Superintending Engineer Cum Project Director, CPWD, Hindupur	Executive Engineer in charge of the work

**Clause 32:****Requirement of Technical Representative(s) and Recovery Rate**

Sl.No.	Minimum Qualification of Technical Representative	Discipline	Designation (Principal Technical / Technical Representative)	Minimum Experience	Number	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of clause 32	
						Figures	Words
1)	Graduate Engineer  OR  Diploma Engineer	E&M	Principal Technical Representative	2 years  5 years	01(one)	15000/-	Fifteen thousand only

**NOTE:.**

Assistant Engineers retired from Government services that are holding Diploma will be treated at par with Graduate Engineers

Diploma Holder with minimum 10 years relevant experience with a reputed construction company can be treated at par with graduate Engineers for the purpose of such deployment subject to the condition that such diploma holders should not exceed 50 % of requirement of degree Engineers.

**Clause 42**

- (i) Schedule/Statement for determining theoretical quantity of cement and bitumen on the basis of Delhi schedule of Rate 2007 printed by C.P.W.D. : Not Applicable
- (ii) Variations permissible on theoretical quantities
- a) Cement for works with estimated cost put to bid not more than Rs.5Lakh. : Not Applicable
- b) Bitumen for all works : Not Applicable
- c) Steel Reinforcement and structural steel sections for each diameter, section and Category : Not Applicable
- d) All other material : Not Applicable

RECOVERY RATES FOR QUANTITIES BEYOND PERMISSIBLE VARIATION

Sl. No.	Description of item	Rates in figures and words at which recovery shall be made from the Contractor	
		Excess beyond Permissible Variation	Less use beyond the Permissible Variation
.....Not Applicable.....			

**INTEGRITY PACT**

To,

.....,  
.....,  
.....

Sub: NIT No.42/EE(E)-Hyd-I/2026-27,

Name of Work: Construction of Special Seeds Storage Structure at IIOR,  
Rajendranagar, Hyderabad.

Dear Sir,

It is hereby declared that CPWD is committed to follow the principle of transparency, equity and competitiveness in public procurement.

The subject Notice Inviting Tender (NIT) is an invitation to offer made on the condition that the Bidder will sign the integrity Agreement, which is an integral part of tender /bid documents, failing which the tenderer /bidder will stand disqualified from the tendering process and the bid of the bidder would be summarily rejected.

This declaration shall form part and parcel of the Integrity Agreement and signing of the same shall be deemed as acceptance and signing of the Integrity Agreement on behalf of the CPWD.

Yours faithfully

Executive Engineer (E)-HYD-I,  
CPWD, Hyderabad

**INTEGRITY PACT**

To,

Executive Engineer (E)-HYD-I  
CPWD, Hyderabad-500095

Sub: Submission of Tender for the Work of Construction of Special Seeds Storage Structure at IIOR, Rajendranagar, Hyderabad.

Dear Sir,

I/We acknowledge that CPWD is committed to follow the principles thereof as enumerated in the Integrity Agreement enclosed with the tender/ bid document.

I/We agree that the Notice Inviting Tender (NIT) is an invitation to offer made on the condition that I/We will sign the enclosed integrity Agreement, which is an integral part of tender documents, failing which I/ We will stand disqualified from the tendering process. I/We acknowledge that THE MAKING OF THE BID SHALL BE REGARDED AS AN UNCONDITIONAL AND ABSOLUTE ACCEPTANCE of this condition of the NIT.

I/We confirm acceptance and compliance with the Integrity Agreement in letter and spirit and further agree that execution of the said Integrity Agreement shall be separate and distinct from the main contract, which will come into existence when tender/ bid is finally accepted by CPWD. I/We acknowledge and accept the duration of the Integrity Agreement, which shall be in the line with Article1of the enclosed Integrity Agreement.

I/We acknowledge that in the event of my/ our failure to sign and accept the Integrity Agreement, while submitting the tender/ bid, CPWD shall have unqualified, absolute and unfettered right to disqualify the tenderer/ bidder and reject the tender/ bid in accordance with terms and conditions of the tender /bid.

Yours faithfully

(Duly authorized signatory of the Bidder)

## INTEGRITY AGREEMENT

This Integrity Agreement is made at.....on this.....day of...2025

BETWEEN

President of India represented through **Executive Engineer (E)-HYD-I**, (Name of Division)  
CPWD, Hyderabad-500095..... (Hereinafter referred as the (Address  
of Division)

„Principal/Owner“, which expression shall unless repugnant to the meaning or context  
thereof include its success or sand permitted assigns)

AND

(Name and Address of the Individual/ firm/ Company)

through.....(Hereinafter referred to as  
the (Details of duly authorized signatory) “Bidder/Contractor” and which expression shall  
unless repugnant to the meaning or context hereof include its successors and permitted  
assigns)

Preamble

WHEREAS the Principal/ Owner has floated the Tender (NIT No. ..../**EE(E)-HYD-I/2025-26** (hereinafter referred to as “Tender/ Bid”)and intends to award, under laid down  
organizational procedure, contract for

(Name of work)

(Construction of Special Seeds Storage Structure at IIOR, Rajendranagar, Hyderabad. )

Hereinafter referred to as the “Contract”.

ANDWHEREAS the Principal/ Owner values full compliance with all relevant laws of the  
land, rules, regulations, economic use of resources and of fairness/ transparency in its  
relation with its Bidder(s) and Contractor(s).

ANDWHEREAS to meet the purpose aforesaid both the parties have agreed to enter into  
this Integrity Agreement (hereinafter referred to as “Integrity Pact” or“Pact”), the terms  
and conditions of which shall also be read as integral part and parcel of the Tender/ Bid  
documents and Contract between the parties.

NOW, Therefore, in consideration of mutual covenants contained in this Pact, the  
parties here by agree as follows and this Pact witnesses as under:

#### Article1: Commitment of the Principal/Owner

- 1) The Principal/Owner commits itself to take all measures necessary to Prevent corruption and to observe the following principles:
  - (a) No employee of the Principal/Owner, personally or through any of his/ her family members, will in connection with the Tender ,or the execution of the Contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
  - (b) The Principal/Owner will, during the Tender process, treat all Bidder(s) with equity and reason. The Principal/Owner will, in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the Tender processor the Contract execution.
  - (c) The Principal/Owner shall endeavor to exclude from the Tender process any person, whose conduct in the past has been of biased nature.
- 2) If the Principal/Owner obtains information on the conduct of any of its employees which is a criminal offence under the Indian Penal code (IPC)/ Prevention of Corruption Act, 1988 (PC Act) or is in violation of the principles here in mentioned or if there be a substantive suspicion in this regard, the Principal/Owner will inform the Chief Vigilance Officer and in addition can also initiate disciplinary actions as per its internal laid down policies and procedures.

#### Article2: Commitment of the Bidder(s)/ Contractor(s)

- 1) It is required that each Bidder/ Contractor (including their respective officers, employees and agents) adhere to the high esthetical standards, and report to the Government/ Department all suspected acts of fraud or corruption or Coercion or Collusion of which it has knowledge or becomes aware, during the tendering process and throughout the negotiation or award of a contract.
- 2) The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the Tender process and during the Contract execution:
  - a) The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal/ Owner"s employees involved in the Tender process or execution of the Contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the Tender process or during the execution of the Contract.
  - b) The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitive or to cartelize in the bidding process. Competitiveness or to cartelize in the bidding process.

- c) The Bidder(s)/ Contractor(s) will not commit any offence under the relevant IPC/PC Act. Further the Bidder(s)/ Contract(s) will not use improperly, (for the purpose of competition or personal gain), or pass on to others, any information or documents provided by the Principal/ Owner as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- d) The Bidder(s)/ Contractor(s) of foreign origin shall disclose the names and addresses of agents/ representatives in India, if any. Similarly Bidder(s)/ Contractor(s) of Indian Nationality shall disclose names and addresses of foreign agents/ representatives, if any. Either the Indian agent on behalf of the foreign principal or the foreign principal directly could bid in a tender but not both. Further, in cases where an agent participate in a tender on behalf of one manufacturer, he shall not be allowed to quote on behalf of another manufacturer along with the first manufacturer in a subsequent/ parallel tender for the same item.
- e) The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the Contract.
- 3) The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- 4) The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm indulge in fraudulent practice means a willful misrepresentation or omission of facts or submission of fake/ forged documents in order to induce public official to act in reliance thereof, with the purpose of obtaining unjust advantage by or causing damage to justified interest of others and/ or to influence the procurement process to the detriment of the Government interests.
- 5) The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm use Coercive Practices (means the act of obtaining something, compelling an action or influencing a decision through intimidation, threat or the use of force directly or indirectly, where potential or actual injury may be fall upon a person,his/ her reputation or property to influence their participation in the tendering process).

### Article 3: Consequences of Breach

Without prejudice to any rights that may be available to the Principal/ Owner under law or the Contractor its established policies and laid down procedures, the Principal/ Owner shall have the following rights in case of breach of this Integrity Pact by the Bidder(s)/ Contractor(s) and the Bidder/ Contractor accepts and undertakes to respect and uphold the Principal/ Owner's absolute right:

- 1) If the Bidder(s)/ Contractor(s), either before award or during execution of Contract has committed a transgression through a violation of Article 2 above or in any other form, such as to put his reliability or credibility in question, the Principal/ Owner after giving 14 day's notice to the contractor shall have powers to disqualify the Bidder(s)/ Contractor(s) from the Tender process or terminate/ determine the Contract, if already executed or exclude the Bidder/ Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of transgression and determined by the Principal/ Owner. Such exclusion may be forever or for a limited period as decided by the Principal/Owner.

- 2) Forfeiture of EMD/ Performance Guarantee/ Security Deposit: If the Principal/ Owner has disqualified the Bidder(s) from the Tender process prior to the award of the Contractor terminated/ determined the Contractor has accrued the right to terminate/ determine the Contract according to Article3(1), the Principal/ Owner apart from exercising any legal rights that may have accrued to the Principal / Owner, may in its considered opinion forfeit the entire amount of Earnest Money Deposit, Performance Guarantee and Security Deposit of the Bidder/ Contractor.
- 3) Criminal Liability: If the Principal/Owner obtains knowledge of conduct of a Bidder or Contractor, or of an employee or a representative or an associate of a Bidder or Contractor which constitutes corruption within the meaning of IPC Act, or if the Principal/Owner has substantive suspicion in this regard, the Principal/Owner will inform the same to law enforcing agencies for further investigation.

#### Article 4: Previous Transgression

- 1) The Bidder declares that no previous transgressions occurred in the last 5 years with any other Company in any country confirming to the anticorruption approach or with Central Government or State Government or any other Central/State Public Sector Enterprises in India that could justify his exclusion from the Tender process.
- 2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the Tender process or action can be taken for banning of business dealings/ holiday listing of the Bidder/Contractor as deemed fit by the Principal/ Owner.
- 3) If the Bidder/Contractor can prove that he has resorted / recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal/Owner may, at its own discretion, revoke the exclusion prematurely.

#### Article 5: Equal Treatment of all Bidders/Contractors/Subcontractors

- 1) The Bidder(s)/Contractor(s) undertake(s) to demand from all sub-contractors a commitment in conformity with this Integrity Pact. The Bidder/Contractor shall be responsible for any violation(s) of the principles laid down in this agreement/Pact by any of its Subcontractors/sub-vendors.
- 2) The Principal/Owner will enter into Pacts on identical terms as this one with all Bidders and Contractors.
- 3) The Principal/Owner will disqualify Bidders, who do not submit, the duly Signed Pact between the Principal/Owner and the bidder, along with the Tender or violate its provisions at any stage of the Tender process, from the Tender process.

#### Article 6-Duration of the Pact

This Pact begins when both the parties have legally signed it. It expires for the Contractor/Vendor 60 Days after the completion of work under the contract or till the continuation of defect liability period, whichever is more and for all other bidders, till the Contract has been awarded

If any claim is made/lodged during the time, the same shall be binding and continue to be valid despite the lapse of this Pacts as specified above, unless it is discharged/determined by the Competent Authority, CPWD.

## Article 7-Other Provisions

- 1) This Pact is subject to Indian Law, place of performance and Jurisdiction is the Headquarters of the Division of the Principal/Owner, who has floated the Tender.
- 2) Changes and supplements need to be made in writing. Side agreements have not been made.
- 3) If the Contractor is a partnership or a consortium, this Pact must be signed by all the partners or by one or more partner holding power of attorney signed by all partners and consortium members. In case of a Company, the Pact must be signed by a representative duly authorized by board resolution.
- 4) Should one or several provisions of this Pact turnout to be in valid;the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intensions.
- 5) It is agreed term and condition that any dispute or difference arising between the parties with regard to the terms of this Integrity Agreement / Pact, any action taken by the Owner/Principal in accordance with this Integrity Agreement/ Pact or interpretation thereof shall not be subject to arbitration.

## Article 8-LEGAL AND PRIOR RIGHTS

All rights and remedies of the parties hereto shall be in addition to all the other legal rights and remedies belonging to such parties under the Contract and/or law and the same shall be deemed to be cumulative and not alternative to such legal rights and remedies aforesaid. For the sake of brevity, both the Parties agree that this Integrity Pact will have precedence over the Tender/Contact documents with regard any of the provisions covered under this Integrity Pact.

IN WITNESS WHEREOF the parties have signed and executed this Integrity Pact at the place and date first above mentioned in the presence of following witnesses:

(For and on behalf of Principal/ Owner)

Executive Engineer (E)-HYD-I  
CPWD, Hyderabad

(For and on behalf of Bidder/ Contractor)

WITNESSES:

1.  
(signature, name and address)

2.  
(signature, name and address)

Place:

Dated:

## FORM OF EARNEST MONEY (BANKGUARANTEE)

WHEREAS, contractor.....(Name of contractor) (Hereinafter called "the Contractor") has submitted his tender dated.....(Date) for the work".....(Name of Work) (Hereinafter called "the Tender").

KNOW ALL PEOPLE by these presents that

we.....(Name of bank) having our registered office at.....(Hereinafter called "the Bank")are bound to

.....(Name and division of Executive Engineer) (Hereinafter called "the Engineer-in-charge") for the sum of Rs. ....(Rs. in words ..... )only for which payment, well and truly, to be made to the said Engineer-in-Charge, the Bank binds itself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this.....day

of.....20....THE CONDITIONS of this obligation are:

- (1) If after tender opening the Contractor withdraws, his tender during the period of validity of tender (including extended validity of tender) specified in the Form of Tender;
- (2) If the contractor having been notified of the acceptance of his tender by the Engineer-in-Charge:
  - (a) Fails or refuses to execute the Form of Agreement in accordance with the Instructions to contractor, if required;
  - OR
  - (b) Fails or refuses to furnish the Performance Guarantee, in accordance with the provisions of tender document and Instructions to contractor,

We undertake to pay to the Engineer-in-Charge either up to the above amount or part there of upon receipt of the first written demand, without the Engineer-in-Charge having to substantiate his demand, provided that in his demand the Engineer-in-Charge will note that the amount claimed by his is due to him owing to the occurrence of one or any of the above conditions, specifying the occurred condition or conditions.

The Guarantee will remain in force upto and including the date\*.....after the dead line for submission of tender as such deadline is stated in the Instructions to contractor or as it may be extended by the Engineer-in-Charge, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this Guarantee should reach the Bank not later than the above date.

