

J&K Project Construction Corporation Ltd.



Standard Bidding Document

Name of Work	Supply, Installation, Testing & Commissioning of DG sets for New Legislature Complex at Jammu
District	Jammu
Unit	Mechanical Unit, JKPCC Ltd Jammu
Estimated Cost	Rs.275.00Lacs

NOTICE INVITING TENDER

OFFICE OF DEPUTY GENERAL MANAGER, MCHANICAL UNIT, JAMMU

E-NIT No. MECH/J/NIT/35 of 2018-19 Dated: 05-11-2018

On behalf of the Managing Director J&K PCC Ltd. Deputy General Manager, JKPCCLtd. Mechanical Unit Jammu invites e-tenders for the Mechanical works for New Legislature Complex at Jammu mentioned below:-

S. No.	Description of work	Approx. Cost Rs. Lacs	Earnest Money Rs.Lacs	Time of completion	Cost of tender document
1.	Supply, Installation, Testing and Commissioning of DG sets for New Legislature Complex at Jammu	275.00	5.50	04 months	Rs.5000/=

1.1 INSTRUCTIONS TO TENDERERS:-

1. The NIT Consisting of qualifying information, eligibility criteria, specifications, Bill of Quantities can be seen/downloaded from the departmental website **www.jktenders.gov.in** from **Dt: 06-11-2018 from 1600 Hrs to Dt: 27-11-2018 upto 1400Hrs.**
2. The pre-bid meeting will be held on date **12-11-2018 time 1200 Hrs** in the office chambers of Managing Director, JKPCCLtd., Rail Head Complex, Jammu and no queries shall be entertained /considered after the pre-bid meeting.
3. The Bids shall be deposited in electronic format on the departmental website **www.jktenders.gov.in** from **12-11-2018 to 27-11-2018 upto 1400 Hrs.**
4. The complete bidding process will be **online.**
5. That the bids shall be strictly uploaded on the prescribed website and after opening the financial bid, only L1 bidder shall have to submit any required documents in hard copy.
6. The cost of tender shall be deposited by the prospective bidders through banking mechanism as per the following Bank details:-

- i) **Name of Bank:- J&K Bank Ltd**
- ii) **Account Title:- Financial Controller JKPCCLtd (Current Account).**
- iii) **Account No:- 0084010100002408**
- iv) **Branch:- New Secretariat Road Srinagar.**
- v) **IFSC Code:- JAKOPROMPT**
- vi) **SWIFT Code:- JAKABBINRSGR-Optional**

7. a) The bidder shall only upload scanned copy of payment acknowledgement slip. Similarly the Earnest Money shall be duly pledged to **Financial Controller** and upload only a scanned copy of the Certificate on the Website.
b) However, before allotting the work or issuing the supply order, the lowest bidder shall have to submit the original certificate, CDR/FDR/Bank Guarantee.
8. If the office happens to be closed on the date of receipt of the bids as specified, the bids will be received on the next working day at the same time and venue.
9. The Technical bids shall be opened online on **29-11-2018 at 1200 Hrs** in the Office chambers of **Managing Director, J&K PCC Ltd. Rail head Complex, Jammu.**

In case of holidays/Office happens to be closed on the date of opening of the bids, bids will be opened on the next working day at the same time and venue.

10. Financial bids of bidders shall be opened online in the office **Managing Director, J&K PCC Ltd. Rail head Complex, Jammu** and shall be communicated separately.
11. The bids for the work shall remain **valid for a period of 90 days from the date of opening of bids.**
12. A bidder shall not be permitted to bid for works in the jurisdiction of officer responsible for award and execution of contract in which his or his spouse's near relative (defined as first blood relations, and their spouses) is posted as unit Accountant or as an officer in any capacity between the grades of General Manager and Manager (both inclusive)
13. No engineer of Gazetted rank or other Gazetted officer employed in Engineering or Administrative duties in an Engineering department of the State Government is allowed to work as a supplier for a period of two years after his retirement from Government service, without Government permission. This contract is liable to be cancelled if either the supplier or any of his employees is found any time to be such a person who had not obtained the permission of the government as aforesaid before submission of the tender or engagement in the contractor's service.
14. Any other information regarding e-tendering process can be had from the Office Deputy General Manager, Mechanical Unit, JKPCCLtd., Mechanical Unit, Jammu at **Mobile no. 9419121510** or **e Tendering Cell on Mob No. 9419139825.**

1.2 The earnest money shall be forfeited, If:-

- a) Any bidder/ tenderer with-draws his bid/ tender during the period of bid validity or makes any Modifications in the terms and conditions of the bid.
- b) In case contractor fails to execute the agreement within 15 days after fixation of contract.

1.3 Scope of the work

The work is estimated to cost **Rs.275.00 Lacs** and the scope of work brief includes, DG sets for the New Legislative Complex Jammu as per specification and also as per BOQ

1.4 Eligibility Criteria

- 1.4.1 The bidders must be in existence as a manufacturing or dealer or contracting firm for at least 5years ending on 03/2018. Copy of the certificated to be uploaded in the technical bid.
- 1.4.2 Manufacturers or their authorized registered dealers or contracting firm should have valid PAN GST, EPF and ESI nos. Copy of the certificates to be uploaded in the technical bid.

1.5 Experience of similar nature of work as given below:

- 1.5.1 Experience should be in the name of the bidding company and not in subsidiary /associate

company / group company etc.

- 1.5.2 Experience of having successfully completed works during the last 5 years ending 03/2018 to meet the eligibility criteria and should be authenticated by performance certificate issued by any Central/State Govt. Organization or PSUs. not less than the rank of Executive Engineer or equivalent:

One similar completed work of cost not less than the amount equal to 80% of the estimated cost put to bid

Or

Two similar completed works each costing not less than the amount equal to 60% of the estimated cost put to bid

Three similar completed works each costing not less than the amount equal to 40% of the estimated cost put to bid

Similar completed Works" shall mean a that bidder should have broadly undertaken supplying, Installing, Testing and Commissioning of DG sets along with AMF Panels.

- 1.6 **Turnover:** Annual financial turn over of the firm should be at least 50% of the estimated cost during any one year of immediate last five consecutive financial years. The turnover statement will be considered only for Bidding company and should be authenticated by Chartered Accountant..

- 1.7 **Profit /loss:** The Company should have positive net worth and should not have occurred loss in more than Two years in last Five years ending FY 2017-18 duly certified by the Chartered Accountant.

- 1.8 **Bank Solvency Certificate:** Solvency of the amount equal to 40% of the estimated cost of the work.

- 1.9 Undertaking that the bid shall remain valid for the period of 90 days from the date of opening of bids.

- 1.10 An affidavit affirming that information he has furnished in the bidding document is correct to the best of his knowledge and belief.

1.11 Earnest money and cost of tender document

Cost of document & Earnest Money

a) The bidder shall only upload scanned copy of payment acknowledgement slip. Similarly the Earnest Money shall be duly pledged to Financial Controller and shall upload only a scanned copy of the Certificate on the Website.

b) However, before allotting the work or issuing the supply order, the lowest bidder shall have to submit the original certificate, CDR/FDR/Bank Guarantee.

c) Any bid not accompanied by an Earnest Money acknowledgement slip, **Pledged in favour of Financial Controller, JKPCC Ltd. Jammu** shall be rejected by the Employer as non-responsive.

d) The earnest money of unsuccessful bidders shall be returned within 30 days of the end of the Bid validity period.

e) The earnest Money of the successful Bidder will be released when the Bidder has signed the Agreement and furnished the required performance security.

1.12 Evaluation of performance:

Evaluation of the performance of contractors for eligibility shall be done by Client. If required, the works executed by bidders who otherwise equality may be got inspected by a committee or other authority as decided by Client.

1.12.1 Any other information regarding e-tendering process can be had from the Office of **Deputy General Manager, JKPCCLtd., Mechanical- Unit, Jammu 9419121510 e-Tendering Cell on Mob No. 9419139825**

1.12.2 Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bids.

1.12.3 Canvassing whether directly or indirectly, in connection with bids prohibited and the bids submitted by the contractors who resort to canvassing will be liable to rejection.

1.12.4 The competent authority on behalf of M. D. JKPCCLtd., Jammu reserves to himself the right of accepting the whole or any part of the bid and the bidder shall be bound to perform the same at the rate quoted.

1.12.5 The contractor shall not be permitted to bid for works in case his near relative is working in JKPCCLtd. and is directly dealing with the Project. Any breach of this condition by the contract or would disqualify him from bidding.

1.12.6 No Engineer of gazette rank or other gazetted officer employed in Engineering or Administrative duties in an Engineering Department to the Government of J&K is allowed to work as a contract or for a period of one year after his retirement from Government service, without the prior permission of the Government of J&K in writing. This contract is able 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 J&K as aforesaid before submission of the bid or engagement in the contractor's service.

1.12.7 The bid for the works shall remain open for acceptance for a period of 90 days from the date of opening of bids. If any bidder withdraws his bid before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the bid which are not acceptable to the department, then the Government shall, without prejudice to any other right or remedy, be at liberty to forfeit 100% of the said earnest money as aforesaid. Further the bidder shall not be allowed to participate in the re - bidding process of the work.

1.12.8 This is a time Bound Project and no time over run is acceptable. Only bidders who can deliver project in time only need to apply.

1.12.9 **This bid provides strong disincentive clause as under:-**

Likewise for delays upto 6 months, the penalty may be 0.25% per month. For delays thereafter, the penalty shall be 0.50% per month, subject to a maximum limit of 10% of the unfinished work.

1.12.10 The work includes a number of specialized Electrical/ Mechanical services to be executed as integral parts of the project by engaging specialized agencies

1.12.11 This Notice Inviting bid shall form a part of the contract document. The successful Bidder/ contractor, on acceptance of his bid by the Accepting Authority, shall within 30 days from the date

of issue of the letter of award or within 15 days from the stipulated date start of the work whichever is later, sign the contract consisting of:-

- 1.12.12 The notice inviting bid, all documents including General Conditions of the Contract, Special Conditions of Contract, Specifications, Bill of Quantities and drawings, if any, is forming the bidder as issued at the time of invitation of bidder and acceptance thereof together with any correspondence leading thereto.
- 1.13. Standard CPWD form as mentioned in schedule 'F' consisting of:
- i. Various standard clauses with corrections upto the date stipulated in schedule 'F' along with annexure thereto.
 - ii. CPWD safety code
 - iii. Model rules for the protection of health, sanitary arrangements for workers employed by main contractor or its sub contractors.
 - iv. CPWD contractor's Labour Regulations.
 - v. List of Acts and omissions for which fines can be imposed

2.0 Important Points

2.1 contractors must not have been blacklisted/ penalized by any government agency or public sector undertaking or judicial, Authority/arbitration body and should be certified with an affidavit.

2.2 Tender document consists of

- i) **Part (A) NIT**
NIT & PQ Criteria
General Conditions of Contract
 - ii) **Part (B) SPECIFICATIONS of Fire fighting System**
 - iii) **Part (C) BOQ**
- 2.3 Bidder may obtain further clarification, if any, in respect of this document from the office of the Dy. General Manager Mechanical Unit JKPCC Ltd., Jammu.
- 2.4 M. D. JKPCC Ltd., Jammu reserves the right to accept or reject any or all the bidders without assigning any reason, No Bidder shall have any cause of action or claim against the JKPCC Ltd. for rejection of his bidder.
- 2.5 Conditional tenders shall be out rightly rejected.