DATE.....

SIGNATURE OF THE BANK

WITNESS.....

SEAL

(SIGNATURE, NAME AND ADDRESS)

\*Date to be worked out on the basis of validity period of 7 months from last date or receipt of tender.

**FORMAT OF RECEIPT OF DEPOSITION OF ORIGINAL EMD****RECEIPT OF DEPOSITION OF ORIGINAL EMD****(RECEIPT NO...../DATE.....)#**

1.NAME OF WORK: Construction of Special Seeds Storage Structure at IIOR,  
Rajendranagar, Hyderabad.

2. NIT No. **42/EE(E)-Hyd-I/2026-27,**

3. ESTIMATED COST: Rs. **93,00,466/-**

4. AMOUNT OF EARNEST MONEY DEPOSIT: Rs. **1,86,009/-**

5. LAST DATE OF SUBMISSION OF BID – up to 15:00 Hrs on **14/07/2026**

1. NAME OF CONTRACTOR.....#

2. FORM OF EMD.....#

3. AMOUNT OF EARNEST MONEY DEPOSIT.....#

4. DATE OF SUBMISSION OF EMD.....#

5. Email ID of EMD receiving officer .....#

6. Office phone / Contact number .....#

Signature, Name and Designation of EMD  
Receiving officer (EE/AAO)  
Along with Office Stamp

(# To be filled by EMD receiving EE)

केन्द्रीय लोक निर्माण विभाग  
कार्यालय ज्ञापन  
No. DG/SOP- 2024/22

ISSUED BY THE AUTHORITY OF DIRECTOR GENERAL, CPWD

Vidyut Bhawan, New Delhi

Dated: 23.03.2026

Sub: Modification in SOP No. 5/1 for CPWD Works Manual 2024.

Following modification is made in SOP 5/1 for CPWD Works Manual 2024:

Existing Provision	Modified Provision
SOP No 5/1: Mode of Deposit Earnest Money (Refer Para 5.1.3 (1))	SOP No 5/1: Mode of Deposit Earnest Money (Refer Para 5.1.3 (1))
Sl. No. 1 to 6	No change
7. No provision	7. EMD shall be made / issued only from the account of the bidder / tenderer submitting the bid/tender. EMD made/ issued from the account other than that of the bidder/ tenderer submitting the bid, shall not be accepted.

This issues with the approval of DG CPWD.

अधीक्षण अभियंता (सी एंड एम)

Issued from file No. CSQ/CM/16(1)/2026 e-file 9210279 (DFA/ 9359806)

चन्द्र पाल, सी. एम. (सी. एंड एम.)  
Chander Pal, SE (C&M)

केलोनवि तथा लोनवि दिल्ली के सभी अधिकारियों को आवश्यक सूचना एवं कार्यवाही हेतु। (केलोनवि वेबसाईट के माध्यम से)

K.G. Bansal  
EE (Manual)

**FORM OF PERFORMANCE SECURITY (GUARANTEE)  
BANK GUARANTEE BOND**

In consideration of the President of India (hereinafter called "the Government") having offered to accept the terms and conditions of the proposed agreement between.....and..... (Herein after called "the said contractor(s)" for the work..... (Herein after called "the said agreement") having agreed to production of an irrevocable Bank Guarantee for Rs.....Rupees.....only) as a security/ guarantee from the contractor(s) for compliance of his obligations in accordance with the terms and conditions in the said agreement.

1. We.....(*Indicate the name of Bank*).....(Hereinafter referred to as "Bank") hereby undertake to pay to the Government an amount not exceeding Rs.....(Rupees.....)only, on demand by the Government.
2. We.....(indicate the name of Bank) do hereby undertake to pay the amounts due and payable under this Guarantee without any demure, merely on a demand from the Government stating that the amount claimed is required to meet the recoveries due or likely to be due from the said contractor(s). Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs.....(Rs.....)only.
3. We, the said bank, further undertake to pay the Government any money so demand not withstanding any dispute or disputes raised by the contractor(s) in any suit or proceeding pending before any court or Tribunal relating thereto, our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the contractor(s) shall have no claim against us for making such payment.
4. We..... (indicate the name of the Bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of the Government under or by virtue of the said Agreement have been fully paid and its claim satisfied or discharged or till Engineer-in-Charge on behalf of the Government certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said contractor(s) accordingly discharges this guarantee.

5. We.....(indicate the name of Bank) further agree with the Government that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said contractor(s) and to forebear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said contractor(s) or for any forbearance, act of omission on the part of the Government or any indulgence by the Government to the said contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us
6. This guarantee will not be discharged due to the change in the constitution of the Bank or the contractor(s).
7. We..... (Indicate the name of bank) lastly undertake not to revoke this guarantee except with the previous consent of the Government in writing.
8. This guarantee shall be valid upto.....unless extended on demand by Government. Notwithstanding anything mentioned above, our liability against this Guarantee is restricted to Rs.....(Rupees.....)only and unless a claim in writing is lodged with us within six months of the date of expiry or the extended date of expiry of this guarantee, all our liabilities under this guarantee, shall stand discharged.

Dated, the.....Day of.....For.....(Indicate the name of the Bank)

Note:-Performance guarantee shall be valid upto three months after the time period allowed for the work.

**MEMORANDUM OF UNDERSTANDING [M.O.U] BETWEEN**

1] M/S [Name of the firm with full address] Enlistment Status  
Valid Upto:

[Henceforth called the main contractor]

And

2] M/S [Name of the firm with full address] Enlistment Status  
Valid Upto:

[Henceforth, called Associated Electrical Contractor or Electrical Contractor]

For the execution of Electrical Work "Construction of Special Seeds Storage Structure at IIOR, Rajendranagar, Hyderabad." **[Electrical Component only] as per schedule, specifications, terms and conditions of the tender.**

We state that M.O.U between us will be treated as an agreement and has legality as per Indian Contract Act [amended upto date] and the department [CPWD] can enforce all the terms and conditions of the agreement for execution of the above work. Both of us shall be responsible for the execution of work as per the agreement to the extent this MOU allows. Both the parties shall be paid consequent to the execution as per agreement to the extent this MOU permits. In case of any dispute, either of us will go for mediation by the EE(E)-Hyderabad-1, CPWD, Hyderabad. Any of us may appeal against the mediation to the Chief Engineer-Hyderabad, CPWD, Hyderabad. His decision shall be final and binding on both of us.

We have agreed as under:

- 1]The electrical contractor will execute all electrical works in the wholesome manner as per terms and conditions of the agreement. .
- 2]The electrical contractor shall be liable for disciplinary action if he fails to discharge the action[s] and other legal action as per agreement
- 3]All the machinery and equipments, tools and tackles required for execution of the electrical works, as per agreement, shall be the responsibility of the electrical contractor.
- 4]The site staff required for the electrical work shall be arranged by the electrical contractor as per terms and conditions of the agreement.
- 5]Site order book maintained for the said work shall be signed by the main contractor as well as by the Engineer of the Associated Contractor and by Associated Contractor himself.
- 6]All the correspondence regarding execution of the electrical work shall be done by the Department with the Associated Contractor with a copy to the main contractor. In case of non-compliance of the provisions of agreement, the main contractor, as well as the associated contractor shall be responsible. The action under clauses 2 and 3 shall be initiated and taken against the main contractor.

SIGNATURE OF MAIN CONTRACTOR

SIGNATURE OF ASSOCIATED  
ELECTRICAL CONTRACTOR.

Date:

Date

Place

Place:

**Form -G****CONSENT LETTER FROM ELIGIBLE ASSOCIATE AGENCY OF MINOR COMPONENT OF WORK**

**NAME OF WORK:** Construction of Special Seeds Storage Structure at IIOR, Rajendranagar, Hyderabad.

Agreement No:-

1. I / We hereby give my consent to associate with M/s ....., for executing the minor component of work of..... (Mention category).
2. I / We will execute the work as per specifications and conditions of the agreement and as per directions of the Engineer –in-Charge for the corresponding minor work till the completion of the work.
3. I / We will be responsible for necessary action to handover the installations and for rectification of defects and repair during the maintenance / warranty period.
4. Also I / We will employ full time technically qualified Engineer / supervisor for the minor component of the work as required for the work. I / We will attend inspection of officers of the department as and when required.
5. Applicable for Internal EI Component:
  - (i) I/We will agree that I/we will obtain undertaking from LED manufacturers for 5 years warranty and submit to Engineer –in-charge.

Date:

Signature with date of Major component Contractor      Signature with date of Associate/Minor Component Contractor

Address

Address

1. Witness with address

(From major component contractor side)

2. Witness with address

(From minor component contractor side)

**FORM -H**

**NAME OF WORK:** Construction of Special Seeds Storage Structure at IIOR, Rajendranagar, Hyderabad.

Agreement No:-

**PROPOSAL FOR ELIGIBLE ASSOCIATING AGENCIES FOR MINOR COMPONENTS OF WORK**

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

Sl.No	Name of Associated Contractor	Category and class of registration	Enlistment copy/ completion Certificates attached	Monetary Limit of work	Validity of registration	Consent letter attached (Yes/No)
a) Providing Panels, Cabling & Earthing						
1						
2						
b) SITC of Cold Room Storage						
1						
2						
c) SITC of 160 KVA DG Set						
1						
2						
d) SITC of 3 KVA Online UPS System						
1						
2						

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

Signature of contractor

## **SPECIAL CONDITIONS**

1. The main agency shall have to submit credential such as Verifiable completion certificate, self attested GST registration of the proposed associated agencies for verification and approval of the department as per eligibility requirement mentioned in above within 5 days from the award of work. Consent letter of such selected agencies for association shall also be enclosed in the prescribed format. Main agency may propose upto three names of eligible associates
  - (i) After approval of associated agencies by EE (E), the main contractor will submit MOU signed with the associated contractors. The MOU in the enclosed form shall be signed by both the parties" i.e. main contractor as 1st party and associated Agency as 2nd party, independently for all associated components.
2. In the event of the concerned Associated Agency not performing satisfactorily or failure of associated contractor to complete the Associated works, the main contractor on written directions of the department, shall remove the Associated contractor deployed on the work and shall submit name of new associated contractor as per eligibility criteria mentioned in web notice to execute the left over work without any loss of time or variation in cost to the department. No change of Associated Contractor will be allowed without prior approval of the Engineer-in-charge of the work.
3. The main contractor shall be responsible and liable for proper and complete execution of the all works and ensure coordination and completion of all associated works.

// Contractor //

Executive Engineer (E)-Hyd-1,

**ADDITIONAL CONDITIONS AND SPECIFICATIONS**

1. The work shall be carried out strictly in accordance with the CPWD General Specifications for electrical works, Part-I Internal (2013), part II external (1994) and Part IV (Sub-Stations) 2013 as amended upto date. All installations shall also comply with the provisions of Indian Electricity Act.2003 and Indian Electricity Rules, 1956 amended up-to-date. In case of items not covered by the above specifications the work shall be carried out as per the instructions of the Engineer-in-Charge.
2. Works to be done by the Contractor: Unless and 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 :-
  - (i) Cutting and making good all damages caused during installation and restoring the same to their original finish.
  - (ii) Testing and commissioning of completed installation.
3. Ratings of components:
  - (i) All components in a wiring installation shall be of appropriate ratings of voltage, current, and frequency, as required at the respective sections of the electrical installation in which they are used.
  - (ii) All conductors, switches and accessories shall be of such size as to be capable of carrying the maximum current, which will normally flow through them, without their respective ratings being exceeded.
4. Conformity to standards: All components shall conform to relevant Indian Standard Specifications, wherever existing. Materials with ISI certification mark shall be preferred.
5. Quality of materials: All materials and equipments supplied by the contractor shall be new. They shall be of such design, size and materials as to satisfactorily function under the rated conditions of operations and to withstand the environmental conditions at site.
6. All the materials to be used in the work shall be got approved by the Engineer-in-Charge prior to their actual use in the work.
7. Workmanship: Good workmanship is an essential requirement to be complied with. The entire work of manufacture/fabrication, assembly and installation shall conform to sound engineering practice.
8. Bad workmanship will be rejected in toto.
9. Care of Buildings: Care shall be taken by the contractor to avoid damage to the building during execution of his part of the work. The contractor shall be responsible for repairing all damages and restoring the same to their original finish at his cost. The contractor shall remove at his costs all unwanted and waste materials arising out of his work from the site.
10. Structural Alterations to Buildings:
  - (i) No structural member in the building shall be damaged / altered, without prior approval from the competent authority through the Engineer-in-charge.
  - (ii) Structural provisions like openings, cutouts, if any, provided by the department for the work, shall be used. Where these require modifications, or where fresh provisions are required to be made, such contingent works shall be carried out by the contractor at his cost..
  - (iii) All chases required in connection with the electrical works shall be provided and filled by the contractor at his own cost to the original architectural finish of the buildings. The repair work shall be carried out to the original finish at no extra cost.

11. All the debris due to the electrical work shall be cleared every now and then and the site shall be kept clean by the contractor at all times.
12. The contractor or his authorized representative will have to sign the Site Order Book and comply with the remarks therein.
13. The watch and ward of the stores and their safe custody shall be his responsibility till the final taking over of the installation by the Department.
14. Tools for handling and erection: All tools and tackles required for handling of equipments and materials at site of work as well as for their assembly and erection and also necessary test instruments shall be the responsibility of the contractor. No T&P will be supplied by the department.
15. Design of all main and sub distribution boards shall be got approved by the Engineer-in-charge prior to fabrication by submitting a detailed dimensional sketch.
16. All the metal boxes housing control switches, regulators, sockets, metallic light fittings, fans etc. shall be suitably earthed.
17. **A list of preferred makes for electrical works is enclosed.**
18. The material to be used in the work shall be procured only from authorized sources / dealers / distributors and documentary evidence to this effect shall be submitted as and when desired to the Engineer-in-Charge failing which the Engineer-in-Charge reserves the right to reject the materials in toto.
19. All dismantled items shall be returned to the department.
20. The entire work shall be guaranteed for a period of 1 (One) year from the date of completion of work. ~~The projectors shall be guaranteed for a period of 3 years from the date of completion of work. 5% of the Quoted price of the projectors shall be withheld for a period of 3 years and shall be released after the successful completion of the guarantee period of 3 years.~~
21. ~~All necessary connectors & cables required to be used in the work shall be reputed makes to meet the prescribed performance of the OEM of Network system.~~
23. The price quoted shall be firm and inclusive of all taxes i/c GST, duties, levies, labour welfare Cess. GST and Labour welfare Cess will be deducted at source from the contractor's bills.
24. The contractor should make minimum fair wages to the staff as per prevailing labour laws, The wages shall be made to the bank account of the labour and proof shall be submitted to JE(E)/AE(E).
25. All the workmen engaged for the work shall get social security benefits from contractor like EPF & ESI and proof shall be submitted to JE(E)/AE(E).
26. LED fittings, as a whole including driver shall be guaranteed for 5 years from the date of completion. All the LED fittings are to be suitably engraved/ stickered inside with date of handing over and agreement No.

(i) The guarantee for LED fittings is to be got submitted from the manufacturer also in addition to the guarantee from the contractor. The manufacturer should give

undertaking that in case of discontinuation of model and non-availability of spares, they will replace the fittings with equivalent/ high end model in case of manufacturing defect during the warranty period of 5 years in Annexure – X. This undertaking shall be submitted at the time of supply of LED fittings by the contractor.