Deputy General Manager,
Mechanical Unit JKPCC Ltd
Jammu

INSTRUCTIONS TO BIDDERS

2.1 **Eligibility Criteria:** As per notice inviting bid

2.2 **Disqualification.** Even if a Contract meets the eligibility criteria as referred above, may, at their discretion and at any stage during execution of the Project, order disqualification of the contractor if the Contractor has:

2.2.1 Made misleading or false representations in the forms, statements and attachments submitted; or

2.2.2 The Contractor has been black listed by any government agency even after bids have been opened.

2.3 **BID Documents:**

2.3.1 **Contents of BID Documents**

BID Document shall consist of the documents listed in this document along with any schedules, addendum or corrigendum etc. issued by JKPCC Ltd for the purpose.

2.3.2 **Pre-Bid Conference**

The purpose of the meeting will be to clarify issues and to answer questions on any matter that may arise at this stage .JKPCC Ltd. Shall conduct pre-Bid meeting(s) at the time and venue mentioned in Notice Inviting Bid to answer any queries/provide clarifications that the Bidders may have in connection with the Project and to give the relevant information regarding the same.

2.3.3 **Clarifications**

A prospective Contractor requiring any clarification with regards to the BID document may notify Dy. General Manager (Mech.) JKPCC Ltd., Jammu ,in writing or by tele-fax or email at the mailing address indicated in Notice Inviting Bid. Dy. General Manager (Mech.) JKPCC Ltd., Jammu will respond in writing to any request for clarification which is received prior to deadline mentioned of Notice Inviting Bid. Written copies of the, response (including an explanation on the query but without identifying the source of the inquiry) will be sent to all prospective Bidders. Only written communications/clarifications can considered as valid.

2.3.4 **Amendment to BID Document:-**

i. At any time prior to the deadline for the submission of Bids, Managing Director JKPCC Ltd., Jammu may, for any reason, whether at its own initiative or in response to a clarification or query raised by prospective Bidders, modify the BID by an amendment.

ii. The said amendment in the form of the addendum/ corrigendum will be uploaded on the website on or before the last date mentioned in Notice Inviting Bid. The amendments would be available on the website of www.jktenders.gov.in. The Bidders are strongly advised to regularly visit these website to ensure that they are aware of the amendments. The addendum(s) issued will form part of the BID documents.

iii. In order to afford prospective Bidders reasonable time for preparing their Bids after taking into account such amendments, the M. D. JKPCC Ltd., Jammu may, at its discretion, extend the deadline for the submission of Bids.

- iv. The above information will be placed on www.jktenders.gov.in website and it will be the responsibility of the bidders to read.

2.3.5 Preparation of Bid:

a) Bidder's responsibility

- i. The Bidder is solely responsible for the details of his Bid and the preparation of Bids.
- ii. The Bidder is expected to examine carefully all the contents of BID document as mentioned in Notice Inviting Bids including instructions, conditions, forms, terms, etc and take them fully into account before submitting his offer Bids, which do not satisfy all the requirements, as detailed in these documents, are liable to be rejected as being unresponsive.
- iii. The Bidder shall be deemed to have inspected the Site and its surroundings and taken into account all relevant factors pertaining to the Site, while preparing and submitting the Bid.

b) Project Inspection and Site

Any Site information given in this BID is for guidance only. The Bidder is advised to visit and examine the site of works and its surroundings at his/their cost and obtain at his/their own responsibility, any information that may consider necessary for preparing the Bid and entering into a Contract with Client, including availability of electricity, water and drainage, where applicable. JKPCC Ltd. shall not be liable for such costs, regardless the outcome of the selection process.

c) Documents Comprising the Bid

Bidder shall submit their Bids in hard copies namely the technical package in the office of the General Manager JKPCC Ltd. and the financial bid shall be strictly uploaded on the website and should not be included in the hard copy. The contents of the technical and financial package are as mentioned hereinafter.

d) Alternative Proposal by bidders:

Bidders shall submit offers that comply with the requirement of the bidding documents, including basic technical design as indicated in the drawing and specifications. Alternatives will not be considered.

2.3.6 Contents of Technical Package:

The technical package, clearly labeled as "TECHNICAL PACKAGE" has to be submitted online and shall consist of information responsiveness and other information about Bidder, as required in the prequalification

- a. Part -1 shall comprise the following:
 - i) Form of Bid and Appendix (Form A) for the Bid
 - ii) Checklist for the enclosed documents as per the format attached (Annexure I)
 - iii) Scanned copy of payment acknowledgement slip and the Earnest Money duly pledged to Financial Controller
 - iv) Power of attorney (Form E) in favour of the person signing the Bid
 - v) Initialed BID document, as listed in Notice Inviting Bids

vi) Litigation History (Form G)

b. Part-II shall comprise the followings:

- i) Form "T-1" (Financial Information)
- ii) Form "T-1-B" (Certificate from a Scheduled Bank)
- iii) Form "T-3" (Details of works.....)
- iv) Form "T-3" (Project under execution or awarded)

2.3.7 Contents of Financial Package

The prices to be quoted by the intending tenderer shall include the supply and installation of all equipment at site, ancillary material and other items whatsoever required for carrying out the job to fulfill the intent and purpose as laid down in the specifications whether specifically mentioned or not. The prices/rates quoted shall be inclusive of **GST**, all taxes, Entry tax, duties, packing, forwarding, freight, transit insurance and all other levies as applicable by the Central as well as State Government. Failure to include all other taxes and duties will not entitle the contractor to any extra claims from the employer. The contractor's rates shall remain firm and fixed during the currency of the contract. **However any statutory variation in taxes as per notifications issued by the State/Central Govt. shall be allowed under rules.**

2.3.8 Miscellaneous information on Bid

i. Language of Bid

The Bid and all related correspondence and documents relating to the Project shall be in English language.

ii. Currency of Bid

Bid prices shall be quoted in India" Rupees only. The amount mentioned elsewhere in the bid document will also deemed to be in Indian Rupees unless otherwise mentioned.

iii. EMD/Bid Security

- a) That the bids shall be strictly uploaded on the prescribed website and after opening the financial bid, only L1 bidder shall have to submit any required documents in hard copy.
- b) The cost of tender shall be deposited by the prospective bidders through banking mechanism.
- c) The bidder shall only upload scanned copy of payment acknowledgement slip. Similarly the Earnest Money shall be duly pledged to Financial Controller and upload only a scanned copy of the Certificate on the Website.
- d) However, before allotting the work or issuing the supply order, the lowest bidder shall have to submit the original certificate, CDR/FDR/Bank Guarantee.

The Bid Security shall be forfeited if a bidder withdraws his bid during the period of bid validity or in the case of the successful bidder, if he fails to furnish the necessary performance security or enter into the Contract within the specified time limit.

iv. Extension of Bid Validity

Prior to the expiry of the original Bid Validity Period, M. D. JKPCCLtd. may, at its discretion, request Bidders to exhibit the Bid Validity Period for a specified additional period.

v. Format and Signing of Bid

- a. Bid documents (technical package/bid Part I and II and financial package/bid) shall be stamped and signed on all pages by a person duly authorized to sign Bid documents. The Bidder shall also submit a power of attorney authorizing the person signing the documents.
- b. Entries to be filled in by the Bidder shall be typed or written in indelible ink.
- c. The complete Bid shall be without alterations, overwriting, interlineations or erasures except those to accord with instructions issued by Managing Director JKPCCLtd., Jammu or as necessary to correct errors made by the Bidder. All amendments/corrections shall be initialed by the person or persons signing the Bid.
- d. All witnesses and sureties shall be persons of status and probity and their full names, occupations and addresses shall be written below their signatures.

vi. Submission of Bids

The complete bidding process will be **online**.

- vii. The last date for submission of completed Bids is given in Notice Inviting Bids. The JKPCCLtd., may, at their discretion, extended this date, in which case all rights and obligations of the JKPCCLtd. and the Bidder shall thereafter be subjected to the new deadline as extended. If such nominated date for submission of Bid is subsequently declared as a public holiday, the next official working day shall be deemed as the date for submission of Bid.

viii. Modifications/ Substitution/ Withdrawal of Bids

- (a) No modification or substitution of the submitted Bid shall be allowed.
- (b) A Bidder may withdraw its submitted Bid, provided that written notice of the withdrawal is received by JKPCCLtd., before the last date for submission of Bids. In case a Bidder wants to resubmit this Bid, he shall submit a fresh Bid following all the applicable conditions. Re-submission will not be permitted more than once and till as date and time of submission as notified.
- (c) Only a single copy of the withdrawal notice shall be prepared and each page of the notice shall be signed and stamped by the authorized signatory. The notice shall be duly marked "WITHDRAWAL". This withdrawal notice will be opened at the time of opening of bid and not earlier. The signature of GPA holder will be verified and in case both are same then only withdrawal will be considered.

2.3.9 Power of Attorney:

Bidders shall upload, along with Part I of the technical Bid, a power of attorney, on a stamp paper of appropriate value, in favour of the person signing the Bid documents authorizing him to sign the Bid documents, make corrections/ modifications thereto and interacting with JKPCCLtd., and act as the contact person. The format for the power of attorney shall be as per form E of BID. In case bids are signed by Managing Director/Partner/Proprietor himself is not required.

2.3.10 Bid Opening and Evaluation:

Bid Opening

- i. The Bids will be opened in the presence of Bidders or their authorized representatives who may choose to attend on date & time as mentioned in Notice Inviting Bids. If such nominated date for opening of Bid is subsequently declared as a public holiday, the next official working day shall be deemed as the date of opening of the Bid.
- ii. Bids for which an acceptable notice of withdrawal has been submitted shall not be opened.
- iii. Bids which have not complied with one or more of the foregoing instructions may not be considered.
- iv. The technical package of the Bids will only be opened. They will be checked for completeness and confirmation of submission of Bid Processing Fees and the requisite Bid Security. If the documents do not meet the requirements of the BID, a note will be recorded.
- vi. The Bidders name, the presence or absence of the requisite Bid Processing Fee, Bid Security and any other details as Or their authorized representative, may consider appropriate will be announced at the time of Bid opening.
- vii. The financial bid of all responsive Bids will be opened after the technical evaluation.

2.3.11 Determination of Responsiveness

- a. Prior to the detailed evaluation of Bids, JKPCC Ltd., will determine whether each Bid is responsive to the requirements of BID.
- b. For the purpose of this clause, a responsive Bid is one which;
 - i. Is accompanied by the power(s) of attorney if required
 - ii. Contains all the information as requested in the BID
 - iii. Contains information in formats same/similar as those specified in this BID
 - iv. Mentions the validity period of the offer
 - v. Is accompanied by the Bid Processing Fee in the format mentioned earlier.
 - vi. Is accompanied by the Bid Security/ EMD, in the format mentioned earlier.
 - vii. Conforms to all the terms, conditions and specifications of BID without material deviation or reservation. "Deviation" may include exceptions and exclusions. A material deviation or reservation is one which affects, in any substantial way, the scope, quality, performance or administration of the works to be undertaken by the Bidder under the Contract as provided for in BID and/ or is of an essential condition, the rectification of which would affect unfairly the competitive position of other Bidders presenting substantially responsive Bids at reasonable price.
 - viii. If a Bid is not substantially responsive to the requirements of BID, it will be rejected by JKPCCL. The decision of the JKPCCL in this regard shall be final and binding. The financial Packages of non-responsive Bidders shall be returned unopened.