(ii) Before releasing payment for LED fittings, the agency has to submit security Deposit of 5% of the price quoted by him for SITC of LED fittings for the remaining 5 years warranty period in acceptable form i.e. FDR / Bank guarantee as P.G. If the firm fails to submit P.G., additional Security Deposit at the rate of @5% shall be deducted from the total work and will be refunded after completion 5 years guarantee period.

## 27. LED Luminaire Specifications.

S. No	Criteria	Specification
1	Luminaries configuration/ technical requirement	As per the description mentioned in BOQ
2	Housing/ body of fitting	a) CRCA/Extruded Aluminum for Indoor fittings. b) Pressure Die cast aluminum for outdoor fittings.
3	Cover/ Diffuser	Poly carbonate/ Acrylic UV protected/ PMMA for indoor / Toughened glass for outdoor.
4	Finish	Aesthetically designed housing with corrosion resistant powder coating.
5	Operating Voltage	100V to 300V universal electronic driver with internal surge protection.
6	Voltage Dips& Interrupts	As per IEC 61000-4-11
7	Frequency	47 to 50 Hz
8	Fixture Ambient temperature	+ 40 °C
9	Operating temperature	Range from 0 °C to +55 °C
10	Power factor	>0.95
11	Optical assembly	Array of medium power LEDs/ COB
12	Luminous flux	As per BOQ
13	Efficacy of Luminaire system ( including power loss)	>85 lumen per watt for indoor and >80 lumens for outdoor
14	Efficacy of LED	>110 lumen per watt
15	Co-related colour temperature	As per BOQ
16	C.R.I.	>80
17	Heat dissipation/ Heat sink	Well designed thermal management system with aluminium heat sink.
18	Driver efficiency	> 85%
19	Make of LED	CREE/ LUMILEDS/ OSRAM/ NICHIA/ PHILIPS/ WIPRO/ BAJAJ/ HAVELLS
20	LED Lifespan & Luminaire photometric data	IESLM79 and IESLM80 respectively
21	Harmonics	< 10%
22	Lumen maintenance @85deg c on LED life	Minimum 70% up to 50000 hrs (Indoor application) and Life expectancy 50,000 hrs for LED
23	Surge Voltage	Minimum 2 kV L, N for Indoor Lighting , minimum 5kv for outdoor lighting
24	Outer Body Luminaire Temperature	Max. up to 70 Deg C (with +/-5 Deg ) at 30 Deg C ambient Temperature
25	Standard Warranty	5 Years

**28. Mode of measurement (For Record Purpose):**

- (i) The Agency shall raise RFI (Request for Inspection) on the ERP portal which shall be reflected as an action item in AE's notification, who is responsible or checking the item on the field. Once Physical check is completed, AE should update the RFI as Measurement Verified/Test Checked/Rejected & subsequently the RFI may be selected to create e-MB which include abstract of quantity item wise against the selected RFIs. (Request for inspection (RFI) is a process for recording of measurements online to create e-MB and forwarding it to the concerned authority for Inspection and Test Checks of quality & measurements recoded against the items uploaded under 'Contract Agreement Data Collection Forms on ERP').
- (ii) The stage-wise measurement as per schedule of stage payment shall be recorded and submitted in computerized format by the Agency as per directions given above.
- (iii) The contractor shall submit item wise measurement for the work executed in line with detailed estimate based on items in DSR-2023 along with every running account bill to facilitate stage wise payment.
- (iv) In addition, the contractor shall submit theoretical consumption statements for the items involving use of cement, steel reinforcement, chemical, paints, ready mix plaster, bitumen etc. as directed by the Engineer-in-Charge along with every running account bill for record and reconciliation of material issued, consumed and balance.
- (v) These measurements shall then be 100% checked by the authorized representatives of the Engineer-in-Charge. The contractor shall incorporate all such changes or corrections, as may be done during these checks, to his draft.
- (vi) The Computerized Measurement Book shall be allotted a serial number as per the Register of Computerized Measurement Books and processed for payment, if required.
- (vii) Agency shall upload ERP Training Certificate from any RTI of CPWD.

/ Contractor /

Executive Engineer (E)-HYD-I,

**ANNEXURE – X****UNDERTAKING LETTER FROM MANUFACTURERS OF LED FITTINGS / L1 bidder  
towards the Warranty / Guarantee****We hereby agree that**

1. All the LED fittings supplied by us are guaranteed for five years including drivers from the date of handing over.
2. In case of discontinuation of model and non-availability of spares, we will replace the fittings with equivalent/ high end model in case of manufacturing defect during the warranty period of 5 years.
3. We agree to submit additional security deposit of 5% of the price quoted for SITC of LED fittings before completion of the work as Performance Guarantee in the form of FDR / Bank Guarantee valid for 5 years from the date of completion of work .

**For M/S .....,.....  
(Authorized signatory of manufacturer of LED luminaries)**

**Counter Signature:**

**L1 bidder**

Note: The Warranty / guarantee undertaking issued by the Manufacturer shall be  
Un-conditional

**COMMERCIAL & TECHNICAL CONDITIONS FOR INTERNAL ELECTRICAL  
INSTALLATIONS**

**1 General:**

1.1 The Department shall not issue any T & P and nothing extra shall be paid on account of this.

**2 Guarantee & Defect Liability Period:**

All the equipment shall be guaranteed for a period of 12 months from the date of taking over the installation by the department against unsatisfactory performance and / or break down due to defective design, workmanship of material. The equipment or components, or any part thereof, so found defective during guarantee period shall be forthwith repaired or replaced free of cost, to the satisfaction of the Engineer-in-Charge. In case it is felt by the department that undue delay is being caused by the contractor in doing this, the same will be got done by the department at the risk and cost of the contractor. The decision of the Engineer-in-Charge in this regard shall be final.

Sl.No.	Description of item	Guarantee period (Year)
1	All items other than LED Fittings	1
2	LED fittings	5

The tenderer shall guarantee among other things, the following vis-à-vis specifications.

- a) Quality, strength and performance of the materials used.
- b) Satisfactory operation during the maintenance period.
- (i) Ceiling fans, Exhaust fans are to be guaranteed for 1(one) Year.
- (ii) LED fittings, as a whole including driver are guaranteed for 5 years. All the LED fittings are to be suitably engraved/ stickered inside with for date of handing over.
- (iii) The guaranty for LED fittings is to be got submitted from the manufacturer also in addition to the guarantee from the contractor. The manufacturer should give undertaking that in case of discontinuation of model and non-availability of spares, they will replace the fittings with equivalent/ high end model in case of manufacturing defect during the warranty period of 5 years in Annexure – X.

**3 Data and Programme to be furnished by the tenderers:**

The Contractor shall prepare the programme chart for the execution of the work showing clearly all activities from the start of work to the completion required for the completion of the work within the stipulated period and submit the same to the Engineer-in-Charge within fifteen days after the issue of letter for commencement of the work. The Contractor shall also submit monthly programme and progress reports and update / re-schedule the same every month. These shall be submitted by the contractor in soft copy also besides forwarding hard copy of the same.

**4 Order of Preference:**

Should there be any difference or discrepancy between the description of items as given in the Schedule of Quantities, technical specifications for individual items of work (including additional and commercial conditions) and IS Codes etc., the following order of preference shall be followed:

- a) Schedule of quantities
- b) Commercial and Additional conditions for this work
- c) General Conditions of Contract for CPWD Works
- d) Drawings
- e) CPWD General Specifications
- f) Relevant IS or any other International code in case IS code is not available.

**5** The main contractor shall also enter into a 'Memorandum of understanding' with the approved associated contractor on Non-Judicial Stamp Paper as per the enclosed

proforma and submit this 'MOU' duly completed (duly signed by him and the associated Contractor) before commencement of work.

- 6 Executive Engineer (Elect.) shall be the Engineer-in-Charge as far as electrical works are concerned. Separate tender form for electrical component is appended with this tender. It will be obligatory on part of the main contractor to sign the tender documents for all the components.
- 7 The main agency shall be responsible for all acts of omissions and submissions of the electrical contractor or sub-contractor engaged by him, even with approval of department.
- 8 Approval of the Engineer-in-charge shall be taken well in advance for all the materials to be supplied and used in all the works by the contractor.
- 9 The contractor has to make his own arrangements for stores and watch and ward and no extra claim for this will be entertained.
- 10 Running payment for Electrical/Mechanical components shall be made by the EE (E) directly to the main Contractor. The main contractor shall make the payment to associated Contractor within 20 Days of receipt of each running account payment.

11 **Payments terms:**

On account payments for part work (after stipulated and statutory deductions) as assessed by the Engineer – in-charge for the applicable items in the Contract shall be payable at part rates not exceeding the percentage indicated against the stages of work.

A] Items connected with point wiring, circuit wiring, sub-main wiring, power point wiring and light plug wiring for completed items of work. Secured advance shall be paid against supply of wiring materials.

S.N	Stage of work	Percentage of quoted Rate
a	On laying of conduits with accessories, switch boxes, etc.	40%
b	On drawing of wires i/c terminations, switches, sockets, cover plates etc.	45%
c	On completion of item and after testing and commissioning.	10%
d	At the time of payment of final bill	5%

B] Items of Distribution Boards, MCBs, RCCBs & fittings etc.

S.N	Stage of work	Percentage of quoted Rate
a	On initial inspection of material and delivery at site in good condition on pro-rata basis.	70%
b	On completion of installation on pro-rata basis.	15%
c	On completion of testing and commissioning.	10%
d	At the time of payment of final bill.	5%

For other items, the part rates will be decided by the Engineer-In-Charge of the work and shall be binding on the contractor.

- 12 The main contractor shall be responsible for coordinating the activities of all works and will ensure progress of works as per laid down program.

- 13 The main contractor and / or his Associated electrical Contractor or his representative is bound to sign the site order book as and when required by the Engineer-in-charge and will comply with the remarks therein.
- 14 The contractor shall make his own arrangement at his own cost for electrical / General Tools and plants required for the work.
- 15 The connections, inter-connections, earthing and loop earthing shall be done by the contractor her ever required to be done for energization of the installation and nothing extra shall be paid on this account.
- 16 The contractor must be able to work on concrete slabs / walls as and when required and in complete coordination with the civil works. Cutting of chases in the plastered wall shall in no case be allowed. The contractor shall fix conduits and boxes in the walls soon after the brick work is completed and finish the chase to rough surface with proper cement sand mixture. Only in exceptional cases e.g. where cutting of plastered surface cannot be avoided it will be contractor's responsibility to ensure that plastering is done to match the original finish at no extra cost.
- 17 The contractor shall remove all the debris due to the electrical works from the site as soon as the work is completed.
- 18 The wiring and conduit route shall be marked by the contractor in the drawing first, and shall be got approved from the Engineer-in-charge.
- 19 Some light points in lobby / corridors/ stair case/ lift shaft etc are group controlled which will be measured as per Items mentioned under C-I.
- 20 The rupturing capacity of the MCB's shall be 10 KA. The MCB's shall have ISI mark. Quantities of MCBs of different rating of 6 amps to 32 amps shall be brought in consultation with the Engineer-in-Charge or his representative.
- 21 All the MCCBs shall be rated for  $I_{cs}=100\%I_{cu}$
- 22 The copper wire to be used on this work shall be FRLS type and ISI marked.
- 23.1 The make of switch boxes shall be the same as that of switches. Only the required knockouts of the switch boxes are to be removed for terminating the conduit pipes with PVC glands / check nuts.
- 23.2 Make of MCB/MCCB shall be the same as the make of MCB DB.
- 23.3 All the switch boxes, MCBDBs are to be covered with plastic sheet / petroleum gelly when installed in brick work till the plastering / painting is done to avoid sticking of cement plaster/ splashes of the paint. Cement plaster / paint are to be cleaned immediately after plaster to avoid rusting of switch boxes and MCB DBs. The plastic sheet is to be removed at the time of handing over.
- 23.4 If two module sockets are used for 15 amp power plugs, one blanking plate is to be fixed by the side of socket to avoid interference of larger size plug tops. Nothing will be paid extra for blanking plate and larger box size.
- 24 The Electrical works shall be carried out by the contractor, side by side with the progress of the civil works.
- 25 The Contractor shall furnish documentary proof like delivery challans of purchasing Wires, Modular switches & accessories, MCBs, MCBDB, Fittings, accessories and other items from the manufacturers or their authorized dealers to the satisfaction of the Engineer-in-charge.

- 26 All PVC conduits accessories shall be of the same make as conduits. The Conduits shall be terminated at switch boxes/metallic junction boxes with suitable PVC glands/check nuts.
- 27 Cutting of brick walls shall be with chase cutting machine only. All repairs and patch works shall be neatly carried out to match the original finish and to the entire satisfaction of the Engineer in Charge.
- 28 All the sub main and circuit wiring includes loose wire for connections inside switch boxes and MCB DB s. No payment for these loose wires shall be made. However wires within the cubicle panel will be measured and paid under relevant item of work.
- 28.1 All the circuits / sub-main wiring are to be suitably numbered with stickers / marker pen at LT panel, MCBDBs, switch boards (on backside of cover plate) for ease of maintenance. Nothing shall be paid extra on this account.
- 29 ~~The contractor shall submit the completion plan separately in triplicate on blue print/ computer plotted with one set on tracing "Cloth" as per Clause 8 of the contract within 20 Days of the completion of work. In case, the contractor fails to submit the plan, he shall be liable to pay a sum equivalent to 2.5% of the value of the work subject to a ceiling of Rs.25000.00~~
- 30 To facilitate drawing of wires, 18 SWG GI fish wire shall be provided along with laying of recessed conduit for which no extra payment shall be made. Conduits laid for other services, like fire alarm, PA etc., where wiring is not done along with IEI works, fish wire shall be invariably drawn.
- 31 The connection between incoming switch / isolator and bus bar shall be made with suitable size of thimble and cable at no extra cost.
- 32 Copper conductor of insulated cables of size 1.5 Sq.mm and above shall be stranded and terminals provided with crimped lugs.
- 33 All MS junction box cover should be of phenolic laminated / good quality plastic sheet of thickness not less than 3mm and for which nothing extra shall be paid on the account.
- 34 All sub-main wiring shall be terminated in the main board with suitable copper lugs and thimbles for which nothing extra will be paid on this account.
- 35 All hardware items such as screws, thimbles, GI wire etc. which are essentially required for completing an item as per specifications will be deemed to be included in the item even when the same have not been specifically mentioned.
- 36 All hardware items such as nuts/ bolts/ screws/ washers etc. to be used in work shall be zinc/ cadmium plated iron.
- 37 Any conduit which is not be wired by the contractor shall be provided with GI fish wire for wiring by some other agency subsequently. Nothing extra shall be paid for the same.
- 38 While laying conduit, suitable size junction boxes shall be provided for pulling the wire as per the decision of the E-in-C.
- 39 Materials to be used in work are to be ISI marked. The make of the materials have been indicated in the list of acceptable makes. No other makes will be acceptable. The materials to be used in the work shall be got approved by the Engineer in Charge / his representative before its use at site. The E-in-C shall reserve the right to instruct the contractor to remove the material which, in his opinion, is not acceptable.

- 40 Where switches/ sockets/ regulator/ telephone/ TV / internet outlets are to be provided, the same shall be of only one make.
- 41 While laying conduits for fire alarm system, sufficient junction outlets are to be provided as per the direction of the Engineer-in-Charge for detectors as required, for which no extra payment shall be made.
- 42 Wherever light fittings are proposed to be provided on the false ceiling, the respective light / fan point wiring will have to be brought upto the terminal of the light fittings / fans by the contractor. Flexible metal conduits shall be used for drawing wires from PVC conduits on ceiling to fittings on false ceiling and nothing extra shall be paid to the contractor for the same. The height from false ceiling to ceiling is about 1.2 metres.
- 43 In case the same item appears more than once in the schedule of work under the same sub head or among the different subhead of works, the lowest rate quoted for that item shall be taken for other items also.
- 44 The work should be carried out at the proposed **at IIOR, Rajendranagar, Hyderabad.**
- 45 All statutory deductions like Income Tax ,GST, Labour welfare cess etc. shall be deducted from the bills.
- 46 **MOBILIZATION ADVANCE:**  
**As per Major component.**
- 47 **INSURANCE AND STORAGE:**  
All consignments are to be duly insured upto the destination from warehouse at the cost of the contractor. The insurance covers shall be valid till the equipment is handed over duly installed, tested and commissioned.

// Contractor //

Executive Engineer (E)-HYD-I

## **ADDITIONAL CONDITIONS AND SPECIFICATIONS OF COLD STORAGE**

1. The work shall be carried out strictly in accordance with the CPWD General Specification for Electrical works, Part-I Internal 2013 and Part II 1994 (External) and General Specifications for Heating, Ventilation & Air-Conditioning (HVAC) 2017 as amended up to date. All installations shall also comply with the requirements of Indian Electricity Rules 1956, as amended up to date. In case of items not covered by the above specifications the work shall be carried out as per the instructions of the Engineer -in- Charge. Note: **The COLD STORAGE has to be designed by contractor by engaging a specialized agency or engaging a consultant as per design Basis given in the schedule of work. the designed system has to be got approved by engineer –in –charge, for engaging consultant nothing extra will be paid. the cold storage has to be designed for seed storage for the temperature between 8<sup>o</sup> C to 12<sup>o</sup> Celsius and humidity between 40 to 60 %. ALL items required for cold storage should be deemed to include in the BOQ except racks in the cold room only ss light fitting to be provided for 400 lux.**
2. All materials used shall conform to relevant Indian Standard Specification and where ever existing materials with ISI certification mark shall only be used.
3. The contractor shall have to obtain prior approval from Engineer -in -charge before placing the order for any specific materials. The Engineer -in -Charge may approve any of the makes /Brands out of the list of accepted makes (enclosed). All the materials to be used in the work shall be got approved by the Engineer -in- charge prior to their actual in the work.
4. Bad workmanship shall be rejected in to.
5. All repairs and patch works shall be neatly carried out to match with the original finish by the contractor to the entire satisfaction of the Engineer -in-Charge.
6. All the debris due to the electrical works shall be cleared every now and then and site shall be kept clean by the contractor at all times.
7. The contractor is fully responsible to make his own arrangements for the watch and ward of materials at site as well as the installations provided by him till such time the installation / work is completed and handed over to the department in satisfactory working condition for which no extra claim will be entertained on account of damage, theft, pilferage etc., for the materials and installations.
8. The contractor shall make his own arrangement for all General and Special T & P required for the work. No T & P items shall be supplied by the department.
9. The material to be used in the work shall be procured only from authorised source / dealers /distributors and documentary evidence to this effect shall be submitted as and when desired to the Engineer -in-Charge or his representative failing which the Engineer -in -charge reserves the right to reject the materials in toto.
10. Price quoted shall be inclusive of all taxes including GST.
11. The quantities given in schedule of work for all the items are tentative. The work shall be carried out as per actual requirement and as approved by the Engineer -in - Charge.
12. GST, Labour Cess, Income Tax and other statutory deductions as applicable shall be deducted at source from the contractor's bills.
13. The work shall be carried out in the **I I O R, Rajendranagar, Hyderabad**

14. The entire work shall be guaranteed for a period of **1 (One) year** from the date of completion of work. The projectors shall be guaranteed for a period of 3 years from the date of completion of work. 5% of the Quoted price of the projectors shall be with held for a period of 3 years and shall be released after the successful completion of the guarantee period of 3 years.
15. The contractor shall visit the site of work before quoting the e-tender.
16. All necessary connectors & accessories etc required for testing & commissioning shall be provided by the agency within the quoted rates & Nothing will be paid extra.
17. All statutory / Mandatory recoveries in force and as notified by competent authority from time to time shall be recovered from the bills of the agency.
18. The material to be used in the work shall be procured only from authorized sources / dealers / distributors and documentary evidence to this effect shall be submitted as and when desired to the Engineer-in-Charge failing which the Engineer-in-Charge reserves the right to reject the materials in toto.
19. The No damage shall be caused to the existing structure / installation / equipment Durin during the course of execution of the work. Any damage caused shall be made Good at no extra cost.
20. All the openings in the walls / ceiling including chases etc in the walls shall be part of the scope of the work and nothing extra shall be paid on this account. All the openings and chases etc made shall be finished properly
21. The price quoted shall be firm and inclusive of all taxes and duties i/c GST.GST, Income Tax and Labour welfare Cess will be deducted at source from the contractor"s bills
22. The contractor should make minimum fair wages to the staff as per prevailing labour laws, The wages shall be made to the bank account of the labour and proof shall be submitted to JE(E)/AE(E).
23. All the workmen engaged for the work shall get social security benefits from Contractor like EPF & ESI and proof shall be submitted to JE(E)/AE(E).
24. The scope of work includes all supports and having arrangements etc required from the ceiling / struss supports etc. nothing extra shall be paid.

/ Contractor /

Executive Engineer (E)-HYD-I,

## ADDITIONAL CONDITIONS FOR DG SETS

### 3.1 Design, Equipment, Selection.

- 3.1.1 The tenderer shall submit detailed schematic diagram for the approval of the Engineer-in-charge. He will make sure that the equipment offered shall fulfill the design conditions. All the equipments and their installation shall be suitable for the environmental conditions encountered at the location as indicated in specifications.
- 3.1.2 The acoustic enclosure (Canopy) shall be manufactured by respective engine OEM/OEA and should be CPCB IV Plus norms compliant. Only model Numbers having Type Approval and valid conformity of production certificate for noise level as per CPCB IV Plus norms shall be accepted. Copies of Type approval and COP certificate have to be submitted at the time of submission of drawings for approval.
- 3.1.3 The AMF panel and canopy manufactured by OEM/OEA are only acceptable.
- 3.1.4 The number and size of the MS pipe for exhaust piping shall be as per the recommendation of the engine manufacturer. Wherever 2 numbers exhaust pipes are recommended by the engine manufacturer, the number of silencer shall also be 2 numbers.

### 3.2.1 CPWD Specifications:

The entire work shall be carried out as per following CPWD General

- a) CPWD General Specification for Electrical works (Part-VII) DG Set 2013
  - b) CPWD General Specification for Electrical works (Part-I) Internal – 2013
  - c) CPWD General Specification for Electrical works, (Part-II) External -1994
  - d) CPWD General Specification for Electrical works, (Part-IV) Sub-Station- 2013
- Specifications for Electrical work wherever applicable and as amended up-to-date. The tender specifications wherever they differ from these specifications as indicated above, shall have overriding value and shall be followed for this work.

### 3.2.2 Indian Electricity Act and Rules:

All electrical works in connection with installation shall be carried out in accordance with the provision of Indian Electricity Act 2003 and Indian Electricity Rules 1956, both amended up-to date.

### 3.2.3 Indian Standards:

All the components shall conform to relevant Indian Standard specifications, wherever existing, amended to date. A list of such standards is appended in appendix V in specification.

### 3.2.4 Fire Regulation:

The installation shall be carried out in conformity with the local Fire Regulations and Rules there under wherever they are in force and the provisions in local bye-laws, if any.

### 3.2.5 Safety Code and Labour Regulation:

i) In respect of all labour employed directly or indirectly on the work for the performance of 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, CPWD Code and instructions issued from time to time. Failure to provide such safety requirements would make the tenderer liable for penalty for Rs. 2000/- per week for each violation. In addition the Engineer-in-Charge, 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 executing the work of DG set installation, cables etc. or wherever

necessary so as to avoid accident. He shall also indemnify CPWD 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 department shall not be responsible for any accident occurred or damaged 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.

### **3.2.6 Central Pollution Control Board (CPCB IV) NORMS:**

The DG Sets shall meet the requirements of environmental (protection) rules 1986 as laid down by Ministry of Environment & Forests read with GSR 371 (E) dtd. 17-02-02 and GSR 520 (E) dtd. 01-07-03. The firm need to furnish the certificate of Type approval and certificate of conformity of production issued by the Central Pollution Control Board (CPCB) or any authorized agency as prescribed in the above law.

### **3.3 Scope of work**

#### **WORKS TO BE DONE BY THE CONTRACTOR**

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: -

- (i) Foundations for equipments including vibration isolation springs/ pads, Making good all damages caused to the structure during installation and restoring the same to their original finish.
- (ii) Minor building works necessary for installation of equipments, foundation trench for fuel line & cable, making of opening in walls or in floors and restoring them to their original condition/finish and necessary grouting etc. as required.
- (iii) All supports for exhaust & water pipes, chimney, bus trunking (if included in scope of contract), cables, anti- vibration pads etc. as are necessary.
- (iv) All electrical work and neutral earthing, body earthing, required for engine & alternator, main board/ control panels, and control wiring including loop earthing, if specified in Schedule of Work.
- (v) All pipes, bus trunking and/ or cable connections.
- (vi) POL i.e. HSD oil and Lub. oil for diesel engine for testing & commissioning for 12 hours i/c 1hr of 10% overloading at OEA/ OEM works shall be arranged by the contractor. POL i.e. HSD oil and Lub. oil for trial run of 4 Hrs. at site at available load shall be arranged by the department.
- (vii) Painting of all exposed metal surfaces of equipments and components with appropriate colour.
- (viii) Clearance/ Approval of the complete installation from CPCB/ State Pollution Control Board, Central Electricity Authority (CEA)/ Local Bodies and other licensing authorities, wherever required.

**3.4 Acceptable make:** Approved makes of materials to be used in the work have been appended with tender Document.

### **3.5 Diesel Engine**

#### **3.6.1 Engine rating**

The engines shall be multi cylinders, vertical, 4 stroke cycles, water cooled, turbo charged with after cooler diesel engine developing suitable BHP for giving a prime power output of **160 KVA** as designed for individual set at 0.8 P.F. at the load terminals of the respective alternators (exclusive of the power requirements of auxiliaries deriving power from the engine) (as per ISO 8528 part- I).

The engines shall be capable for delivering specified prime power rating at variable loads for PF of 0.8 lag with 10% overload available in excess of specified output for

one hour in every 12 hours. The average load factor of the engine over period of 24 hours shall be 0.85 (85%) for prime power output.

The engines shall conform to BS 5514/ BS 649/ IS10000/ ISO: 3046 amended upto date. The engines shall be fitted with following accessories.

- i) Fly. Wheel, dynamically balanced to suit flexible coupling with necessary housing.
- ii) Necessary flexible coupling and guard for alternator and engine.
- iii) Air cleaner dry type with replaceable elements.
  - a. Corrosion Inhibitor Coolant.
  - b. An electronic speed governor of class-A1 to maintain engine speed at all conditions of load.
- vi) M.S. sheet daily fuel service tank of suitable capacity as specified in BOQ. Tank should be provided with inlet, outlet connections, air vent folding tap, drain plug and level indicator (gauge). M.S fuel piping from tank to engine with valves, unions, reducers, flexible hose connection and floor mounting pedestals, twin fuel filters and fuel injectors. The location of the tank shall depend on standard manufacturers design.
- vii) Fuel pump.
- viii) Residential exhaust silencers with flanges.
- ix) Suitable self starter 12 / 24 V D.C.
- x) Battery Charging alternator unit and voltage regulator, 1 / 2 Nos. 12/24 Volts hour heavy duty lead acid type batteries as per manufacturers design, insulated battery racks with interconnecting leads and terminals. The connection between battery charger and batteries shall be provided with suitable copper leads with lugs etc.
- xi) Necessary pumps for lubricating oil, priming of engine bearing as well as fuel system etc. as required.
- xii) Exhaust gas turbocharger with after cooler.
- xiii) Lubricating oil cooler.
- xiv) Lubrication oil filters with replaceable elements.
- xv) Fuel injector.
- xvi) Fuel control solenoid.
- xvii) Fuel pump with engine speed adjustment.
- xviii) Engine Control Panel fitted and having digital display for following:
  - a) Start / stop key switch.
  - b) Lube oil pressure indication.
  - c) Water temperature indication.
  - d) RPM indication.
  - e) Engine Hours indications.
  - f) Battery charging indication.
  - g) Low lube oil trip indication.
  - h) High water temperature indication.
  - i) Over speed indication
- xix) Safety controls against low lube oil pressure, high lube oil temperature, and high cooling water temperature and fail to start.
- xx) Base frame as per manufacturer's specification including required nos. of anti vibration cushy foot mountings.
- xxi) Necessary over-speed trip on the engine.
- xxii) 1 no. 0.5 hp mono block, self prime pump set with suitable size & length suction & delivery oil resistive pipe for filling the daily service fuel tank.
- xxiii) Exhaust piping wrapped with asbestos rope of not less than 10 mm dia. complete with aluminium foil covering.
- xxiv) Heavy Duty Radiator, radiator fan and mounting.
- xxv) Set of standard tools.

All moving parts of the engine shall be mechanically guarded in such a manner that a human cannot touch any moving part.

**3.6.1.1** Necessary certificate indicating the compliance of the above capacity requirement for the engine model so selected along with compliance of Noise and Emission norms as per latest CPCB guidelines for DG set capacity up-to 400 KVA, should be furnished from the manufacturers along with the technical bid. However, above 400 KVA DG set, manufacturers shall furnish certificate that the engine for the DG set complies with the CPCB Emission norms.

The guidelines as per CPWD General Specification for DG set-2006 (Part-VII) to be followed in this regard.

### **3.6.2 Governor**

The Governor shall be mechanical type confirming to class A2 confirm to ISO 3046 / BS 5514 with actuator as per standard design of manufacturer.

### **3.6.3 Frequency variation**

The engine speed shall be so maintained that frequency variation at constant load including no load shall remain within a band of 1% of rated frequency.

### **3.6.4 Fuel System**

It shall be fed through engine driven fuel pump. A replaceable element of fuel filter shall be suitable located to permit easy servicing. The daily service tank shall be complete with necessary supports, gauges, connecting pipe work etc. In case of top mounted tanks, non return valves are must in fuel supply and return line of specified value. Pipe sealant should be used for sealing all connections. No Teflon tape is to be used. If piping length is more than 10 meters, detail engineering is required in consultation with OEM / Manufacturers.

### **3.6.5 Lubricating oil system**

It shall be so designed that when the engine starts after a long shut down lubricating failure does not occur. Necessary priming pump for the lube oil circuit shall be installed to keep bearings primed. This pump shall be normally automatically operative on AC/DC supply available with the set.