2.3.12 Evaluation of Bids

- i. JKPCC Ltd. would subsequently examine and evaluate BID , as per the criteria set out in this document Form- 8.
- ii. JKPCC Ltd. reserves the right to reject any Bid if:

- a. At any time, a material misrepresentation is made or uncovered; or
- b. The Bidder does not respond within the stipulated time to requests for supplemental information/ clarifications required for the evaluation of the Bid.
- b. It is found that the information provided is not true or incorrect or facts/ material for the evaluation, have been suppressed.

2.3.13 Clarification of Bids

- i. Evaluation of technical Bids submitted by Bidders shall be undertaken based on details submitted therein only. Bidder shall not be allowed to submit on their own, additional information or material subsequent to the date of submission and such material information, if submitted, will be disregarded. It is therefore essential that all details are submitted by the Bidder comprehensively, accurately specifically in their technical Bid, avoiding vague answers. However, Evaluation Committee, if it so desires, reserves the right to seek any clarification from the Bidders on the information provided in technical package. The request for clarifications and the response shall be in writing, or by telefax or email. No change / addition in the information or substance of the Bid shall be sought, offered or permitted.
- ii. To assist in the examination, evaluation and comparison of the financial Bid, Evaluation Committee may ask Bidders individually for clarifications. The request for clarification and the response shall be in writing or by tele-fax or email. No change in the price or substance of the Bid shall be sought, offered or permitted except as required to confirm correction of arithmetical errors observed by the Evaluation Committee during the evaluation of Bids.

2.3.13 Process to be Confidential

- i. Except the public opening of the Bids, information relating to the examination, clarification, evaluation and comparison of Bids and recommendations concerning the award of Contract shall not be disclosed to Bidders or other persons not officially concerned with such process.
- ii. Any effort by a Bidder to influence JKPCC Ltd. Evaluation Committee in the process of examination, clarification, evaluation and comparison of Bids and in decisions concerning award of Contract, shall result in the rejection of the Bid.

2.3.15 Award of Contract

a. Award Criteria

JKPCC Ltd. or its assignees or any agency appointed by them will declare the Bidder ranked L1 as Successful Bidder and proceed to issue Letter of Award (LOA) as per the procedure mentioned in the BID and terms and conditions set out in this BID document.

b. Notification of Award/ Letter Award

- i. Prior to the expiry of the period of Bid Validity, JKPCC Ltd., will issue the Letter of Award to the Successful Bidder, notifying him of being declared successful and the intent to sign the Contract Agreement with him. This letter (hereinafter and in the Conditions of Contract called 'the Letter of Award') shall mention the sum which JKPCC Ltd. will pay to the Contractor in consideration of the completion and guarantee of the work

to be performed by them, as prescribed therein (hereinafter and in the conditions of Contract called 'the Contract Price'). No correspondence will be entertained by JKPCC Ltd. from the unsuccessful Bidders.

- ii. The Letter of Award shall constitute a part of the Contract.
- iii. Upon submission of Performance Security by the Successful Bidder „JKPCC Ltd., will promptly notify the other Bidders and discharge/ return their Bid securities.

c. Signing of Agreement

- i. JKPCC Ltd shall prepare the Contract Agreement in the Performa (Form D) included in this document, duly incorporating all the terms of agreement between the two parties. Within 30 days from the date of issue of the Letter of Award the Successful Bidder will be required to execute the Contract Agreement or within 15 days of start of work whichever is later or within 15 days of start of work whichever is later, the Successful Bidder will be required to execute the Contract Agreement.
- ii. Prior to the signing of the Contract Agreement, the Successful Bidder shall submit the performance security.
- iii. The Contract Agreement should duly signed by M. D. JKPCC Ltd., or its assignees or any agency appointed by them and Contractor through their authorized signatories.
- iv. In case the Successful does not sign the Contract Agreement, JKPCC Ltd., reserves the right to cancel the selection process, forfeit any Bid Security and/or Performance Security, as the case may be, submitted by the Successful Bidder and either re-Bid or proceed in any manner that it may deem fit.

d. Sub-contracting:-

The Contractor shall not sub-contract the whole of the works. The Contractor shall not subcontract any part of the work without notifying and getting prior approval from the Client. The Contractor shall be responsible for observance, by all sub contractors, of all the provisions of the Contract Agreement. The Contractor shall be responsible for the acts or defaults of any subcontractor, his representatives or employees, as fully as if they were the acts or defaults of the Successful Bidder, his representatives or employees. The Contractor shall provide to the Engineer, the details of all the contracts including terms and conditions of the contracts. The Contractor shall be solely responsible for the performance of the sub-contractor and for making payments to the sub-contractor.

e. Defects Liability Period

- i. The Defects Liability Period shall be up to 12 months from the date of issue of taking over certificate.
- ii. The Contractor shall, at its own risk and cost, make good, any defects, complete any left-over work as required by the Client during defects liability period.

f. Ownership of the Designs and Drawings

- i. All copyright and other proprietary rights in the Works shall vest and stand assigned to JKPCC Ltd and JKPCC Ltd shall consequently own, absolutely and exclusively on a worldwide basis, the whole of property, rights, title and interest including all copyright in the Works, present or future, vested or contingent, generally and without limitation, for the whole term of the copyright, including the right to modify and/or make any alterations to the Works and all the above rights shall not lapse even if such rights are not exercised by JKPCC Ltd. during the terms of the copyright and the Contractor shall be required/obliged to execute any deeds/documents, as may be required or considered necessary, by JKPCC Ltd. to give effect to and secure the above mentioned rights of JKPCC Ltd. the Works. For the purpose of this clause, the term "Works" shall include all "works" covered by the copyright Act 1957 including the design of the housing complex and all plans, sketches, design or artistic works created by the Contractor at the inception of, during the course of and until the completion of the Project and also includes any work created directly or indirectly in the performance of the obligations of the Contractor in connection with the Project.
- ii. The Contractor shall not use or allow anyone to use these drawings, designs, documents and software without the prior written permission of the Client and any such act without the permission of the Client shall constitute violation of Intellectual Property Rights.
- iii. Even in the event of stoppage/cancellation of the selection process, all documents/designs/drawings submitted by the Bidders to the on or before the cancellation of the selection process shall become the property of the Client and the Bidders shall have no claim on such documents/design.

g. Right to modify the design

The Contractor shall comply with instructions by the Engineer or the Client and suitably modify the design as per approved drawings.

h. Client's right to accept any Bid and to reject any or all Bids

- i. Notwithstanding anything above, JKPCC Ltd., reserves the right to accept or reject any Bid at a time prior to award of Contract without thereby incurring any liability to the affected Bidder or Bidders.
- ii. JKPCC Ltd., reserves the right to cancel/annul the selection process, at any stage prior to the award the Contract, in larger public interest, on account of the following:
 - a) in case no Bid/ a single Bid is received.
 - b) Occurrence of any event to which it is not possible to proceed with the selection process.
 - c) an evidence of a possible collaboration/mischief on part of Bidders, impacting the competition and transparency of the selection process,
 - d) any other reason, which in the opinion of the Client necessitates the cancellation of the selection process.

- iii. On occurrence of any such event JKPCC Ltd. shall notify all the Bidders within 7 days of such decision. JKPCC Ltd. shall also promptly return the Bid Security submitted by the Bidders within 15 days of issue of such notice. JKPCC Ltd. is not obligated to provide any reason or clarification to any Bidder on this account. JKPCC Ltd.'s liability under this clause is restricted to returning the Bid Security and no other reimbursements of costs/ expenses of any type shall be made by the Client on this account.
- iv. The Client further reserves the right to re-Bid the process or get the work done by a Government agency or Quasi Government agency if the Client is of the opinion that the Bids received are not economically or otherwise feasible or not acceptable due to reasons in sub clauses (a) to (d) above.
- i. All amendments/ addendum shall be made available at JKPCC Ltd. office at Jammu and **www.jktenders.gov.in Website**. It will be the responsibility of the bidder to see the website regularly and update.

Deputy General Manager
Mechanical Unit JKPCC Ltd
Jammu

EVALUATIONPROCESS

5.1 Evaluation Process:

The Bids will be evaluated in the following stages:

- i. Stage 1 - Technical Evaluation
- ii. Stage 2 - Financial Evaluation

5.2 stage 1-Technical Evaluation

- i. The technical Bids shall be evaluated as per criteria mentioned.
- ii. The technical Bid shall be evaluated by the Evaluation Committee based on the qualification criteria laid down. The financial Bid of only those Bidders who are technically qualified shall be opened.
- iii. The financial Bids of Bidders whose technical Bids are found unacceptable shall not be unopened on line.
- iv. JKPCC Ltd. shall notify all the technically qualified Bidders of their technical qualification indicating date, time and venue for opening of financial Bids.

5.3 Stage II-Financial Evaluation

- i. Evaluation Committee shall open the e- financial Bid of the technically qualified Bidders.
- ii. All the financial Bids shall then be ranked according to the financial Bid in increasing order with the Bidder quoting the least amount ranked L1, Bidder quoting next higher figure as L2 and so on.
- iii. L1 will be declared as Successful Bidder and his offer will be processed further.
- iv. (a) The financial bid of all eligible bidders shall be opened as decided by client and the decision of client shall be final and binding.

(b) The date and time of opening of financial bids shall be decided by the client which will be intimated at an appropriate time.

(c) The financial bids for a particular site shall be opened and L1 Bidder will be decided.

5.4 Letter of Award/ Notification of Award:

The Successful Bidder would be notified in writing by M. D. JKPCC Ltd., by issuing the Letter of Award(LOA) infavour of Bidder.

Deputy General Manager
Mechanical Unit JKPCC Ltd
Jammu

Annexure-1

Checklist

CHECK LIST OF DOCUMENTS TO BE SUBMITTED WITH THE BID

TECHNICALPACKAGE-Part1

S.No.	Name of Document	No of sets to be submitted	Page No.
1.	Form of Bid and Appendix thereof (Form A)	Scanned copies	
2.	Bid Security (Form B)	Scanned copies	
3.	Power of Attorney for individuals signing on behalf of Bidders (Form E)	Scanned copies	
4.	Initialed BID documents	Scanned copies	

TECHNICAL PACKAGE – Part 2

1.	Form “T-1” (Financial Information)	Scanned copies	
2.	Form “T-2” (Details of works.... As on 3/2018)	Scanned copies	
3.	Form “T-3” (Project under execution or awarded)	Scanned copies	

Form A- Form of Bid and Appendix

FORM OF BID

Name of the Work: **New Assembly Complex Jammu.....**

To
**Managing Director JKPCC Ltd., Rail Head Complex
Jammu.....**

.....
.....

Sub.: Submission of Proposal

Having visited the Site, ascertained the Site conditions and examined the General Conditions of Contract as well as Special Conditions of Contract, Notice Inviting Bids, Instructions to Bidders etc. and addenda for the above project, we the undersigned, are pleased to submit our technical and financial Bid along with relevant documents.

1. We acknowledge that the Appendix forms an integral part of the Bid.
2. While preparing this Bid, we have gathered our own information and conducted our own inquiry/survey to our satisfaction and we did not rely solely on the information provided in BID. We shall not hold JKPCC Ltd responsible on any account in this regard.
3. We undertake, if our Bid is accepted, commence the works within the stipulated time and to complete the whole of the works comprised in the Contract within the stipulated time calculated from the start date.
4. If our Bid is accepted, we will furnish a bank guarantee as Performance security for the due performance of the Contract. The amount and form of such guarantee or bond will be in accordance with as given in the General Conditions of the Contract.
5. We are aware that in the event of delay in execution of the Project, beyond the agreed timelines due to reasons attributable to us, liquidated damages shall be recovered from us.
6. Our Bid is valid for your acceptance for a period of 120 days from the last date of submission of the Bid as per the BID or any extension thereto.
7. We agree to the General Conditions of Contract and Special Conditions of Contract and the terms and conditions mentioned in the BID.
8. We declare that the submission of this confirms that no agent, middleman or any intermediary has been or will be engaged to provide any services, or any other item of work related to the award of this Contract. We further confirm and declare that no agency commission or any payment, which may be construed as an agency, commission has been, or will be, paid and that the Bid price does not include any such amount. We acknowledge the right of JKPCC Ltd., if it finds anything to the contrary, to declare our Bid to be non-compliant and if the Contract has been awarded to declare the Contract null and void.
9. We understand that you are not bound to accept the lowest or any Bid you may receive.
10. If our Bid is accepted we understand that we are to be held solely responsible for the due performance of the contract.
11. We enclose;
 - a. All documents as per the checklist

b. Bank guarantee for Rs(Rupees
..... only) issued by.....(name of
the bank) valid until..... towards EMD.

Note: i. The Appendix forms part of the Bid

ii. Bidders are required to fill up all the blank spaces in this form of Bid and Appendix.

Dated this.....day of.....

Signature.....

Name.....in the capacity of.....duly authorized to sign Bids for
and on behalf.....

Address.....

.....
.....

Witness–Signature.....

Name

Address:

.....
.....

FORMAT FOR EMD

Form B

KNOW ALL MEN by these presents that we.....(Name of Bank) having our registered office at(Name of Country) (hereinafter called "the Bank")are bound un to Pay and....., in the sum of Rs.for which payment will and truly to be made to the saidthe bank binds itself, its successors and assigns by the seprents.

WHEREAS(Name of Bidder) (hereinafter called “the Bidder”) has submitted its Bid dated.....for.....

AND WHEREAS the Bidder is required to furnish a bank guarantee for the sum of Rs.....(Rupees.....Only) as Bid Security against the Bidder's offer as aforesaid.

ANDWHEREAS..... (Name of Bank)have, at the request of the Bidder, agreed to give this guarantee as herein after contained.

1. We further agree as follows:

- 1.1 That client may without affecting this guarantee grant time or other indulgence to or negotiate further with the Bidder in regard to the conditions contained in the said Bid and t h e r e b y modify these conditions or add thereto any further conditions as may be mutually agreed upon between client and the Bidder.
- 1.2 That the guarantee herein before contained shall not be affected by any change in the constitution of our bank or in the constitution of the Bidder.
- 1.3 That any account settled between client and the Bidder shall be conclusive evidence against us the amount due hereunder and shall not be questioned by us.
- 1.4 That this guarantee commences from the date here of and shall remain in force till_date to be filled up).
- 1.5 That the expression 'the Bidder' and 'the Bank' herein used shall, unless such an interpretation is repugnant to the subject or context, include their respective successors and assigns.

2. The conditions of this obligation are:

a) if the Bidder withdraws his Bid during the period of Bid Validity, or.

b) if the Bidder does not the correction of his Bid Price as corrected by the evaluation committee.

c) if the Bidder having been notified of the acceptance of his Bid by client during the period of Bid Validity.

- i. fails or refuses to furnish the required Performance Security for the amount equal to 10% of the Contract price and/or
- ii. fails or refuses to enter into a Contract within 30 days of issue of Letter of Award by Managing Director JKPCC Ltd. or within 15 days of start of work whichever is later.

We undertake to pay to client up to the above amount upon receipt of his first writtendemand,withoutclienthavingtosubstantiatehisdemandprovidedthatin hisdemandclientwillnotethattheamountclaimedbyhimisduetohimowingto the occurrence of any one or more of the conditions (a),(b), (c) mentioned above, specifying the occurred condition or conditions.

	Signature of
	Authorized Official of the Bank
Signature of the witness	Name of Official..... Designation.....
Name of the witness	Stamp/Seal of the Bank
Address of the witness	

Form-C

FORM OF PERFORMANCE SECURITY (GUARANTEE)

Bank Guarantee Bond

1. In consideration of the Managing Director (hereinafter called "The Government.") having offered to accept terms and conditions of the agreement betweenand..... (hereinafter called "the said Contractors") for the work of (hereinafter 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.

We..... (herein after referred to as "the Bank") hereby undertake To pay to the Government an amount not exceeding Rs.....(Rupees_ Only)on demand by the Government.

2. We,..... 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 as required to meet the recoveries due or likely to be due from the said contractors. Any such demand made on the bank shall be conclusive as regards the amount due and payable by the bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs (Rupees.....only).
3. We, the said bank further undertake to pay the Government any money so demanded notwithstanding any dispute or disputes by the contractors 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 bond shall be a valid discharge of our liability for payment under and the contractor(s) shall have no claim against us for making such payment.

4. We..... further agree that the guarantee herein contained shall remain in full force and effect during the period that 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 claims satisfied or discharged or till Engineer-in-charge on behalf of the Government certified that the terms and conditions of the said agreement have been fully and properly carried out by the said Contract of(s) and accordingly discharges this guarantee.
5. We..... further agree with the Government that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligation 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 contractors and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation or

ex tension being granted to the said contractors 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 Contractors.
7. We..... lastly undertake not to revoke this guarantee except with the previous consent of the Government in writing.
8. This guarantee shall be valid uptounless extended on demand by the Government. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rs. (Rupees..... only) and unless a claim in writing is lodged with us within 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)

FORM OF CONTRACT AGREEMENT

This agreement is made at on the day of..... between president of India acting through Shri,,, Government of India having its office at (hereinafter "Client" which expression shall, unless repugnant to the context or meaning thereof be deemed to mean and include its successors, legal representatives and assigns) of the **First Part**.

Second Part

M/s a Company incorporated under the Companies Act 1956 having Head Office at

.....
(hereinafter called the "Contractor" which expression unless repugnant to the context shall mean and include its successors-in-interest assigns etc.) of the **SecondPart**.

Whereas is desirous that certain works should be executed, for hereinafter called the "The Project" and has accepted a Bidder submitted by the contractor for the execution and completion of such works as well as guarantee of such works and the remedying of defects therein. NOW THIS AGREEMENT WITHNESSTH as follows:

In this agreement words and expression shall have the same meanings as are respectively assigned to them in Conditions of Contract hereinafter referred to.

The Following documents shall be deemed to form and be read and constructed as part of this agreement Viz.

- Notice Inviting Bidder
- Scope of work
- Evaluation Process
- General Conditions of Contract
- Special Condition of Contract
- Technical Specification Civil
- (Financial bid and Bill of Quantities)
- **(Drawings)**

2.6 All the correspondence till award of contract. i.e. addendum, LOA etc.

2.7 Technical and Financial bids submitted by bidder.

3. In consideration of the payment to be made by to the Contractor as hereinafter mentioned, the Contractor hereby covenants with to executed and complete the Project byand remedy and defects therein in conformity in all respects with the provisions of the Contract.

4. hereby covenants to pay Contractor in consideration of the execution and completion of the Project and the remedying of defects therein, the total Contract Price of Rs

.....only) being the sum stated in the letter of Award (LOA) subject to such additions thereto or deductions there from as may be made under the provisions of the Contract at the times and in the manner prescribed by the Contract.

5. OBLIGATION OF THE CONTRACTOR

The Contractor shall ensure full compliance with tax laws of India with regard to this Contract and shall be solely responsible for the same. The contractor shall keep fully indemnified against liability of tax, interest, penalty etc, of the Contractor in respect thereof, which may arise.

IN WITNESS OF WHEREOF the parties hereto have caused their respective common seals to be hereunto affixed / (or have hereunto set their respective hands and seals) the day and year first above written.

For and on behalf of the Contractor
Signature of the authorized official

For and on behalf of the Managing Director, JKPCC Ltd.,
Signature of the authorized official

Name of the Contractor

Name of the official

Stamp I Seal of the Contractor

Stamp I Seal

SIGNED, SEALED AND DELIVERED

By the said

By the said

.....
.....
.....

.....
.....
.....

On behalf of the Contractor in the Presence of: on behalf of the resident of India in the presence of:

Witness.....
Name.....
Address.....

Witness.....
Name.....
Address.....

Form E

Format for Power of Attorney for authorized signatory

FORMAT FOR POWER OF ATTORNEY'(FOR SIGNING OF PROPOSAL

Know all men by these presents, we..... (Name of the Bidder and address of their registered office) do hereby constitute, appoint and authorize Mr/ Ms..... (name and residential address of Power of Attorney holder) who is presently employed with us and holding the position of As our attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to our Bid for the Project and submission of all documents and providing information/ responses to, representing us in all matters before, and generally dealing with in all matters in connection with our proposal for the said Project.

We hereby agree to ratify all acts, deeds and things law fully done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our afore said attorney shall and shall always be deemed to have been done by us.

FINANCIAL INFORMATION

1. **Financial Analysis**-Details to be furnished duly supported by figures in balance sheet profit & loss account the last five years duly certified by the Chartered Accountant, as submitted by the applicant to the Income tax Department (Copies to be attached).

i) **Gross Annual Turnover of the firm** for last five years ending 31-03-2018

ii) **Profit I Loss** for last five years ending 31.03-2018

iii) Financial arrangements for carrying out work.

Solvency certificate from Bankers of the bidder in the prescribed Form "T-1 B".

Signature of Chartered
Accountant with Seal

Signature of Applicant.

FORM OF BANKERS' CERTIFICATE FROM AS SCHEDULED BANK

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

(Signature)
For the Bank

- NOTE(1) Banker's certificates should be on letter head of the Bank, sealed in cover addressed to bidding authority.
- (2) In case of partnership firm, certificate should include names of all partners as recorded with the bank.

**DETAILS OF ALL WORKS OF SIMILAR NATURE COMPLETED
DURING THE LAST five YEARS ENDING**

S.No.	Name of Work/ Project & Location	Owner of sponsoring Organization	Cost of Work (In Lakh)	Date of Commencement As per Contract	Stipulated Date of Completion	Actual Date of Completion	Litigation/ Arbitration pending/ in Progress with details*	Name & Address/ Telephone No. of Officer to whom	Remarks
1	2	3	4	5	6	7	8	9	10

(A) Works costing 60% of Estimated cost

1.

(B) Works costing 40% of Estimated cost

1.

2.

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

Note:-

1. Only those work which meet eligibility criteria to be included.
2. For every work included in this form, Form T- 4 must be enclosed failing which the work shall not be considered in eligibility criteria.
3. Certified that above lists of works is complete and no work has been left out and that the information given is correct to knowledge and belief.

Signature of Applicant

Dated:

PROJECT UNDER EXECUTION OR AWARDED

S.No.	Name of Work/ Project & Location	Owner of sponsoring Organization	Cost of Work (In Lakh)	Date of Commencement As per Contract	Stipulated Date of Completion	Up to date Percentage Progress of Work	Slow Progress, If any, & reasons thereof	Name & Address/ Telephone No. of Officer	Remarks
1	2	3	4	5	6	7	8	9	10

Certified that above lists of works is complete and no work has been left out and that the information given is correct to my knowledge and belief.