### **3.6.6 Starting System:-**

This shall comprise of necessary set of heavy-duty batteries 12/24 V D.C., and suitable starter motors, axial gear to match with the toothed ring on the flywheel. Battery capacity shall be suitable for meeting the needs of the starting system as well as the requirements of control panel, indications and auxiliaries such as priming pump etc. the scope shall cover all cabling, terminals including initial charging etc. The system shall be capable of starting the DG Set within 20-30 sec, even in winter condition with an ambient temperature down to Zero deg. C.

### **3.6.7 Piping work**

All pipe lines and fittings and accessories required inside the engine room /enclosure and outside for exhaust piping shall be provided by the contractor. This shall include necessary flexible pieces in the exhaust, fuel, lube oil and water as are necessary in view of the vibration isolation requirement in the installation. Piping of adequate size shall be used for lube Oil of the materials as per manufacturer standard. However, only MS pipes for the exhaust and fuel oil lines shall be used.

The pipe work shall be inclusive of all fittings and accessories required such as bends, reducers, elbows, flanges, flexible connections, necessary hardware's etc. The installation shall cover clamps, supports, hangers etc. as are necessary for completing the work. Welding or brazing will be permitted in the installation. However, the work shall be sectionalized with flanged connections as are necessary for easy isolation for purposes of maintenance of unit as approved by Engineer-in-charge.

All M.S. pipe work shall be medium class. The work includes necessary lagging of exhaust pipe work using asbestos rope.

### 3.6.8 Common bed plate

Engine and alternator shall be coupled by means of flexible coupling and both units shall be mounted on a common bed plate together with all ancillaries to ensure perfect alignment of engine and alternator with all minimum vibrations. The bed plate shall be such that it will be feasible to remove the engine sump without disturbing the engine assembly. Fabricated bed plate will be acceptable. The bed plate shall be suitable for installation on suitable anti-vibration mounting system.

### 3.6.9 Exhaust System

**3.6.9.1** Exhaust piping: All MS pipes for exhaust lines shall be conforming to relevant IS. The runs forming part of factory assembly on the engine flexible connections upto exhaust silencer shall be exclusive of exhaust piping item. The work includes necessary cladding of exhaust pipe work using 10mm dia asbestos rope insulation & aluminium cladding (0.80 mm thick) for the complete portion. The exhaust pipe work includes necessary supports, foundation etc. to avoid any load & stress on turbo charger / exhaust piping. The exhaust pipe support structure shall be got approved by engineer –in-charge before execution.

- 3.6.9.2**
- a) Exhaust system should create minimum back pressure.
  - b) Number of bends should be kept minimum and smooth bends should be used to minimize back pressure.
  - c) Pipe sleeve of large dia should be used while passing the pipe through concrete wall & gap should be filled with 'felt lining.
  - d) Exhaust piping inside the Acoustic Enclosure / Gen set room should be lagged with asbestos rope along with aluminium sheet cladding to avoid heat in put to the room.
  - e) Exhaust flexible shall have it's free length when it is installed. For bigger engines, two flexible bellows can be used.
  - f) For engines upto 400 KVA, only one bellow is required. However, if exhaust pipe length is more than 7 m, then additional bellow / provision for expansion should be provided.
  - g) 1'Class B' MS pipes and long bend / elbows should be used.
  - h) The exhaust outlet should be in the direction of prevailing winds and should not allow exhaust gases to entire air inlet / windows etc.
  - i) When tail end is horizontal, 45 Degree downward cut should be given at the end of the pipe to avoid rain water entry into exhaust piping.
  - j) When tail end is vertical, there should be rain trap to avoid rain water entry. If rain cap is used, the distance between exhaust pipe and rain cap should be higher than diameter of pipe.

Horizontal run of exhaust piping should slope downwards away from engine to the condensate trap. Silencer should be installed with drain plug at bottom.

**3.6.9.3** Optimum Silencer Location: Location of the silencer in exhaust system has very definite influence on both reduction of noise and back pressure imposed on the system.

**3.6.9.4** Care should be taken to ensure that no carbon particle emitted due to exhaust leaking enters and deposits on alternator windings and on open connections.

**3.6.9.5** *Support to exhaust piping:* Exhaust piping should be supported in such manner that load of exhaust piping is not exerted to turbo charger.

### 3.7 Air System

It is preferable to provide vacuum indicator with all engines to indicate choked filter. Maximum air intake restrictions with clean and choked filters should be within prescribed limit as per OEM / Manufacturer recommendation for particular model of the engine. Gen set should be supplied with medium duty air cleaners.

### 3.8 Cooling System

- I. System should be designed for ambient condition of Hyderabad.
- II. Water softening /demineralising plants should be used, if raw water quality is not acceptable.
- III. Coolant should be used mixed with additive (in suitable proportion) as per recommendation of OEM /Manufacturer for various engine models.
- IV. Radiator fan flow should be free from any obstruction.
- V. For radiator cooled DG Set and proper room ventilation should be planned at the time of construction of DG room.

### 3.9 Alternator

**3.9.1 Synchronous Alternator:** Self excited, screen protected, self regulated, brush less alternator, horizontal foot mounted in single bearing construction suitable for the following:

Rated PF	:	0.8 (lag)
Rated voltage	:	415 Volts
Rated frequency	:	50 Hz
No. of phases	:	3
Enclosure	:	SPDP
Degree of protection	:	IP-23
Ventilation	:	Self ventilated air cooled
Ambient Temperature:	:	400 C maximum
Insulation class	:	H
Temperature Rise	:	Within class H limits at rated load
Voltage regulation	:	+/- 1%
Voltage variation	:	+/- 5%
Overload duration / capacity :	:	10% for one hour in every 12 hours of continuous use.
Frequency variation	:	As defined by Engine Governor(+/- 1%)
Excitation	:	Self excited.
Type of AVR	:	Electronic
Type of Bearing and arrangement lubrication Standard	:	Anti-friction bearing with Grease Lubrication :IS – 4722 & IEC : 34 as amended up to date.

**3.9.2** Alternator should be able to deliver output rating at ambient condition of 40 deg.C

**3.9.3 Excitation:** The alternator shall be brushless type and shall be self-excited self regulated having static excitation facility. The exciter unit should be mounted on the control panel or on the alternator assembly.

The rectifier shall be suitable operation at high ambient temperature at site.

**3.9.4 Automatic Voltage regulators (AVR):** In order to maintain output terminal voltage constant within the regulation limits i.e +/- 1%, Automatic voltage regulator unit shall be provided as per standard practice of manufacturer.

**3.9.5 Fault Tripping:** In the event of any fault e.g over voltage / high bearing temperature high winding temperature or an external fault, the AVR shall remove the excitation voltage to the alternator. An emergency trip shall also be provided.

**3.9.6 Standards:** the alternator shall be in accordance with the following standards as are applicable.

- i) IS: 4722/BS: 2613 / 1970. the performance of rotating electrical machine.
- ii) IS: 4889/ BS: 269 rules for method of declaring efficiency of electrical machine.

**3.9.7 Performance:** Voltage dip shall not exceed 20% of the rated voltage for any step load or transient load as per ISO:8528 (part I). The winding shall not develop hot spots exceeding safe limits due to imbalance of 20% between any two phases from no load to full load.

The generator shall be capable of withstanding a current equal 1.5 times the rated current for a period of not more than 15 second as required vide clause 14.1.1 of IS 4722: 1992. The performance characteristics of the alternator shall be as below:

- a) Efficiency at full load 0.8 PF Not less than 90%
- b) Total distortion factor Less than 3%
- c) i) 10% overload One hour *after* every 12 hrs of continuous use.  
ii) 50% overload 15 sec

**3.9.8 Terminal Boxes:** Terminal boxes shall be suitable for UG cables / Bus Trunking. The terminal box shall be suitable to withstand the mechanical and terminal stresses developed due to any short circuit at the terminals.

**3.9.9 Earth terminals:** 2 nos. earth terminals on opposite side with vibration proof connections, non-ferrous hardware etc. with galvanized plate and passivated washer of minimum size 12mm dia hole shall be provided.

### **3.10 AMF Control Panel**

#### **3.10.1 Location:**

Associated AMF panel of DG set can be located inside the acoustic enclosure or outside the acoustic enclosure as per the manufacturer's standard. In case the AMF panel is to be installed outside the acoustic enclosure, it should be closer to the acoustic enclosure in consultation with the Architect.

#### **3.10.2 General Features:**

The control panel shall be fabricated out of 2 mm sheet steel totally enclosed, dust, damp and vermin proof free standing floor mounted type and front operated. It shall be made into sections such that there should be no mixing of control, power, DC & AC functions. Hinged doors shall be provided preferably double leaf for access for routine inspection from the rear. There is no objection to have single leaf hinged door in the front, all indication lamps, instrument meters etc. shall be flushed in the front. The degree of protection required will be IP-42 conforming to IS:2147.

##### **3.10.2.1 Terminal blocks and Wiring:**

Terminal blocks of robust type and generally not less than 15 Amps capacity, 250/500 volts grade for DC upto 100 volts and 660/1100 volts grade for AC and rest of the junctions shall be employed such a manner that they are freely accessible for maintenance. All control and small wiring from unit to unit inside the panel shall also be done with not less than 2.5 sq.mm. Copper conductor PVC insulated and 660/1100volts grade. Suitable colour coding can be used. Wiring system shall be neatly formed and run function wise and as far as feasible segregated voltage wise. All ends shall be identified with ferrules at the end.

##### **3.10.2.2 Labeling and Painting:**

All internal components shall be provided with suitable identification labels suitably engraved. Labels shall be fixed on buttons, indication lamps etc. The entire panel shall be given primer coat after proper treatment and powder coating with 7 tank process before assembly of various items.

**3.10.2.3 Equipment requirements:** The control cubicle shall include the following

- a) Control system equipments and components such as relays, contactors, timers, etc both for automatic operation on main failure and as well as for manual operation.
- b) Equipments and components necessary for testing generating set's healthiness with test mode and with load on mains.
- c) Necessary instruments and accessories such as voltmeter, power factor meter, KW meter, KWH meter, ammeter, frequency meter etc. in one energy analyzer with selector switch to obtain the reading of desired parameters.
- d) Necessary indication lamps, fuses, terminal blocks, push buttons, control switches etc. required.
- e) Necessary engine/generating set shut down devices due to faults/abnormalities.
- f) Necessary visual audio alarm indication and annunciation facility as specified.
- g) Necessary battery charger.
- h) Necessary excitation control and voltage regulating equipment.
- i) Necessary cable end terminations, all internal wirings, connections etc as required.
- j) Switch gears as specified in the schedule of work.

**3.10.3 System Operation:**

The following operations are required:

**3.10.3.1 Auto mode**

- a) A line voltage monitor shall monitor supply voltage on each phase. When the main supply voltage fails completely or fails below set value (variable between 80 to 90% of the normal value) on any phase, the monitor module shall initiate start-up of diesel engine. To avoid initiation due to momentary disturbances, a time delay adjustment between 0 to 5 sec shall be incorporated in start-up initiation.
- b) A three attempt starting facility shall be provided 6 seconds ON, 5 seconds OFF, 6 seconds ON, 5 seconds OFF, 6 seconds ON. If at the end of the third attempt, the engine does not start, it shall be locked out of start and a master timer shall be provided for this function. Suitable adjustment timers are to be incorporated which will make it feasible to vary independently ON-OFF setting periods from 1-10 seconds. If alternator does not build up voltage after first or second start as may be further starting attempt will not made until the starting facility is reset.
- c) Once the alternator has built up voltage, the alternator circuit breaker shall close connecting the load to the alternator. The load is now supplied by the alternator.
- d) When the main supply is restored and is healthy as sensed by the line voltage monitor setting, both for under voltage and unbalance, the system shall be monitored by a suitable timer which can be set between 1 min to 10 min for the load to be transferred automatically to main supply.
- e) The diesel alternator set reverts to standby for the next operation as per (a),(b) and (c) above.

**3.10.3.2 Manual mode:**

- a) In a manual mode, it shall be feasible to start-up the generator set by the operator on pressing the start push button.
- b) Three attempts starting facility shall be operative for the start up function.
- c) Alternator circuit breaker closing and trip operations shall also be through operator only by pressing the appropriate button on the panel and closure shall be feasible only after alternator has built up full voltage. If the load is already on 'mains', pressure on 'close' buttons shall be ineffective.
- d) Engine shut down, otherwise due to faults, shall be manual by pressing a 'stop' button.

**3.10.3.3 Test mode**

- a) When under 'test' mode, pressing of 'test' button shall complete the start up sequence simulation and start the engine. The simulation will be that of main failure.
- b) Engine shall build up voltage but the set shall not take load by closing of alternator circuit breaker. When the load is on the mains, monitoring of performance for voltage/frequency etc. shall be feasible without supply to load.
- c) If during test mode, the power supply has failed, the load shall automatically get transferred to alternator.
- d) Bringing the mode selector to auto position shall shut down the set as per sequence 10.3.1 (d) provided main supply is ON. If the main supply is not available at that time, the alternator shall take load as in (c) above.

**3.10.4 Engine shut down and alternator protection equipments:**

Following shut down and protection system shall be integrated in the control Panel.

**a) Engine**

- i) Low lubricating oil pressure shut down. This shall be inoperative during up and acceleration period.
- ii) High coolant (Water) temperature shut down.
  - ii) Engine over speed shut down.

**b) Alternator protection**

- i) Overload
- ii) Short circuit
- iii) Earth fault
- iv) Over voltage

**3.10.5 Monitoring and metering system:**

- a) Necessary energy analyzer unit for visual monitoring of mains, alternator and load voltage, current, frequency, KWH, power factor etc.
- b) A set of visual monitoring lamp indication for:
  - i) Load on set
  - ii) Load on mains
  - iii) Set on Test (Alternator on operation duty, Alternator on stand-by duty)
  - iv) Set of lamp for engine shut down for over-speed, low lube oil pressure and high coolant water temp, overload trip of alternator, earth leakage trip of alternator, engine lock out and failure to start etc. All these indication shall have an audio visual alarm. When operator accepts the alarm, the hooter will be silenced and the fault indication will become steady until reset by operating a reset button.

**3.10.6 Operating Devices:**

A set of operation devices shall be incorporated in the front of panel as under.

**a) Master Engine Control Switch**

This shall cut off in "OFF" position DC control supply to the entire panel, thus preventing start-up of engine due to any cause. However, battery charger, lamp test button for testing the healthiness of indication lamps, DC volt meter, ammeter etc. shall be operative. It shall be feasible to lock the switch in OFF position for maintenance and shut down purposes.

**b) Operation selector switch OFF/AUTO /MANUAL/TSET position****c) A Set of push buttons as specified.****d) Necessary battery charger with boost / trickle selector, DC voltmeter and DC ammeter.****e) Energy analyzer unit for display of various electrical parameters like voltage, current, frequency, KW, Power factor etc****f) Relays, contactors, timers, circuit breakers as required.**

### 3.11 Battery / Electrical System

**3.11.1** Batteries supplied with Gen set are generally dry and uncharged. First charging of uncharged batteries is very important and should be done from authorized battery charging centre. Initial charging should be done for 72 – 80- hours.

**3.11.2** Batteries should be placed on insulated stands and relatively at cool place.

**3.11.3** The battery should be 180 AH capacity 12 / 24 Volt, 25 plate and the size of copper conductor battery cable should be of 70 sq.mm.