Signature of Applicant

Dated:

GENERAL CONDITIONS OF CONTRACT

1. Definitions & Interpretations

In construing these conditions, the Specifications, Bill of quantities and Contract Agreement etc. the following words shall have the meaning herein assigned to them except where the subject or context otherwise requires.

i a) "Employer"/"Owner" means Managing Director JKPCC Ltd., and includes the Employer's representatives, successors and assigns.

i b) "Architect" means M/s JACOBS CES Plot No. 184 Platinum Tower Udyog Vihar, Phase-1, Gurgaon 122016(Haryana) and their authorised nominees and representatives or such other firms/persons, as shall be nominated by the Employer.

i c) "Engineer" shall mean Dy. General Manager (Mechanical Unit) JKPCC Ltd. with their registered office at Rail Head Complex Jammu or their authorised nominees and representatives or such other firm/persons, as shall be nominated by the Employer or the technical representative of the Employer at site for all matters pertaining to execution, supervision, planning and overall control of the project.

i d) The "Contractor" is the successful Tenderer in whose favour the Contract has been awarded by the Employer to perform the Works covered by the Contract and shall be deemed to include the Contractors' successors, heirs, executors, administrators, representatives or permitted assigns approved by the Employer and will be referred to as if on masculine gender and singular number, throughout in these Documents.

ii a) In the case of individual Contractor:-Shri _____ trading in the name and style of _____ and shall include his heirs, successors and legal successors and legal representatives.

ii b) In the case of Company:- _____ a company incorporated under _____ 2005 and having its registered office at _____ and office at _____ and shall include its successors and assignee.

ii c) The term "Sub-Contractor" used herein refers to a party or parties having a direct contract with the Contractor to whom any part of the Contract has been sublet by the Contractor with the consent in writing of the Engineer/Employer.

(iii)"Contract" means the agreement and all documents which form part thereof and/or annexed thereto and all amendments thereto made in accordance with the provisions hereof based on the Notice Inviting Tenders, Information and Instructions to Tenderers, General Conditions of Contract, Special Conditions of Contract, Specifications, tender details, Addendum issued if any, offer, priced Schedule/Bill of Quantities, Post Tender Communication, Letter of Intent/ acceptance or Letter of Intent, Formal Work Order, Contract Agreement and

Drawings and any other relevant document read in conjunction and complement to one and other.

- (iv) "Contract Agreement" shall include Notice Inviting Tenders, Information and Instructions to Tenderers, General Conditions of Contract, Special Conditions of Contract, Specifications, tender details, offer, priced Bill of Quantities, Post Tender Communication, Letter of Intent, acceptance of Letter of Intent, Formal Work Order.
- (v) "Notice in writing" or "written notice" shall mean a notice in written, typed or printed characters sent (unless delivered personally or otherwise proved to have been received) by registered post to the last known private or business address or registered office of the addressee and shall be deemed to have been received when in the ordinary course of post it would have been delivered.
- (vi) "Act of Insolvency" shall mean any Act of Insolvency as defined by the Presidency Towns insolvency Act, or the Provincial Insolvency Act or any Act amending such original.
- (vii) "Net Prices" :- If in arriving at the contract amount, the Contractor shall have added to or deducted from the total amount of the items in the Tender any sum, either as a percentage or otherwise, then the net price of any item in the tender shall be the sum arrived at by adding to or deducting from the actual figure appearing in the Tender as the price of that item and similar percentage or proportionate sum provided always that in determining the percentage or proportion of the sum so added or deducted by the Contractor, the total amount of any Prime Cost items and provisional sums of money shall be deducted from the total amount of the tender. The expression "net rates" or "net prices" when used with reference to the contract or accounts shall be held to mean rates or prices so arrived at.
- (viii) "Site" means the lands and other places on, under, in or through which the works are to be executed or carried out and any other lands or places provided by the Employer for the purpose of the Contract.
- (ix) "Works" means the works to be executed by the Contractor for New legislative Assembly Complex Jammu(J&K) in accordance with the Contract, and includes materials, labour, equipment, fittings and things of all kinds (other than constructional plant) to be provided and work to be done by the Contractor under the Contract and shall include all additional, altered or substituted works as required for the performance of the Contract.
- (x) "Temporary Works" means all temporary works of every kind required in connection with the execution, completion and maintenance of the Works by the Contractor at their own cost and risk.
- (xi) "Drawings" means the drawings prepared by the Architects and issued by the Engineer and referred to in the Specifications and any modification of such drawings and such other drawings as may be issued by the Engineer from time to time.
- (xii) "Bill of Quantities" means the Schedule of Quantities of items, materials & rates, summaries, etc. as finally accepted.

- (xiii) "Specification" means the specifications given in these documents including relevant Indian standard specification where so required and where such a specification is not available, the specification approved by the Engineer.
- (xiv) "Materials" means the materials, apparatus, equipments, fittings, fixtures and all such other material which are incorporated in the 'work'.
- (xv) "Constructional Plant" means all appliances or things of whatsoever nature required in connection with the execution, completion and maintenance of the Works or Temporary Works by the Contractor at his own cost and risk (as hereinafter defined) but does not include materials or other things intended to form or forming part of the permanent work.
- (xvi) "Virtual Completion of the Works" means the completion of the whole of the works substantially in all respects as evidenced by issuance of a Certificate of Completion by the Engineer in pursuance of Clause 34 & 42 of the General Conditions of Contract.
- (xvii) "Period of Maintenance/Defect Liability Period" shall mean the period of 1(One) year calculated from the date of virtual completion of the works as certified by the Engineer.
- (xviii) "Urgent Works" means any urgent works, which in the opinion of the Engineer/Employer becomes necessary at the time of execution and/or during the progress of work to obviate any risk of accident or failure or to obviate any risk of damage to the structure or services or required to accelerate the progress of work for which becomes necessary for safety & security or for any other reason, the Engineer/Employer may find it necessary.
- (xix) When the words "Approved" "subject to approval", "satisfactory", "equal to" "as directed", "when directed" "determined by", "accepted", "permitted", etc. are used, the approval, judgement, direction etc., implied is understood to be a function of the Engineer and shall have the same effect as if performed by the Employer.
- (xx) "Market Rate" means the rate as decided by the Engineer on the basis of cost of materials inclusive of any tax, duty, octroi or such statutory in position, at the time of work and cost of labour at site where the work is to be executed plus the percentage to cover all overheads & profit.
- (xxi) "Month" means English calendar month.
- (xxii) "Week" means seven consecutive calendar days.
- (xxiii) "Day" means a calendar day beginning and ending at 00 Hours and 24 hours respectively.
- (xxiv) "Contract Value/Sum" means the total value of the tender as accepted by the Employer.
- (xxv) "Contract Price" means the sum set out hereto as the total value of Contract and shall be subject to such additions, substitution thereto or deductions and rebates thereof as the case may be under the provisions hereinafter contained.
- (xxvi) Interpretations/Marginal Note/ Heading/ Catch Lines.

The Marginal Notes, Headings and the catch lines hereto and in the annexures hereto are meant only for convenience of reference and shall not in any way be taken into account in the interpretation of these presents and the annexures hereto. The Contractor will have to carry out and complete the said work in every respect in accordance with this contract.

Words imparting the singular only also include the plural and vice versa where the context requires.

2. **Language(s)**

The language in which the Contract documents shall be drawn up shall be English only.

Documents Mutually Explanatory

Except if and to the extent otherwise provided by the Contract the provisions of the Conditions of Contract shall prevail over those of any other document forming part of the Contract. Subject to the foregoing the several documents forming the contract are to be taken as mutually explanatory of one another but in case of ambiguities or discrepancies the same shall be explained and adjusted by the Engineer who shall thereupon issue to the Contractor, instructions directing in what manner the work is to be carried out.

3. **Errors, Omissions and Descriptions.**

- a) In case of errors, omissions and/or disagreement between written and scaled dimensions on the drawings or between the drawings and specifications etc., the following order of precedence shall apply:
 - (i) Between scaled and written dimension (or description) on a drawing, the later shall be adopted.
 - (ii) Between the written or shown description or dimensions in the drawings and the corresponding one in the specification the former shall be taken as correct.
 - (iii) Between the written description of the item in the specifications and descriptions in the Bill of quantities of the same item, the former shall be adopted.
 - iv) Between specifications and drawings, the later shall prevail.
- b) In case of difference between the rates written in figures and words, the rate in words shall prevail.
- c) Between the duplicate/subsequent copies of the tender and original tender, the original tender shall be taken as correct.
- d) In all cases of omissions and/or doubts or discrepancies in any of the items or specifications, a reference shall be made to the Engineer whose elucidation, elaboration or decision shall be considered as authentic. The Contractor shall be held responsible for any error that may occur in the work through lack of such reference and precaution.

4. **Sufficiency of Tender**

The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his Tender for the Works and of the rates and prices quoted by him in the Priced Bill of Quantities & Item and Price (if any) which rates and prices shall, except in so far as

it is otherwise provided in the Contract, cover all his obligations under the Contract and all matters and things necessary for the proper execution, completion and maintenance of the works.

5. Scope of Contract

- (i) The Contract comprises the construction, completion and maintenance of the works and except in so far as the Contract otherwise stipulates the provision of all labour, materials, constructional plant, machinery temporary works and everything whether of a temporary or permanent nature required in and for such construction, completion and maintenance so far as necessary for providing the same as specified in or reasonably to be inferred from the Contract.
- (ii) In the three basement floors wherever the conduits have already been laid in these slabs, these items are not in the scope of this tender. Remaining all the relevant items for these three basement floor are also covered in this tender along with all other items.

6. (i) Letter of Acceptance/Award

i) Before signing of the Contract, the Employer shall issue by registered post or by otherwise depositing at the registered office of the Contractor, Letter of Acceptance / Award to enter into a Contract with the Contractor for the execution of the works in accordance with the contract. Until a formal contract agreement is prepared and executed, the tender documents i.e. part (a) NIT part (b) specifications of fire fighting system part (c) BOQ & set of drawings together with the relevant correspondence exchanged from receipt of the tender to acceptance and together with the Employer's letter of Acceptance/Award shall constitute a binding contract between the parties, provided the Initial Security Deposit as required under the Contract shall have been furnished by the Contractor.

(ii) Contract Agreement

The Contractor shall, when called upon, enter into and execute a contract Agreement (to be prepared at the cost of the Contractor) in the form annexed with such modifications as may be necessary. The Contractor shall prepare and circulate at their cost adequate number of the Contract Documents (in bound form). They shall submit 7 (seven) copies of such bound Contract Documents to the Employer.

7. Initial Security Deposit

Before entering into the contract & in pursuance of tender condition thereof, the Contractor shall obtain Bank Guarantee of a nationalised bank for a sum amounting to 10% (ten) per cent of the Contract Sum and furnish the same (in original) to the Employer for the due performance of the Contract the BG should be valid up to the defect liability period. On acceptance of this Initial Security Deposit for the aforesaid amount, the E.M.D. as furnished by the Contractor with the tender shall be released by the Employer, on request of the Contractor. Terms of the said guarantee Bond shall be in the enclosed form as per Annexure-B and as approved by the Employer and obtaining of such guarantee and the cost of the Bond to be so entered into, shall be at the expense of the Contractor in all respects. The Employer shall be entitled to revoke the Letter of Acceptance and forfeit the Earnest Money Deposit furnished along with the tender, if the successful tenderer fails to furnish the said Initial Security Deposit in the form of Bank Guarantee within a period of 14 days from the date of issue of Letter of Intent/Acceptance of the Tender.

8 i) **Custody of Drawings & Specifications**

The drawings or specifications shall remain in the sole custody of the Engineer, but two copies of drawings and one set of Specification thereof shall be provided to the Contractor free of cost. The Contractor shall make at his own cost any further copies required by him for the use on the specific work only. Unless it is strictly necessary for the purposes of the contract, the drawings, specification and other documents provided by the Engineer shall not, without the consent of the Engineer, be used or communicated to a third party by the Contractor. Before issue of "No Dues Certificate" on expiry of the Defects Liability Period, the Contractor shall return to the Engineer all drawings, specification and other documents provided under the Contract.

(ii) **Additional Copies**

The Contractor shall give adequate notice in writing to the Engineer or the Engineer's representative of any further drawing or specification that may be required for the execution of the Works or otherwise under the Contract and in case the Engineer thinks it fit he shall make available a copy of such drawing within a reasonable period.

(iii) **Drawing to be kept at site**

One copy of the Drawings furnished to the Contractor as aforesaid shall be kept by the Contractor at the Site and the same shall at all reasonable time be available for inspection and use by the Engineer and the Engineer's Representative and by any other person authorised by the Engineer in writing.

9. **Disruption of Progress**

The Contractor shall give adequate but not less than four (4) weeks time written notice to the Engineer whenever planning or progress of the Works is likely to be delayed or disrupted unless any further drawing or order, including a direction, instruction or approval, is required to be issued by the Engineer. The notice shall include details of the drawing or order required explaining why and by when it is required and of any delay or disruption likely to be suffered if it is late.

10. **Further Drawings and Instructions**

The Contractor shall carry out and complete the said work in every respect in accordance with this Contract and with the directions of and to the satisfaction of the Engineer. The Engineer may in his absolute discretion and from time to time issue further drawings and/or written instructions, details, directions and explanations which are hereafter collectively referred to as "Engineer's Instructions" in regard to:-

- (a) The variation or modification of the design, quality or quantity of items of works or the addition or omission or substitution of any item.
- (b) Any discrepancy in the Drawings or between the Bill of Quantities and/or Drawings and/or Specification.
- (c) The removal from the site of any material brought thereon by the Contractor and the substitution of any other material therefore.
- (d) The removal and/or execution of any works executed by the Contractor.
- (e) The dismissal from the works of any person employed thereupon.

- (f) The opening up for inspection of any work covered up.
- (g) The amending and making good of any defects under Clause No.31 hereof.

The Contractor shall forthwith comply with and duly execute any work complying with such Engineer's instructions provided always that verbal instructions, directions and explanations given to the Contractor or his representative upon the works by the Engineer shall, if involving a variation, be confirmed in writing by the Contractor within seven days, and if not dissented from in writing within a further seven days by the Engineer, such instruction shall be deemed to be Engineer's instructions within the scope of the Contract.

11. **Role of the Engineer**

Engineer's duties are to watch and supervise the works and to test any materials to be used or workmanship employed in connection with the works, quality control, project scheduling and monitoring and coordinating with all other agencies and Civil Contractor, recording of measurements, certification of bills, preparing extra/deviation items, preparing minutes of meetings and responsibilities for overall monitoring of progress of the project etc. They shall have no authority either to relieve the Contractor of any of his duties or obligations under the Contract for proper and timely execution and completion of the work or, except those expressly provided hereunder, to order any work involving delay or any extra payment by the Employer or any variation of or in the works.

The Contractor shall afford the Engineer or his representative every facility and assistance for examining the works and materials and checking and measuring time and materials. The Engineer's representative shall have no power to revoke alter, enlarge, or relax any requirements of this Contract, or to sanction any day work, additions, alterations, deviations or omissions etc. without approval of competent authority.

The Engineer shall have such other powers and discharge other functions as are specifically provided in this contract including such incidental or consequential powers or duties, subject always to such specific instructions or directions of the Employer, which shall be duly notified to the Contractor.

12. **Contractor's General Responsibilities**

- (i) The Contractor shall, subject to the provisions of the Contract, and with due care and diligence, execute complete and maintain the Works, remedy any defects therein in accordance with provisions of the Contract and provide all labour including the supervision thereof, materials, Constructional Plant and all other things, whether of a temporary or of a permanent nature, required in and for such execution, completion, remedying of any defects and maintenance. The works shall be carried out by the Contractor in strict accordance with the Contract to the satisfaction of the Engineer and shall comply with and adhere strictly to the Engineer's instruction and directions on any and all matters whether mentioned in the Contract or not.

Well in advance to commencement of any part of the work, the Contractor shall promptly notify the Engineer immediately on receipt of information/drawings of any error, omission, fault or any other defect in the design or specifications/drawings for the works which he only discovers at post contract stage only when reviewing the documents or in the process of execution of the works.

- (ii) The Contractor shall carry out and complete the Works in accordance with good engineering practices and using materials and workmanship of the best quality and standards provided that where and to the extent the approval of the quality of materials or of the standards of workmanship is a matter of opinion, such quality and standards shall be to the satisfaction of the Engineer/Engineer's Representative. Dis-satisfaction of quality, standard and workmanship by the Engineer cannot be disputed by the Contractor.
- (iii) The Contractor shall provide at his cost everything necessary for the proper execution of the works according to the intent and meaning of the Drawings, Bill of Quantities and Specifications taken together with whether the same may or may not be particularly shown or described therein provided that the same can reasonably be inferred there from, and if the Contractor finds any discrepancy in the Drawings or between the Drawings, Bill of Quantities and Specifications, he shall well in advance to commencement of work refer the same in writing to the Engineer who shall decide and communicate which is to be followed.
- (iv) The Contractor is bound to carry out any items of work necessary for the completion of the job even though such items are not included in the Bill of Quantities and rates. Instructions in respect of such additional items and their quantities will be issued in writing by the Engineer with the prior consent in writing of the Employer.
- (v) The Contractor must co-operate with the other Contractors appointed by the Employer so that the work shall proceed smoothly to the satisfaction of the Engineer.
- (vi) The Contractor must bear in mind that all the work shall be carried out strictly in accordance with the Contract documents and drawings and also in compliance of the requirements of the local public authorities and to the requirements/satisfaction/direction of the Engineer and no deviation on any account will be permitted.
- (vii) The Contractor shall have to use materials of the makes/ manufacturers specified in the list of materials of approved brand and/or manufacture contained in contract documents.

13. **Inspection of Site**

The Contractor shall be deemed to have understood, accepted and to have entered into the Contract based on such data regarding hydrological, climatic and physical conditions as shall have been examined by the Contractor as per article 2.1 of "Information and Instruction to Tenderers" and/or as shall have been indicated by the Employer in the documents furnished to the Contractor by the Employer for the purpose of tendering. The Contractor shall be deemed to have inspected and examined the site and its surroundings and satisfied himself before submitting Tender or entering into the contract as to the form and nature of the Site, the quantities and nature of the works, materials necessary for the completion of the works, and the means of access to the Site, the accommodation he may require and the rules regulations and statutory obligations he has to full fill. The Contractor shall be considered to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect his Tender or the obligations deemed to be fully assumed by him under the Contract and then considered to have been submitted his tender.

14. **Safety of Site Operations**

The Contractor shall take full responsibility for the safety stability and adequacy of all site operations and methods of construction including all temporary works, provided that the Contractor shall not be responsible, except as may be expressly provided in the Contract, for the design or specification of the permanent works.

15. **Watching & Lighting**

The Contractor shall in connection with the Works provide and maintain at his own cost adequate lights, guards, fencing, warning signs and watch & ward staff when and where necessary or as directed by the Engineer or as directed by duly constituted authority for the protection of the works or for the safety and convenience of the public or others.

16. (i) **Care of Works**

From the commencement to the certified completion of the whole of Works, the Contractor shall take full responsibility for the care thereof and of all Temporary Works and in case any damage loss or injury shall happen to the works or to any part thereof or to any Temporary Works from any cause whatsoever.

The Contractor shall at his own cost repair and make good the damages so that on completion, the works shall be in good order and condition and in conformity to every respect with the requirements of the Contract and the Engineer's instructions. The Contractor shall also be liable for any damage to the Works occasioned by him including his sub-contractors in the course of any operations carried out by him for the purpose of completing any outstanding work and complying with his obligations. The Contractor shall indemnify the Employer from all risks on this account.

(ii) From the commencement to the completion of the Works the Contractor shall take full responsibility for the care thereof and of all Temporary Works and in case any damage loss or injury shall happen to the works or to any part thereof or to any Temporary Works from any cause whatsoever (save and except the excepted risks as defined in sub-clause (ii) of this Clause) the Contractor shall at his own cost repair and make good the same so that at completion the works shall be in good order and condition and in conformity in every respect with the requirements of the Contract and the Engineer's instructions. In the event of any such damage, loss or injury happening from any of the "excepted risks" the Contractor shall, if any, to the extent required by the Engineer for Insurance of Works made hereof, repair and make good the same as aforesaid at the cost of the Employer but at the schedule rates of the Contract for the similar item of work. If similar items are not available from the schedule of items of the contract then the rates may be analysed as per CPWD/NBO/Schedule of Rates in order of preference applicable to the area at the time of Tendering.

17. (i) **Detailed Programme to be furnished**

Within 15 days of receiving Letter of Intent the Contractor shall prepare and submit to the Engineer for his approval a detailed construction programme of works in the form of a Critical Path Network Diagram showing the Contractor's sequence of operation together with estimated time of all activities & the order of procedure in which he proposes to carry out the works including design, if any, preparation of shop drawings, installation of adequate plants & equipments, proposal of material to be used and obtaining approval thereof Expected Time of Arrival of approved materials at site, construction/manufacture, delivery to site, fabrication, erection and commissioning. The submission to and approval by the Engineer of such programme shall not relieve the Contractor from fulfilling of any of his duties or obligations under the Contract or from adhering to the time schedule for proper execution & timely completion of works.

Time being the essence of the contract; the Contractor shall have to follow strictly the Detailed Construction Programme as approved by the Engineer. It shall be the responsibility of the Contractor to deploy equipment, engage skilled, unskilled labour and commission all other materials and financial resources to ensure that the progress of work is achieved strictly according to the approved construction programme.

Thereafter the Contractor must furnish detailed monthly programs in the same manner and network diagrams and as required by the Engineer. The programs shall provide for the orderly performance of the work within the times specified in time schedule and in accordance with the requirements of the Contract.

(ii) **Programme to be modified**

Subject to the provisions relating to Time for Completion hereof, if at any time it should appear to the Engineer that the actual progress of the works does not conform to the approved programme referred to in sub-clause (i) of this Clause, the Contractor shall forthwith produce a revised & detailed programme showing the modifications to the approved original programme necessary to ensure completion of the works within the time for completion as stipulated, adopting all suitable measures & deploying all resources as required.

(iii) **Cash Flow Estimate**

The Contractor shall, within the time stated in these Conditions after the date of issue the Letter of Intent, provide to the Employer/ Engineer for his information a detailed cash flow estimate, in quarterly periods, of all payments to which the Contractor will be entitled under the Contract and the Contractor shall subsequently supply revised cash flow estimates at quarterly intervals, if required to do so by the Engineer. The time within which the detailed cash flow estimate shall be submitted shall be 28 days.