**3.11.4** For AMF applications, a static battery charger working on mains supply is recommended to keep the charged all the times.

**3.11.5** 1.5 Sq. mm. copper wire should be used for wiring between junction box and control panel.

### 3.12 Cabling

Power cabling between alternator to control panel and control panel to changeover switch should be done with one no. 3.5 core 400 sq.mm XLPE insulated aluminium conductor armoured cable.

**3.12.1** Multi core copper cable should be used for inter connecting the engine controls with the switch gear and other equipments.

**3.12.2** It is recommended to support output cables on separate structure on ground so that weights of cables should not fall on alternator / base rail.

### 3.13 Foundation

**Scope:** This section covers details of foundations for DG set with or without acoustic enclosures.

**Gen set with acoustic enclosure:**

a) For DG Sets installed inside the DG Set Room - A PCC foundation (1:2:4, M- 20 grade) of approximate depth 150mm above the finished Gen set Room Floor level is required so as to provide leveled surface for placement of the acoustics enclosure. The length and breadth of foundation should be at least 250 mm more on all sides than the size of the enclosure. Gen set should be mounted on AVM's inside the enclosure.

b) For DG Sets installed outside in open area - A PCC (1:2:4, M-20 grade) foundation of weight 2.5 times the operating weight of the Gen set with enclosure or as recommended by the Gen set manufacturer OEM/OEA, whichever is higher, is required to provided and is included in scope of work for SITC of Gen set. 300 mm of this foundation height should be above the ground level. The length and breadth of foundation should be at least 250 mm more on all sides than the size of enclosure. Gen set should be mounted on AVM's inside the enclosure. Design of the foundation as recommended by the OEM shall be submitted by the contractor before execution of work along with the drawings.

### 3.14 Acoustic enclosure:

**3.14.1** The enclosure shall be made of *from OEMs only*, who are approved / certified by CPCB.

The canopy will enclose the following items inside: -

- a) Diesel Engine
- b) Alternator
- c) Control Panel
- d) 12 / 24 Volt Starting Battery
- e) Daily service fuel tank.

f) Other accessories so that the DG set with all items and accessories could be placed in open space without any other requirement of Diesel Generator room suitable to withstand all weather conditions.

- 3.14.2** The acoustic enclosure shall be designed and manufactured conforming to relevant standards suitable for outdoor installation exposed to weather conditions, and to limit overall noise level to 75 dB (A) at a distance of 1 mtr. from the enclosure as per CPCB IV Plus norms under free field conditions.
- 3.14.3** The construction should be such that it prevents entry of rain water splashing into the enclosure and allows free & quick flow of rain water to the ground in the event of heavy rain. The detailed construction shall conform to the details as under:
- 3.14.4** The acoustic enclosure will be made on the basis of modular construction i.e made in parts and can be assembled or disassembled at site. All members will be properly gasketed and bolted together. The structure should be weather proof.
- 3.14.5** The enclosure will be totally enclosed type made of high quality CRCA sheet of thickness at least 16 SWG (1.6 mm)
- 3.14.6** The sheet metal components shall be hot dip seven tanks pre-treated before powder coating. The enclosure shall be powder coated (inside as well outside) with a special pure polyester based powder. All nut and bolts / external / hardware shall be made of Stainless Steel.
- 3.14.7** Sound proofing of the enclosure shall be done with high quality Fire Retardant insulation material i.e. Glass wool / mineral wool of minimum 50mm thickness conforming to relevant IS. The sound proofing materials would be further covered with fine glass fibre cloth and would be supported by perforated MS sheet duly powder coated.
- 3.14.8** The doors shall be gasketed with high quality gaskets to prevent leakage of sound and the door handles shall be lockable type.
- 3.14.9** There shall be a provision for filling fuel from outside the enclosure with locking arrangement. Fuel tank should have provision for cleaning.
- 3.14.10** The provision of external drain plug shall be kept for draining lub oil and diesel.
- 3.14.11** Especially design attenuators shall be provided to control sound at air entry exit point.
- 3.14.12** Especially design residential silencer shall be provided within the enclosure to reduce exhaust noise.
- 3.14.13** Adequate ventilation shall be provided to meet total air requirement. If necessary suitable numbers of axial flow fan and exhaust fan of suitable dia meter shall be provided as per manufacturer.
- 3.14.14** The temperature rise inside the enclosure should not be more than 50 C for maximum ambient above 40 deg.C and it should be below 100 C for ambient below 40 deg.C.
- 3.14.15** Temperature Control Relay which continuously indicates the inside temperature of the canopy with variable setting for tripping the generator.
- 3.14.16** There shall be a provision of emergency shutdown from outside the enclosure.

- 3.14.17** Acoustic enclosure will be provided with flexible exhaust pipe connection with adequate and suitable arrangement of mounting of the residential silencer mounted on the top and concealed in the body of the enclosure. The exhaust pipe will be provided with asbestos rope insulation of 10mm thick and covering with aluminium foil. The exhaust pipe inside the enclosure must be lagged (except below).
- 3.14.18** The DG set will be provided with special spring mounted vibration damper to eliminate the vibration when DG set is working on full load.
- 3.14.19** The front panel should include engine RPM meter electrically operated.
- 3.14.20** The Fuel gauge shall have electrically operated – fuel gauge shall have to provide inside the enclosure.
- 3.14.21** There should have a provision of DC Emergency light operated automatically with door opening.
- 3.14.22** The inside of the enclosure shall be illuminated by the fluorescent tube with the help of PVC insulated copper conductor wiring in recess conduit suitable for single phase AC supply.
- 3.14.23** To avoid re-circulation of hot air, durable sealing between radiator and canopy is must.
- 3.14.24** The acoustic enclosure should be suitable for cable connection / connection through bus-trunking. Such arrangements on acoustic enclosure should be water proof and dust-proof confirming to IP-65 protection.
- 3.14.25** The inside of enclosure should be provided with at least two nos. 28W- T5 fluorescent tube light Luminaire LED lights controlled by a 5A switch for adequate lighting during servicing etc. of the DG Set. The power supply to this Luminaire should be from the load side of the AMF Panel so that it can remain energized under all conditions.
- 3.15 Inspection and Testing**  
The successful tenderer will arrange staff / fuel / POL for test run at his cost.
- 3.15.1** Testing shall necessarily be carried out at factory / manufacturer premises in presence of representative of the department.
- 3.15.2** For testing following procedure will be followed: All major items / equipments i.e. engine and alternator in assembled condition, associated electrical control panels etc. shall be offered for inspection and testing at factory / manufacturers works. The successful tenderer shall give a notice of minimum two weeks for carrying out such tests. The Engineer-in-charge / or his authorized representative shall witness such inspection & testing at mutually agreed date. The cost of the Dept's representative's visit to the factory will be borne by the Department.
- 3.15.3** The department also reserves the right to inspect the fabrication job at factory and successful tenderer has to make arrangements for the same.
- 3.15.4** DG set will be tested on load of unity power factor for the rated KW rating. During testing, the DG set covered under scope of the work, shall be operated for a period of 12 hours on the rated KW at DG set's KW rating i/c 1 hour of 10% over load after continuous run of the 12 hours. During testing all controls / operations safeties will be checked and proper record will be maintained. Any defect / abnormality noticed during testing shall rectified. The testing will be declared successful only when no abnormality / failure is noticed during the testing. **The DG set will be cleared for dispatched to site only when the testing is declared successful by authorised representative / Engineer-in-charge.**

### 3.15.5 Trial Run/ Running-in-Period

After successful testing of the DG Set, a trial run at available load will be carried out for 120 Hours or 15 Days whichever is earlier. The DG Set will be operated and a log of all relevant parameters will be maintained during this period. The arrangement of staff for trial run/ running in period will be made by the successful tenderer. However, diesel shall be provided by Department. The contractor will be free to carry out necessary adjustments. The DG Set will be said to have successfully completed the trial run, if no break-down or abnormal/ unsatisfactory operation of any component of the entire installation included in the scope of work of the contract, occurs during this period. After this the DG Set will be made available for beneficial use. After the DG Set has operated without any major break-down/ trouble, it shall be taken over by the department subject to guarantee clause of the contract. This date of taking over of the DG Set, after trouble free operation during the trial run/ running-in period, shall be the date of acceptance/ taking over.

### 3.15.6 Safety measures

All equipments shall incorporate suitable safety provisions to ensure safety of the operating personnel as per manufacturers' standard practice.

### 3.15.7 STATUTORY CLEARANCE(S)

Approval/ clearance of the complete installation shall be obtained by the contractor from CPCB/ State pollution Control Boards/ Local Bodies/ Central Electricity Authority (CEA)/ other licensing authorities wherever required. However, application shall be made by Department and any statutory fee, as applicable, shall be paid by Department directly to the govt. authorities concerned.

### 3.16 Earthing system

Scope: This section covers the earthing requirement of DG Set installations. Copper plate earthing (Neutral Grounding) shall be provided for DG Sets of capacity 400KVA or above, whereas G.I. plate earthing (Neutral Grounding) shall be provided for DG Sets below 400KVA capacity. The body earthing shall generally be of G.I.

3.16.1.1 The generating set and all associated equipments control and switch gear and switch gear panels must be earthed before the set is put into operation.

3.16.1.2 Four numbers earth sets for each DG Sets are required as under:

- 2 earthing sets for Gen set/ control panel body.
- 2 earthing sets for neutral.

In case there are more than one DG Set in one location, independent two nos. neutral earthing shall be provided for each DG set. However, two nos. earthing sets shall be common for the body earthing of DG Sets, Control Panel, AMF Panel and Essential LT Panel.

3.16.1.3 Earthing job should be carried out per General Specifications for Electrical Works (Part-1-Internal)-2013.

3.16.1.4 Copper or GI strips of suitable size shall be used for earthing as detailed hereunder for interconnection:

3.16.1.4.1 DG Set of 400KVA capacity or above:- Copper strip

3.16.1.4.2 DG Set below 400 KVA capacity:- GI strip

3.16.1.5 For Gen sets with AVM's between engine/ alternator and base rail, the body earthing must be done at the engine/ alternator and not at base-rail.

3.16.1.6 Gen set should be earthed at two distinct points through a conductor strip having cross-section suitable to carry the short circuit (three phase dead short circuit with ground) current without burning out in conformity to General Specifications for Electrical Works (Part-1-Internal)-2013 in vogue.

- 3.16.1.7 Earth Bus: For body earthing, an earth-bus shall be provided.
- 3.16.1.8 In case, DG Set is being installed inside the substation building or near to the substation, for body-earthing of DG set, AMF Panel and Essential Panel, earth bus provided for sub-station shall be used.
- 3.16.1.9 Test joints should be provided for testing the earthing as and when required.
- 3.16.1.10 For further details of Earthing work, like size of plate/ earth strip, depth of earthing, method etc., please refer "CPWD General Specifications For Electrical Works(Part-1-Internal), 2013 in vogue.

// Contractor //

Executive Engineer (E)-HYD-I

**TECHNICAL SPECIFICATIONS FOR UPS**  
**COMMERCIAL AND ADDITIONAL CONDITIONS**

- 1 The work shall be carried out strictly in accordance with the CPWD General Specifications for electrical works, Part-I internal 1994 and Part-II External, 1995 as amended upto date. All installations shall also comply with the requirements of Indian Electricity Rules, 1956 amended upto date. In case of items not covered by the above specifications the work shall be carried out as per the instructions of the Engineer-in-charge.
- 2 All components shall conform to relevant Indian Standard specification. Wherever existing these materials with ISI certification mark shall be used, unless specified otherwise in the Tender schedule.
- 3 All the materials to be used in the work shall be got approved by the Engineer-in-charge before procurement.
- 4 Bad workmanship shall be rejected in toto.
- 5 All the debris due to the electrical work shall be cleared every now and then, site shall be not clean by the contractor at all times.
- 6 The contractor or his authorized representative will have to sign the site order book and comply with the remarks therein.
- 7 The contractor has to make his own arrangements for the watch and ward of the materials and other installations till the installation work is completely handed over to the department. No extra claim will be entertained on account of this. Any damage caused to the materials during or under storage will be to the contractors account.
- 8 The contractor shall make his own arrangement for all general and special T&P required for the work and no T&P shall be supplied by the department.
- 9 Samples of materials to be used on the work shall be got approved by the Engineer-in-charge before actual used. If any materials are rejected they shall be removed from the site forthwith.
- 10 The contractor has to be follow minimum labour wages as fixed by the Labour Officer, Hyderabad letter from time to time.
- 11 Scope of work covers supply, unloading, Storing, installation, testing and commissioning of the system as per the technical specification & technical data sheet, installation cost shall include testing & commissioning also.
- 12 Necessary Copper cabling between UPS and batteries / battery breaker etc., shall be a part of UPS tender.
- 13 Necessary control cabling between different units of UPS shall be a part of UPS Job.
- 14 UPS installation cost shall include necessary MS angle iron base frame of suitable height for bottom cable terminations. The angle iron frame shall be powder coated with shade same as UPS.
- 15 Before procurement Vendor to submit dimensional GA drawing of UPS / Batteries and obtain approval of engineer-in-charge.
- 16 UPS System shall be procured directly from the approved OEMs and proof of purchase submitted along with Warrantee certificate and test certificates from OEM. Testing and commissioning of the UPS system also shall be done in presence of the Engineer from UPS manufacturer and the system certified for satisfactory installation & Commissioning.
- 17 UPS shall be Warranted for a period of 12 months and Batteries shall be Warranted for a period of 24 months from the date of completion of work .

## 18 Payment terms:

On account payments for part work (after stipulated and statutory deductions) as assessed by the Engineer – in-charge for the applicable items in the Contract shall be payable at part rates not exceeding the percentage indicated against the stages of work.