18. (i) **Contractor's Superintendence**

The Contractor shall give and/or provide all necessary superintendence during the execution of the works and as long thereafter as the Engineer may consider necessary for the proper fulfilling of the Contractor's obligations under the Contract. The Contractor or its competent and authorised technical agent or representative and all other technical staff approved of in writing (approval to be obtained before the commencement of work) by the Engineer (which approval may at any time be withdrawn), is to be constantly on the works and shall give his whole time to the superintendence of the same. Such representative(s) shall be adequately qualified and have the required experience in similar works. If such approval is withdrawn by the Engineer at any stage, the Contractor shall, as soon as is practicable, (having regard to the requirement of replacing him as hereinafter mentioned), after receiving written notice of such withdrawal remove the agent(s)/representative(s) from the Site and shall not thereafter employ him again at the site in any capacity and shall replace him/them by competent agent or representative, approved by the Engineer. Such authorised agent or representative shall receive on behalf of the Contractor, directions and instructions from the Engineer or the Engineer's Representative.

(ii) **Contractor's Senior Representative for execution & co-ordination of works.**

The Contractor shall have on site at all times during working hours throughout the course of the Contract at least one competent senior representative who shall be empowered to make decisions binding on the Contractor in respect of all matters likely to arise in connection with the execution & coordination of the Works at site and shall keep the Engineer and the Employer informed at all times the presence of such representative at site, who has been approved for such work by the Engineer. Contractor's Senior Representative shall have the power to take joint measurement and sign the measurement books/bills.

Any directions, explanations, instructions or notices given by the Engineer to such representative shall be held to be given to the Contractor.

(iii) **Contractor's Employees**

The Contractor shall provide and employ after approval from the Engineer at the site in connection with the execution, completion and maintenance of the Works the following staff but not limited to and with minimum qualifications & experience as required by the Engineer:

- (a) Site-in-Charge - a graduate Mechanical Engineer with minimum 15 years experience and adequate exposure to various works of similar nature & magnitude.
- (b) Additional Engineering staff/technical assistants who are qualified including qualified Mechanical and Sanitary and Plumbing Engineers, skilled and experienced in their respective callings and sub-agents, foremen and leading hands who are competent to give proper supervision, ensuring quality & output to the work they are required to supervise including all services and infrastructure works they are required to supervise, and
- (c) Such skilled, semi-skilled and unskilled labour as are necessary for the proper and timely execution, completion and maintenance of the works.

(iv) **Removal of Contractor's Employees**

The Engineer shall be at liberty to object to and require the Contractor to remove forthwith from the Works any person employed by the Contractor in or about the execution or maintenance of the Works who in the opinion of the Engineer misconducts himself or is incompetent or negligent in the proper performance of his duties or whose employment is otherwise considered by the Engineer to be undesirable and such person shall not be again employed upon the Works without the written permission of the Engineer. Any person so removed from the works shall be replaced as soon as required by a competent substitute approved by the Engineer.

(v) **Unauthorised Persons**

No unauthorised persons are to be allowed on the site. The Contractor shall instruct all such persons to keep out and shall take steps to prevent trespassing.

19. **Compliance with Statutes, Regulations, etc.**

The Contractor shall conform to the provisions of any Act of the legislature relating to the works, and to the regulations and bye-laws of any authority, and of any water, electric supply and other companies and/or authorities with whose systems the structure is to be connected, and shall, before making any variations from the Drawings or Specifications that may be necessitated by such regulations, give to the Engineer written notice, specifying the variation to be made and the reason for making it and apply for instructions thereon. In case, the Contractor shall not within ten days of submission of such notice, receive such instructions, he shall proceed with the work conforming to the provisions, regulations, or bye-laws in question, and any variation so necessitated shall be dealt with under Clause 32 thereof.

The Contractor shall bring to the attention of the Engineer all notices required by the said Acts, regulations or bye-laws to be given to any authority and pay to such authority or to any public office all fees that may be properly chargeable in respect of the works, and lodge the receipts with the Engineer.

20. **Setting out**

- (i) The Contractor shall be responsible for the true and perfect setting-out of the Works and for the correctness of the position, levels, dimensions and alignment of all parts of the Works and

for the provision of all necessary instruments appliances and labour in connection therewith. If at any time during the progress of the Works or within the defect liability period any error shall appear or arises in the position, levels, dimensions or alignment of any part of the Works, the Contractor shall, at his own expense, rectify such error to the satisfaction of the Engineer or the Engineer's representative. The checking of any setting-out or of any line or level by the Engineer or the Engineer's representative based on the setting out Drawings prepared by the Contractor shall not in any way relieve the Contractor of his responsibility for the correctness thereof and the Contractor shall carefully protect and preserve all bench-marks, sight-rails, pegs and other things used in setting out the works.

(ii) **Notice to Engineer/Engineer's Representative**

The Contractor shall give to the Engineer not less than 72 (seventy two) hours notice of his intention to set out or give levels for any part of the Works so that timely arrangement may be made for checking or issuing instructions.

21. Quality of Materials & Workmanship & Test:-

(i) All materials and workmanship shall be the best of the respective kinds described in the Contract and in accordance with the Engineer's instructions and shall be subjected from time to time to such tests as the Engineer may direct at the place of manufacture of fabrication or on the Site or at all or any of such places. The Contractor shall upon the instruction of the Engineer/Engineer's Representative furnish him with documentation to prove that the materials & goods comply with the requirements of contract and for requirement stated above. The Engineer may issue instruction in regard to removal of material from site or any work, if these are not in accordance with the Contract. The Contractor shall provide such assistance instruments, machinery, labour and materials as are normally required for examining, measuring and testing any work and the quality, weight or quantity of any materials before incorporation in the Works for testing as may be selected and required by the Engineer/Engineer's Representative.

(ii) **Samples**

All samples of materials of adequate numbers, sizes, shades & pattern as required by the Engineer shall be supplied by the Contractor without any extra charge. Apart from adhering to any special provision made in the specifications regarding submission of samples the Contractor shall within 30 days of his receipt of Letter of Intent, provide to the Engineer samples along with the detailed literature and technical catalogues, latest test certificates if required, of all materials he proposes to use in the building irrespective of the fact that a specific make/material might have been stipulated. If certain items to be used are of such nature that samples cannot be presented or prepared at the site, detailed literature/test certificate of the same shall be provided instead to the satisfaction of the Engineer. Before submitting the samples/literature the Contractor shall satisfy himself that the material/equipment for which he is submitting the samples/literature meet with the requirement of the specification and/or requirement at site. The Engineer shall check the samples and give his comments and/or approval to the same. Only when the samples are approved in writing, he shall proceed with the procurement and installation of the particular material/equipment. The approved samples shall be signed by the Engineer for identification and shall be kept on record at his office until the completion and acceptance of the work and shall be available at the site for inspection/comparison at any time. The Contractor shall keep with him a duplicate of such samples to enable him to process the matter.

For items of work where the samples are to be made at the site, the same procedure shall be followed. All such samples shall be preserved at a place where it can be left undisturbed until the completion of the project.

The Engineer shall communicate his comments/approval to the Contractor regarding the samples at his earliest convenience. Any delay that might occur in approving of the samples for reasons of its not meeting with the specifications or other discrepancies in respect of inadequacy in furnishing samples of best qualities from various manufacturers and such other aspects causing delay on the approval of the materials/equipments, etc. shall be to the account of the Contractor. In this respect the decision of the Engineer shall be final.

On delivery of the supplies of materials/equipment for permanent works at the site, the Contractor shall specifically arrange to get the supply inspected by the Engineer and compared with the approved sample and his specific approval obtained before using the same in the work.

If samples are not approved, the Contractor shall forthwith arrange to supply to the 'Engineer' for his approval, fresh samples complying with the specification laid down in the contract.

The Contractor shall be bound, at his own cost to get the regular testing of samples of each batch of cement & steel and other materials in the manner as specified by I.S.I. or B.I.S., B.S. and relevant codes or in the manner as may be specified by the 'Engineer' and submit true copies of the original test certificates to the Engineer's Representative showing its conformity to required standards for use in the works and pre-view/comments of the Engineer, before their use on works.

Cost of materials consumed in the tests shall be borne by the Contractor, in all cases. Should there be any doubt about the accuracy or results of certain tests carried out by the Contractor at site or outside, the Engineer shall be entitled to get the confirmatory testing carried out at an alternative facility at the Contractors cost and the Contractor shall be bound to provide all facilities and co-operation for the alternative testing.

(iii) **Cost of Tests**

The cost of making any test shall be borne by the Contractor if such test is intended by or provided for in the Specification or Bill of Quantities only where a test is performed.

(iv) **Costs of Tests not provided for, etc.**

If any test is ordered by the Engineer which is either.

- (a) not so intended by or provided for or
- (b) (in the cases above mentioned) is not so particularised, or
- (c) though so intended or provided for is ordered by the Engineer to be carried out by an independent person at any place other than the Site or the place of manufacture of fabrication of the materials tested or any Government Laboratory, then the cost of such test shall be borne by the Contractor, if the test shows the workmanship or materials not to be in accordance to the provision of the Contract or the Engineer's instructions.

22. **Absence of Specification**

If the specifications do not contain particulars of materials and works which are obviously necessary for the proper completion of the works, and the intention to include which is inferred, all such materials and works shall be supplied and executed by the Contractor without extra charge. If the Contractor requires additional information, he shall, so request in writing well in advance to

commencement of the particular work to the Engineer who will issue such detailed information as necessary within a reasonable time.

23. **Obtaining Information related to execution of work.**

No claim by the Contractor for additional payment will be entertained which is consequent upon failure on his part to obtain correct information as to any matter affecting the execution of the works, nor will any misunderstandings or the obtaining of incorrect information or the failure to obtain correct information relieve him from any risks or from the entire responsibility for the fulfilment of the contract.

24. **Work to be to the satisfaction of the Engineer**

(i) The Contractor shall execute, complete and maintain the Works strictly in accordance with the Contract to the satisfaction of the Engineer and shall comply with and adhere strictly to the Engineer's instructions and directions on any matter (whether mentioned in the Contract or not) touching or concerning the works. The Contractor shall take instructions and directions only from the Engineer or from the Engineer's Representative.

(ii) **Complying with Engineer's Instructions**

The Contractor shall forthwith comply with all instructions issued to him by the Engineer in regard to any matter in respect of which the Engineer expressly empowered by these Conditions to issue instructions. If within seven days after receipt of a written notice from the Engineer/Engineer's Representative requiring compliance with an instruction the Contractor does not comply therewith, then the Employer may employ and pay other persons to execute any work whatsoever which may be necessary to give effect to such instruction and all cost incurred in connection with such action shall be recoverable from the Contractor by the Employer as a debt or may be deducted by him from any monies due or to become due to the Contractor under this Contract and carrying out of such works by other persons/agencies shall not relieve the Contractor from fulfilling his obligations under the contract.

(iii) **Confirmation of Engineer's Verbal Instructions**

All instructions issued by the Engineer shall be issued in writing. However, any instructions issued orally shall be given immediate effect by the Contractor and shall be confirmed in writing by the Engineer thereof within seven days from issuing of such oral instructions.