S.N	Stage of work	Percentage of quoted Rate
a	Supply of material at site	70%
b	Installation	15%
c	Testing and commissioning.	10%
d	Handing over	5%

/ Contractor /

Executive Engineer (E)-HYD-I,

<b>SPECIFICATIONS FOR ONLINE UPS-SYSTEM ( 3 KVA UPS ):</b>		
INPUT	Voltage	230V AC to 230 V AC In single phase
	Frequency	50 Hz +/- 10%
	Power Factor	≥ 0.9/1
OUTPUT	Voltage	230 V, +/- 1%
	Phase	Single phase
	Apparent power (kVA)	( 3 kVA)
	Active power (kW)	( 3 KW )
	Frequency	50 Hz ± 0.25%
	Waveform Distortion	Pure Sine wave
	Harmonic Distortion	< 1% at full load for linear load and < 3% at full load for Non linear load
	Crest Factor	03:01
	Over load Capacity	125% for 5 Minutes and 150% for 30 seconds
	Efficiency AC to AC	>90%
	Voltage Regulation	± 1%
BATTERY CHARGER	Type	Built in solid state float -cum-boost charger with automatic boost / trickle charge modes with current limit features.
BYPASS		Automatic and maintenance bypass
INDICATORS	User friendly MIMIC Panel Multi function LED display/ LCD Display	UPS Status, Battery level, Load level, Fault line, Inverter, Bypass, fault/ Trip, battery / Load , Input and Output frequency. Alarms and signals
AUDIBLE ALARM	1. AC Failure	Sound every 4 seconds after line fails
	2. Battery Low	Sound every second when approaches battery low level
	3. UPS Fault	Continuous alarm
PROTECTION	Over / under voltage at I/P	Yes
	Short circuit & overload	The UPS shuts down and should not transfer to the bypass mode when a short circuit occurs on the output of the unit. After the short circuit removed the UPS will operate normally again. At short condition, the Fault LED lights as a warning to end users. Protection through MCB's and Advanced electronic circuitry.
	Lightning / Surge	Yes
ENVIRONMENT	Temperature	0 deg. C to 40 deg. C
	Humidity	20-95% at non condensing
	Audible Noise	Less than 60 db at 1 meter
	Optimized cooling Optimized cooling system	Available
LOAD TESTING & OVER LOAD		Testing to be done at 125% for 10 Minutes 150% for 1 Minute
Isolation Transformer		In-built

/ Contractor /

Executive Engineer (E)-HYD-I,

**LIST OF PREFERRED MAKES**

Sr. No.	Product	Makes
1.	Cold Room Storage Indoor Out units	<ul style="list-style-type: none"> <li>• Bluestar</li> <li>• Voltas</li> <li>• Guentner</li> <li>• Emerson</li> <li>• Danfoss</li> <li>• Daikin</li> </ul>
2.	Coper Refrigerant Pipes	<ul style="list-style-type: none"> <li>• Godrej</li> <li>• Rajco</li> <li>• Mandev</li> <li>• Nippon</li> </ul>
3.	Weather proof loop in loop out box	<ul style="list-style-type: none"> <li>• Obo Betterman</li> <li>• Hensel</li> <li>• Legrand</li> <li>• C&amp;S electric</li> </ul>
4.	Digital Multi Function Meters	<ul style="list-style-type: none"> <li>• Konzerv</li> <li>• L&amp;T</li> <li>• AE</li> <li>• MECO</li> <li>• Rishab</li> <li>• Prok Devices</li> </ul>
5.	Diesel Engine	<ul style="list-style-type: none"> <li>• Cummins</li> <li>• Kirloskar</li> <li>• MTU</li> <li>• Caterpillar</li> <li>• Volvo Penta</li> <li>• Perkins</li> </ul>
6.	AMF panel	<ul style="list-style-type: none"> <li>• OEM/ OEA</li> </ul>
7.	Alternator	<ul style="list-style-type: none"> <li>• Kirloskar</li> <li>• Stamford</li> <li>• Leroysonmer</li> <li>• ABB</li> <li>• Siemens</li> <li>• C&amp;S Electric</li> </ul>
8.	Indicating Lamps (LED type)	<ul style="list-style-type: none"> <li>• Siemens</li> <li>• BCH</li> <li>• L &amp; T</li> <li>• Telemecanique</li> <li>• Vaishnav</li> <li>• Emco</li> <li>• Kaypee</li> </ul>
9.	Selector Switches	<ul style="list-style-type: none"> <li>• Kaycee</li> <li>• BCH</li> <li>• L &amp; T Salzer</li> <li>• Siemens</li> <li>• HPL</li> </ul>
10.	3 KVA On line UPS System	<ul style="list-style-type: none"> <li>• Numeric</li> <li>• Schneider (APC)</li> <li>• ABB</li> <li>• Emersion (Vertiv)</li> <li>• Legrand</li> <li>• Pom Power</li> </ul>

Sr. No.	Product	Makes
11.	Battery	<ul style="list-style-type: none"> <li>• Amarraja</li> <li>• Rocket</li> <li>• Exide</li> <li>• Panasonic</li> <li>• AMCO</li> <li>• HBL</li> </ul>
12.	1.1KV grade aluminium conductor, XLPE insulated armoured UG Cables	<ul style="list-style-type: none"> <li>• Havells</li> <li>• KEI</li> <li>• Gloster</li> <li>• Finolex</li> <li>• Universal</li> <li>• Asmon</li> <li>• Bonton</li> <li>• Nakoda</li> <li>• Fortune Arrt</li> </ul>
13.	MCBs/MCBDB/RCBO/ Isolators	<ul style="list-style-type: none"> <li>• Legrand</li> <li>• Schneider Electric</li> <li>• Hager</li> <li>• L&amp;T</li> <li>• ABB</li> <li>• SIEMENS</li> <li>• C&amp;S Electric</li> </ul>
14.	MCCBs	<ul style="list-style-type: none"> <li>• Legrand (DPX3)</li> <li>• L&amp;T (D-sine)</li> <li>• C&amp;S Electric</li> <li>• Siemens (3VL)</li> </ul>
15.	PVC Conduits (ISI marked) ( Color of conduit : Ivory/ Grey )	<ul style="list-style-type: none"> <li>• Precision</li> <li>• AKG</li> <li>• BEC</li> <li>• GM</li> <li>• Sudhakar</li> <li>• Goldmedal</li> </ul>
16.	DWC pipe	<ul style="list-style-type: none"> <li>• TeleRex</li> <li>• Dutron</li> <li>• Duraline</li> <li>• CPE</li> </ul>
17.	GI pipes	<ul style="list-style-type: none"> <li>• Tata</li> <li>• Jindal</li> <li>• Zenith</li> <li>• Surya</li> <li>• SAIL</li> </ul>
18.	Glands / Lugs	<ul style="list-style-type: none"> <li>• Dowells</li> <li>• Comet</li> <li>• Jaison</li> </ul>
19.	MV Panel	<ul style="list-style-type: none"> <li>• CPRI Fabricators with panels cleared by CPRI</li> </ul>
20.	All other items not covered above	As approved by the Engineer-in-charge.

Note: 1) The contractor shall have to obtain prior approval from Engineer-in-charge before placing the order for any specific materials. The Engineer- in- charge may approve any of the make brands out of the above list. Also the firm shall produce proof of purchase of materials for payment.

2) Components with country of origin of China are not acceptable.

**Preference to PPP-M – II Policy (Make in India):**

1. The Government has issued public procurement policy (Preference to Make in India) vide Ministry of Commerce and Industry Development of industrial policy and promotion (PPS) vide order No. P-45021/2/2017-PP BE-II dated 28.05.2018, to “Encourage Make in India” and to promote manufacturing and production of Goods and services in India with a view to enhancing income and employment. CPWD has decided to implement this policy.
2. The agency shall submit list of makes of materials proposed to be used on the work from local suppliers (as defined in the above order dated 28.05.2018) along with minimum local content as specified below for approval of the department out of the approved makes kept in the tender.
3. The department will be approving only makes of the materials having a minimum local content of 50% (As per upto date amendment in policy, till last date of submission of tender ) for use on this work, out of the preferred makes list.
4. The minimum local content of 50% (As per upto date amendment in policy, till last date of submission of tender) is considered for the complete item including labour component.
5. The agency shall obtain the certificate for all items except for sundry items.

// Contractor //

Executive Engineer (E)-HYD-I

## Schedule of work

Name of Work : Construction of specialized seeds storage structure at IIOR, Rajendranagar, Hyderabad .

Sl. No	Code No.	Description of item	Qty	Rate	Unit	Amount
		<b>Sub Head-I (Cold Storage Room)</b>				
1	MR	Supply, installation, testing and commissioning of environment-friendly prefabricated Walk-In Cold Room suitable for seeds storage, complete in all respects, having internal clear dimensions 38 ft (L) × 27 ft (B) × 14 ft (H) (456" × 324" × 168"), designed for ambient temperature +43°C, to maintain room temperature +8°C to +12°C with relative humidity 40 ±5%, product incoming temperature +25°C, product loading 10% of storage capacity, and pull-down time of 24 hours, including 24 hours validation, etc. The cold room shall be constructed using cam-lock type rigid PUF insulated panels with metal plunger locking system, 100 mm thick walls and ceiling, PUF density 40 kg/m <sup>3</sup> , U-value ≤ 0.05 BTU/hr/sq.ft/°F, with inside finish PCGI / SS 304 grade and outside finish PCGI / PPGI, including all corner angles, fasteners, sealants and vapour sealing complete. The floor insulation shall comprise 80 mm thick PUF slabs (40 kg/m <sup>3</sup> density) laid over PCC with proper vapour barrier, suitable for Kota stone. The cold room shall be provided with 100 mm thick manual operated insulated sliding door of clear opening size 1.8 m × 2.4 m, PCGI/PCGI finish, complete with door frame, magnetic gasket, door heater, sweeper gasket, heavy-duty rollers, handle with lock assembly and human safety release knob. The refrigeration system shall be DX, split type, complete with air-cooled condensing units and forced air evaporator units, having total installed cooling capacity of 30,000 BTU/hr × 3 Nos (2 Working + 1 Standby), using R-404A refrigerant, comprising air cooled condensing units with energy-efficient hermetic / inverter-based compressors, forced air cooled SS body evaporator units, complete with mounting stands / wall brackets, first charge of refrigerant, and all accessories.				

		The work shall further include hard drawn copper refrigerant piping of suitable sizes with 19 mm thick nitrile rubber insulation, all brazing, pressure testing, vacuumisation, UPVC condensate drain piping of 32 mm dia with insulation, microprocessor-based refrigeration control panel with digital temperature controller cum indicator, automatic compressor changeover logic, safety interlocks, vapour-proof LED cold room light fittings (8 Nos.), safety alarm hooter, pressure relief valve (PRV), industrial dehumidifier to maintain specified RH, IoT-based temperature monitoring system, biometric access control system, complete electrical wiring, control cabling, interconnections <b>included extended warranty of 2 years (total 3 yrs) after installation and commissioning but excluding for dehumidifier</b> etc complete as required.	1	4697063	Job	4697063.00
2	Civil DSR 2023 11.26	Kota stone slab flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab, including rubbing and polishing complete with base of cement mortar 1 : 4 (1 cement : 4 coarse sand) :				
2.1	11.26.1	25 mm thick	100	1948.25	Sqm	194825.00
3		Supplying of following sizes of PVC insulated and PVC sheathed/ XLPE aluminium conductor UG armoured cable of 1.1 KV grade confirming to IS:7098 (Part-I) 1988 with upto date amendments duly ISI marked complete as required.				
3.1	MR	3.5 x 300 sq.mm	400	3485	Metre	1394000.00
3.2	MR	3.5 x 95 sq.mm	50	1189	Metre	59450.00
4		Supplying of following sizes of PVC insulated and PVC sheathed/ XLPE copper conductor UG armoured cable of 1.1 KV grade confirming to IS:7098 (Part-I) 1988 with upto date amendments duly ISI marked complete as required.				
4.1	MR	3.5 x 50 sq.mm	100	5191	Metre	519100.00
5	15.16	Supplying and laying of following size DWC HDPE pipe ISI marked along with all accessories like socket, bend, couplers etc. conforming to IS 14930, Part II complete with fitting and cutting, jointing etc.direct in ground (75 cm below ground level) including excavation and refilling the trench but excluding sand cushioning and protective covering etc., complete as required.				
5.1	15.16.1	63 mm dia (OD-63 mm & ID-51 mm nominal)	100	289	Metre	28900.00

5.2	15.16.2	90 mm dia (OD-90 mm & ID-76 mm nominal)	40	336	Metre	13440.00
5.3	15.16.3	120 mm dia (OD-120 mm & ID-103 mm nominal)	350	417	Metre	145950.00
6	10.5	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size in the existing RCC/ HUME/ METAL pipe as required.				
6.1	10.5.2	Above 35 sq. mm and upto 95 sq. Mm	140	72	Metre	10080.00
6.2	10.5.4	Above 185 sq. mm and upto 400 sq. mm	350	170	Metre	59500.00
7	5.4	Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 Meter long etc. with charcoal/ coke and salt as required.(For 160 KVA Dg set)	10	8351	Set	83510.00
8	5.11	Providing and fixing 25 mm X 5 mm G.I. strip in 40 mm dia G.I. pipe from earth electrode including connection with G.I. nut, bolt, spring, washer excavation and re-filling etc. as required.	50	755	Metre	37750.00
9	5.15	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	50	287	Metre	14350.00
10	11.1	Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.				
10.1	11.1.24	3½ X 95 sq. Mm	2	684	Each	1368.00
10.2	11.1.30	3½ X 300 sq. mm (70mm)	4	1336	Each	5344.00
11	MR	Supply and fixing of weather proof loop in loop out box of size not less than 255mm(L) x 355mm(B) x 122mm(H), with knockouts for cable entry made out of PVC thermo plastic shock proof box, with locking arrangement i/c supplying and fixing the following accessories drilling holes, connections, earthing the body, along with suitable MS clamp of size 25mm x 3mm, aluminium painted flat iron strip for fixing the box including 63A 4P MCB testing and commissioning etc., complete as required.	3	9280	Each	27840.00

12	MR	Fabrication, supplying, Installation, testing and commissioning of outdoor type free standing weather & vermin proof flush finish compartmentalized, modular, totally enclosed type MV panel of size not less than 1.2m (H) x 1.3m (W) x 0.4m (D) according to substation guideline by CPWD and made out of 2.0mm thick sheet steel with front and back hinged openable double leaf doors with panel lock including supplying and fixing following accessories inside the panel, drilling, welding, providing detachable gland plate / knock outs plate, din bar (for mounting MCBs) connections, inter - connections with suitable size aluminium strips / earthing busbar etc, as required. The cubicle board shall be provided with base channel of (ISMC100 designation) of size 100 x 50mm including painting the base channel with primer and finish paint, complete as per general arrangement drawing approved by Engineer-in-charge <b>(Panel - 3)</b>				
		The panel shall generally confirm to CPWD General Specification for Electrical works, Part-I Internal 2013, Part II External 1994 and Part IV substation equipment 2013 as amended upto date.				
		The panel shall be installed on a suitable CC foundation / MS structure of suitable size in an approved manner by Engineer-in-charge.				
		400 Amps four pole, 36KA MCCB Microprocessor based Release along with direct rotary operating handle and spreader links - 1 Nos. (incomer)				
		250 Amps four pole, 25KA MCCB Thermal magnetic release, along with direct rotary operating handle and spreader links - 2 Nos. (outgoing)				
		125 Amps four pole, 25KA MCCB Thermal magnetic release, along with direct rotary operating handle and spreader links - 1 Nos. (outgoing)				
		Suitable size GI earth strip for entire width of cubical panel - 2 Nos.				
		0-400Amps. suitable size Ammeter with selector switch & 400/5A - 3 Nos. CTs 15 VA burden and accuracy class of 0.5 for metering and class 5P 10 for protection- 1 Set.				
		M.V. Danger Notice Board.				
		Digital MFM, RYB LED Indication lamp & holder, toggle switch & 2A MCB for all three phases - 1 Set.	1	237987	Job	237987.00

13	MR	Fabrication, supplying, Installation, testing and commissioning of outdoor type free standing weather & vermin proof flush finish compartmentalized, modular, totally enclosed type MV panel of size not less than 0.9m (H) x 1.6m (W) x 0.4m (D) according to substation guideline by CPWD and made out of 2.0mm thick sheet steel with front and back hinged openable double leaf doors with panel lock including supplying and fixing following accessories inside the panel, drilling, welding, providing detachable gland plate / knock outs plate, din bar (for mounting MCBs) connections, inter - connections with suitable size aluminium strips / earthing busbar etc, as required. The cubicle board shall be provided with base channel of (ISMC100 designation) of size 100 x 50mm including painting the base channel with primer and finish paint, complete as per general arrangement drawing approved by Engineer-in-charge <b>(Panel - 1)</b>				
		The panel shall generally confirm to CPWD General Specification for Electrical works, Part-I Internal 2013, Part II External 1994 and Part IV substation equipment 2013 as amended upto date.				
		The panel shall be installed on a suitable CC foundation / MS structure of suitable size in an approved manner by Engineer-in-charge.				
		400 Amps four pole, 36KA MCCB Microprocessor based Release along with direct rotary operating handle and spreader links - 1 Nos. (incomer)				
		250 Amps four pole, 25KA MCCB Thermal magnetic release, along with direct rotary operating handle and spreader links - 2 Nos. (outgoing)				
		125 Amps four pole, 25KA MCCB Thermal magnetic release, along with direct rotary operating handle and spreader links - 1 Nos. (outgoing)				
		Suitable size GI earth strip for entire width of cubical panel - 2 Nos.				
		0-400Amps. suitable size Ammeter with selector switch & 400/5A - 3 Nos. CTs 15 VA burden and accuracy class of 0.5 for metering and class 5P 10 for protection- 1 Set.				
		M.V. Danger Notice Board.				
		Digital MFM, RYB LED Indication lamp & holder, toggle switch & 2A MCB for all three phases - 1 Set.	1	237293	Job	237293.00

14	MR	Fabrication, supplying, Installation, testing and commissioning of outdoor type free standing weather & vermin proof flush finish compartmentalized, modular, totally enclosed type MV panel of size not less than 0.9m (H) x 1.6m (W) x 0.4m (D) according to substation guideline by CPWD and made out of 2.0mm thick sheet steel with front and back hinged openable double leaf doors with panel lock including supplying and fixing following accessories inside the panel, drilling, welding, providing detachable gland plate / knock outs plate, din bar (for mounting MCBs) connections, inter - connections with suitable size aluminium strips / earthing busbar etc, as required. The cubicle board shall be provided with base channel of (ISMC100 designation) of size 100 x 50mm including painting the base channel with primer and finish paint, complete as per general arrangement drawing approved by Engineer-in-charge <b>(Panel - 2)</b>				
		The panel shall generally confirm to CPWD General Specification for Electrical works, Part-I Internal 2013, Part II External 1994 and Part IV substation equipment 2013 as amended upto date.				
		The panel shall be installed on a suitable CC foundation / MS structure of suitable size in an approved manner by Engineer-in-charge.				
		160 Amps four pole, 25KA MCCB Thermal Magnetic Release along with direct rotary operating handle and spreader links - 1 Nos. (incomer)				
		63A, FP, 10kA, MCB - 3 Nos. (outgoing)				
		Spare - 2 Nos. (outgoing)				
		Suitable size GI earth strip for entire width of cubical panel - 2 Nos.				
		0-160Amps. suitable size Ammeter with selector switch & 160/5A - 3 Nos. CTs 15 VA burden and accuracy class of 0.5 for metering and class 5P 10 for protection- 1 Set.				
		M.V. Danger Notice Board.				
		Digital MFM, RYB LED Indication lamp & holder, toggle switch & 2A MCB for all three phases - 1 Set.	1	122097	Job	122097.00
15	MR	Supplying, installing, testing and commissioning of automatic changeover switch of rating 160 Amp, 4 pole, suitable for 415 V, 50 Hz, for changeover between mains and DG supply, complete with sheet steel, powder-coated IP42 enclosure, mechanical and electrical interlocking, phase indication lamps, control wiring, terminals, cable glands	1	79944	Each	79944.00

		and all necessary accessories etc, complete as required.				
				<b>Sub Total</b>	<b>Rs.</b>	7969791.00
		Modified estimate cost after using correction factor on Civil DSR 2023 on account of GST@0.973	194825.00		<b>Rs.</b>	5260.28
		Add cost index @ (118-107/107) i.e 10.28% as on (04/07/2024) on DSR Civil 2023	200085.28		<b>Rs.</b>	20568.77
				<b>Sub Total</b>	<b>Rs.</b>	7995620.04
				<b>Total</b>	<b>Rs.</b>	<b>7995620.00</b>
		<b>Sub Head-II (160 KVA DG Set)</b>				
1	29.1	Supplying, Installation, Testing & Commissioning of 'Silent Type Diesel Generating set as per CPCB IV + or better norms along with having Prime Power Rating of KVA as below, 415 volts at 1500 RPM, 0.8 lagging power factor at 415 V suitable for 50 Hz, 3 phase system & for 0.85 Load Factor, including testing at factory and site with fuel, load for test and other necessary arrangements Complete as per CPWD specifications, should have QR code which should contain drawing, test report OEM manual,Geo- Tag of manufacturing location, rating plate as per relevant IS Code etc. and consisting of the followings:				
		(A) Diesel Engine: Turbo charged Diesel engine 4 stroke water cooled, multi cylinder, dynamically balanced fly wheel, electric start of suitable BHP at 1500 RPM suitable for above output of alternator at 40 °C, 50% RH & at 1000 Meter MSL , capable of taking 10% over loading for one hour after 12 hours of continuous operation. The engine will be with Electronic governor, Dry type Air filter with service indicator, first filling of engine fuel (after commissioning) lubricating Oil, Coolant and other consumables complete with all the required accessories, the Electronic governor shall be as per ISO 8528.The engine shall comply to the latest CPCB norms (CPCB IV + or better) and Conforming to BS 5514, BS 649, IS 10000, IS 10002, IS 13018 and as per CPWD specifications.				

		<p>(B) Engine mounted Instrument Panel fitted with and having digital dis Plate for following:</p> <ul style="list-style-type: none"> <li>(i) Start-stop switch with key</li> <li>(ii) Water temperature indication</li> <li>(iii) Lubrication oil pressure indication</li> <li>(iv) Lubrication oil temperature indication</li> <li>(v) Battery charging indication and Voltage indication</li> <li>(vi) RPM indication</li> <li>(vii) Over speed indication</li> <li>(viii) Low lubrication Oil trip indication</li> <li>(ix) Engine Running Hours indication</li> <li>(x) Fuel Level</li> </ul>				
		<p>(C) Alternator: Synchronous alternator rated of appropriate KVA, 415 volts at 1500 RPM, 3 phase 50 Hz, AC supply with 0.8 lagging power factor at 40 °C, 50% RH &amp; at 1000 Meter MSL. The alternator shall be having Screen Protected Drip Proof (SPDP) enclosure IP23, brushless, continuous duty, dynamically balanced rotor, capable of taking 10% over loading for one hour after 12 hours of continuous operation, self cooled, self-excited and self-regulated through AVR conforming to IS13364(Part 2)/IS: 4722/BS 2613 suitable for tropical conditions and with class- H insulation.</p>				
		<p>(D) Base Frame &amp; Foundation: Both the engine and alternator shall be mounted on suitable base frame made of MS channel with necessary reinforcement which shall be installed on suitable cement concrete foundation and vibration isolation arrangement as per recommendations of manufacturer.</p>				
		<p>(E) FUEL TANK: Daily service fuel tank of suitable liters capacity as per CPWD Specifications, fabricated out of 3 mm thick M.S. sheet complete with all standard accessories and fuel piping between fuel tank and diesel engine with MS class 'C' pipes of suitable dia. Complete with valves, level indications &amp; accessories as required as per specifications.</p>				
		<p>(F) Exhaust System: Dry exhaust manifold with hospital type exhaust silencer and catalytic convertor.</p>				
		<p>(G) Starting System: 12V/24V DC starting system comprising of starter motors: voltage regulator and arrangement for initial excitation complete with suitable numbers of batteries (180 AH capacity lead acid SMF type) as required as per specifications. The battery shall be</p>				

		housed inside the acoustic enclosure of DG Set.				
		(H) Acoustic and weather proof enclosure with arrangement for fresh air intake for cooling of the engine & alternator, extraction, discharging hot air in to the atmosphere and the temperature rise inside the enclosure, noise level outside enclosure. The acoustic enclosure should be suitable for cable connection/connection through bus-trunking. Such arrangements on acoustic enclosure should be water proof & dust-proof conforming to IP-65 protection. The enclosure shall be as per CPCB IV + or better norms etc. and as per CPWD specifications				
		I) AMF Panel: Free standing floor mounted IP 42 automatic mains failure control panel including auto by-pass, suitable for KVA as below for silent type DG set complete with relays, timers, set of CTs for metering & protection and energy analyser to indicate currents, phase and line voltages, frequency, power factor, KWH, Kilo Volt Ampere Reactive Hour (KVARH), KVA (Phase & Total), KW & provision for overload, short circuit, restricted earth fault, under frequency, power (aluminium) and control (copper ) cabling of suitable size upto 15 meter between AMF panel, LT Panel and DG Set including connection interconnection etc. as required, all complete and inter locking and communication/ Ethernet /RS485/SNMP port open protocol for BMS integration including suitable software, the panel shall be of DG Set OEM make etc. as per approved by Engineering in charge and including the following:				
		1. Suitable numbers and appropriate capacity 4 pole motorised electrically operated draw out with cradle type 3 position ACB/ MCCB with electronic release for O/C & E/F and shunt trip.				
		2. Auto/Manual/Test/Off selector switch				
		3. Protection for under and over voltage phase reversal (2 nos Over voltage relay, 2 Nos. reverse power relay and 2 Nos. under voltage relay).				
		4. 3 Sets of current transformers 15 P 10 accuracy for protection and 15 VA class-I for metering				
		5. Energy analyser unit to indicate current, Voltage( L-N & L_L), kW, kVA (Phase & Total), Frequency, KWH, PF.				
		6. LED Indicating lamps for load on mains				

		and load on set				
		7. Fuse/ MCB for instruments				
		8. Battery charger, complete with transformer/ rectifier, D.C. voltmeter and ammeter, selector switch for trickle, off and boost and current adjustment.				
		9. Main supply failure monitor				
		10. Supply failure timer				
		11. Restoration timer				
		12. Control unit with three impulse automatic engine start/stop and failure to start lockout.				
		13. Impulse counter with locking and reset facility.				
		14. ON/OFF/Control circuit switch with indicator				
		15. Audio/Video annunciation for				
		(i) High water temperature				
		(ii) Low lubricating oil pressure				
		(iii) Engine over speed				
		(iv) Engine fails to start				
		(v) Full load/maximum load warning				
		16. Protection for over/under Frequency, Loss of AC sensing, Over Current, Unbalancing load with suitable number of relays and accessories				
		17. Maintenance notification based on Engine Run Hour & due date.				
		18. Load Management through PLC to achieve auto opening and closing of incomer breakers, bus coupler switching of essential panel , interlocking providing signal to AMF Panel for load status and AMF shall give command to DG Set to auto start / auto stop depending upon load status and requirement etc. and necessary hardware and software required to perform the operation shall be provided by the contractor including all control wiring.				
1.1	29.1.9	160 KVA	1	1249613	Each	1249613.00
				<b>Total</b>	<b>Rs.</b>	<b>1249613.00</b>
		<b>Sub Head-III (3 KVA Online UPS System)</b>				

1	26.1	<p>Online UPS - Input supply: Single Phase, Output Supply: Single Phase. Supplying, installation, Testing &amp; Commissioning of following capacity at full load (Unity Power Factor) ON LINE Uninterrupted Power Supply (UPS) system suitable for Single Phase input, Single Phase output AC Supply. The UPS shall include a Rectifier, inverter, battery bank suitable for 30 minutes back up (Battery VAH capacity shall not be less than 1600 VAH per KVA of UPS rating per Hour backup time) on full load (Battery shall be VRLA, SMF in ABS Container) and Static Bypass switch along with provision for manual bypass, suitable isolation transformer for additional protection against neutral faults etc. The UPS systems shall be Microprocessor based Digital Control, using Insulated Gate Bipolar Transistor (IGBT)'s both for the rectifier &amp; inverter with PWM (Pulse Width Modulation) Technology. The quality of design, manufacturing and inspection process should confirm to the relevant International standards such as IEC/EN/VDE. The operating efficiency of the UPS systems shall be &gt;95% at 100% non-linear loads. Current total harmonic distortion(ITHD)/ total demand distortion (TDD) on the input grid shall be &lt; 5% at 100 %load. (The required LC filters shall be included in UPS cost), extreme power factor kit to be include to limit the input pf to 0.99 and output power factor shall be unity (i.e. kw rating of the UPS shall be kva rating x 1 ) however UPS shall be suitable to take load at 0.7 lagging to 0.7 leading power factor loads. UPS shall be suitable for incoming supply AC single phase 160-270V 50 Hz and delivering output AC supply true sine wave single phase 220/230/240 Volt, 50 Hz +/- 0.2Hz, Overload capacity of 120% for 10 mins and 150% for 1 minute. Operating temperature 0 to 40 °C, Relative humidity 0-95% non condensing, noise level less than 60db at 1 meter distance, Protection for Under voltage, over voltage, abnormal output voltage, battery over charging, output over current, short circuit, battery deep discharge , 10 KV surge.</p>				
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		Display for watt/VA,Amp and Voltage power parameters etc. UPS shall comply with low voltage electromagnetic compatibility (EMC) achieved as per EN 6204, EN6204 Part I and Part 2, it shall be a Voltage and Frequency Independent (VFI) type UPS (as per standard IEC 62040-1, 2 & 3) . The UPS should be with IGBT Based Inverter Technology, Communication RS232/ RS485/ SNMP port open protocol for BMS integration as per approved by Engineering in charge. Required battery racks, DC breaker of suitable rating and interconnecting copper conductor cable of suitable size and connectors and all required accessories are inclusive in the cost. The UPS should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc				
1.1	26.1.2	3KVA	1	55233	Each	55233.00
				<b>Total</b>	<b>Rs.</b>	<b>55233.00</b>
		<b>ABSTRACT OF COST</b>				
		Sub Head-I (Cold Storage Room)			Rs.	7995620.00
		Sub Head-II (160 KVA DG Set)			Rs.	1249613.00
		Sub Head-III (3 KVA Online UPS System)			Rs.	55233.00
				Total	Rs.	<b>9300466.00</b>
				Say	Rs.	<b>9300466.00</b>

// Contractor //

Executive Engineer (E)-HYD-I



**Central Public Works Department**

**N.I.T. No: 42/EE(E)-Hyd-I/2026-27,**

**Name of work:-** Construction of Special Seeds Storage Structure at IIOR, Rajendranagar, Hyderabad.

**ABSTRACT OF COST**

Name of the Contractor					
Sl.No.	Name of component	Estimated cost	Percentage above or below the estimated cost	% in Figures	Total Cost
1	Electrical	<b>9300466.00</b>			-
	<b>Grand Total</b>				-

**Important Note:**

1. The Estimated Cost Put to Tender has been worked out by DSR 2025 items and considering the Market Rates for NSR items.
2. The tenderer is required to quote a single consolidated Percentage only above/below Estimated Cost to cover all the rates of all the items. This column should not be left blank, otherwise the tender shall be treated as INVALID.
3. The Percentage shall be typed only in figures upto 2 (two) places of decimal along with algebraic sign.
4. The tenderer shall enable the macros before entering the figures, to see the quoted percentage and amount in words.
5. If the Percentage quoted both in words and figures are not clear, or if the rate is not quoted in Percentage, the offer will be treated as INVALID.

// Contractor //

Executive Engineer(E)-HYD-I