(iv) **Action and compensation payable in case of bad Work**

If it shall appear to the Engineer or his representative in charge of the work, that any work has been executed with unsound, imperfect or unskilful workmanship or with materials of any inferior description, or that any materials or articles provided by him for the execution of work are unsound or of a quality inferior to that contracted for, or otherwise not in accordance with the contract, the Contractor shall on demand in writing from the Engineer or his representative specifying the work, materials or articles complained of notwithstanding that the same may have been inadvertently passed, certified and paid for forthwith, rectify and remove and reconstruct the work, so specified in whole or in part as the case may require at his own risk and cost; and in the event of his failing to do so within a period to be specified by the Engineer or his representative in his demand aforesaid the Contractor shall be liable to pay compensation at the rate of one percent on the amount of the value of work ascertained by the Engineer, for every day not exceeding fifteen (15) days, while his failure to do so shall continue and in the case of any such failure the Engineer may rectify or remove and

re-execute part or whole of the work with new materials after dismantling the rejected works at the risk and expense in all respects of the Contractor.

25. **Access for Inspection**

The Employer, the Architect, the Engineer and their respective representatives shall at all reasonable times have free access to the work and/or to the workshops, factories or other places where materials are lying or from which they are being obtained and the Contractor shall give to the Employer, the Architect, the Engineer and their representatives every facility including safe access necessary for checking measurements, inspection and examination and test of the materials and workmanship. No person not authorised by the Employer or the Architect or the Engineer except the representatives of public authorities shall be allowed on the works at any time.

The Engineer or authorised representative of the Employer through the Engineer shall have power to set out works or to revoke, alter, enlarge or relax any requirements of the Contract, or to sanction any day work, additions, alterations, deviations or omissions or any extra work whatever except in so far as such authority may be specially conferred by a written order of the Engineer with the prior concurrence in writing of Employer.

26. (i) **Examination of work before covering up**

No work shall be covered up or put out of view without the approval of the Engineer and the Contractor shall afford full opportunity for the Engineer to examine and measure any work which is about to be covered up or put out of view and to examine foundations before permanent work is placed thereon. The Contractor shall give due notice to the Engineer of any such work or foundations is or are ready or about to be ready for examination and the Engineer shall without unreasonable delay, unless he considers it unnecessary and advises the Contractor accordingly, attend for the purpose of examining and measuring such work or for examining such foundations.

(ii) **Uncovering and making openings**

The Contractor shall uncover any part or parts of the Works or make openings in or through the same as the Engineer may from time to time direct and shall reinstate and make good such part or parts to the satisfaction of the Engineer. If any such part or parts have been covered up or put out of view after compliance with the requirements of sub-clause (i) of this Clause and are found to be executed in accordance with the contract the expenses of uncovering, making openings in or through reinstating and making good the same shall be borne by the Employer but in any other case all such expenses shall be borne by the Contractor and shall be recoverable from him by the Employer or may be deducted by the Employer from any monies due or which may become due to the Contractor.

27. (i) **Assignment/Subletting**

The Contractor shall not assign the Contract or any part thereof, or any benefit or interest therein or thereunder without the prior written consent of the Employer.

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

28. Quantities

The Bill of Quantities (BOQ), unless otherwise stated shall be deemed to have been prepared in accordance with the Indian Standard Method of Measurement and quantities in B.O.Q. are to be considered as estimated and not accurate. Quantity of any item may vary to any extent or may get deleted/interpolated/modify as deemed necessary for the best interest of the project. The rates quoted shall remain valid for variation of quantity against each individual item to any extent. However, maximum variation of the total contract value shall be within (+) 10%.

29. Works to be measured

The Engineer shall except as otherwise stated ascertain and determine by measurement the quantity and value of work done in accordance with the Contract. He shall, when he requires any part or parts of the Works to be measured, give notice to the Contractor's authorised agent or representative who shall forthwith attend or send a qualified agent to assist the Engineer or the Engineer's representative in checking such measurements & other substantiations of the Bill submitted by the Contractor and shall furnish all particulars required by either of them. Should the Contractor not attend or neglect or omit to send such agent then the measurement made by the Engineer or approved by him shall be taken to be the correct measurement of the work and shall be conclusive and binding on the Contractor.

For the purpose of measuring such permanent work as is to be measured by records and drawings the Engineer's representative shall prepare records and drawings of such work from time to time and the Contractor, as and when called upon to do so in writing, shall within 14 days, attend to examine and agree such records and drawings with the Engineer's representative and shall sign the same when so agreed and if the Contractor does not so attend to examine and agree such records and drawings within the aforesaid period they shall be taken to be correct.

In the case where any general or detailed description of the work in the Schedule of Items expressly shows to the contrary, all measurements shall be made according to the procedure set forth by the Engineer.

The works shall be measured notwithstanding any general or local custom except where otherwise specifically described or prescribed in the Contract.

All authorised extra works, omissions and all variations made without the Engineer's knowledge, but subsequently sanctioned by him in writing (with the prior approval in writing of the Employer) shall be included in such measurements.

30. Claims

The Contractor shall send to the Engineer once in every two months an account giving particulars as complete and fully detailed as required of all claims for any additional expenses claims, to which the Contractor may consider himself entitled and of all extra or additional/substituted work ordered by the Engineer which he has executed during the preceding month subject of provisions under relevant clauses of contract hereof, and no claim for payment for any such work will be considered which has not been included in such particulars. Provided always that the Engineer shall be entitled to authorise payment to be made for any such work notwithstanding the Contractor's failure to comply with this condition, if the Contractor has, at the earliest practicable opportunity notified the Engineer in writing that he intends to make a claim for such work and thereafter send complete and detailed

particulars being substantiated with supporting documents/vouchers etc. of the claim to the Engineer as directed by the Engineer but not later than 10 days from the date of notification of his claim.

31. **Power to Order Variations**

(i) The Engineer shall make any variation of the form, quality or quantity of the Works or any part thereof that may, in his opinion, be necessary and for that purpose or if for any other reason it shall in his opinion be desirable, shall have power to order the Contractor to do and the Contractor shall do any or all of the following:

(a) Increase or decrease the quantity of any work included in the Contract;

(b) Omit any such work fully or partly;

(c) Change the character or quality or kind of any such work;

(d) Change the levels lines position and dimensions of any part of the Works; and

(e) Execute additional work of any kind necessary for the completion of the works. and no such variation shall in any way vitiate or invalidate the Contract but the value (if any) of all such approved variations shall be taken into account in ascertaining the amount of the Contract Price and time of completion.

(ii) **Orders for Variations to be in writing**

No such variation shall be made by the Contractor without an order in writing of the Engineer, except for urgent works/repairs provided that no order in writing shall be required for increase or decrease in quantities not amounting to more than fifty percent in the total quantity of works where such increase or decrease is not the result of an order given under this clause but is the result of the quantities exceeding or being less than those stated in the Bill of Quantities. Provided also that if for any reason the Engineer shall consider it desirable to give any such order verbally the Contractor shall comply with such order and any confirmation in writing of such verbal order given by the Engineer whether before or after the carrying out of the order shall be deemed to be an order in writing within the meaning of this clause. Provided further that if the Contractor shall within seven days confirm in writing to the Engineer any verbal order of the Engineer and such confirmation if not be contradicted in writing by the Engineer within fourteen days, it shall be deemed to be an order in writing by the Engineer.

No alteration, omission or variation ordered in writing by the Engineer shall vitiate this contract. In case the Employer/Engineer thinks proper at any time during the progress of the works to make any alterations in, or additions to or omissions from, the works or any alteration in the kind or quality of the materials to be used therein, the Engineer shall give notice thereof in writing to the Contractor or shall confirm in writing within seven days of giving any such oral instructions. The Contractor shall alter, add to, or omit from, as the case may be, in accordance with such notice, but the Contractor shall not do any work extra to or make any alterations or additions to or omissions from the works or any deviation from any of the provisions of the Contract, stipulations, Specification or Contract Drawings without the previous consent in writing of the Engineer and the value of such extras, alterations, additions or omissions shall in all cases be determined by the Engineer and the same shall be added to or deducted from the Contract value, as the case may be.

32. **Valuation of Variations**

No claim for an extra shall be allowed unless it shall have been executed under authority of the Engineer's representative with the concurrence of the Engineer/Employer as herein mentioned. Any such extra is herein referred to as authorised extra and shall be made in accordance with the following provisions.

- a. (i) The net rates or prices in the original tender shall determine the valuation of the extra work where such extra work is of similar character and executed under similar conditions as the work priced herein.
- (ii) Rates for all items, wherever possible, should be derived out of the rates given in the Priced Bill of Quantities.
- b. The net prices of the original tender shall determine the value of the items omitted, provided omissions do not vary the conditions under which any remaining items of works are carried out, otherwise the prices for the same shall be valued under sub-clause (c) hereof.
- c. Where the extra works are not of similar character and/or executed under similar conditions as aforesaid or where the omissions vary the conditions under which any remaining items or works are carried out, then the Contractor shall within 7 days of the date of receipt of order to carry out the work, inform the Engineer of the rate which he intends to charge for such items of work, supported by analysis of the rate or rates claimed and the Engineer shall fix such rate or prices as in the circumstances in his opinion are reasonable and proper, based on the market rate.
- d. Where extra work cannot be properly measured or valued, the Contractor shall be allowed day work prices at the net rates stated in the tender of the Priced Bill of Quantities or, if not so stated, then in accordance with the local day work rates and wages for the district; provided that in either case, vouchers specifying the daily time (and if required by the Engineer, the workman's names) and materials employed be delivered for verification to the Engineer at or before the end of the week following that in which the work has been executed.
- e. It is to be noted that for all such authorised extra items where rates cannot be derived from tender, the Contractors shall submit rates supported by rate analysis worked on the "market rate basis", for material, labour, hire/running charges of equipment and wastages etc. plus 15% towards establishment charges, Contractor's overheads and profit, calculation as shown below :

Computation of Extra Item

i)	Actual cost of materials (including wastage, if any)	-	X1
ii)	Actual cost of labours	-	X2
iii)	Sundries (2%),	-	X3
iv)	Water, (1%)	-	X4
v)	Electricity (1%)	-	X5

	Total	=	X

Overhead expenditure and profit 15%

on X'	-	0.15 X

Total		=1.15 X

In the event of disagreement, the Engineer shall fix such prices as shall in their opinion be reasonable and proper with prior approval of the Employer on such rates/price and shall communicate to the Contractor & which shall be binding on the Contractor. Under no circumstances, the Contractor shall at any stage suspend the work on account of non-settlement of rates of such deviated items and such items shall not be accounted for escalation.

(f) Variations Exceeding 50 percent

If the net effect of all variations (other than those arising by reason of any clause relating to variations in price of materials and/or labour) shall be found on completion of the whole of the Works to result in a reduction or an addition greater than 50% (fifty per cent) of the contract price, the amount of the contract price shall be amended by such sum as shall be agreed upon between the Employer and the Contractor. In the event of disagreement the Engineer shall fix such sum, as shall in his opinion be reasonable and proper regard being paid to all material and relevant factors including the Contractor's on costs and overheads which shall be binding by and between the Employer and the Contractor.

(g) Day work

The Engineer may if in his opinion it is necessary or desirable, depending on nature/circumstances of the work, order in writing that any additional or substituted work shall be executed on a day work basis. The Contractor shall then be paid for such work under the conditions set out in the Day work Schedule included in the Bill of Quantities and at the rates and prices affixed thereto by him in his Tender. The Contractor shall furnish to the Engineer such receipts or other vouchers as may be necessary to prove the amounts paid and before ordering materials shall submit to the Engineer quotations for the same for his verification & approval thereof.

(h) Maintain and Furnish List of all Workmen on Day-Work Basis and Materials Consumed

In respect of all work executed on a day work basis the Contractor shall during the continuance of such work deliver each day to the Engineer's representative an exact list in duplicate of the names, occupation and time of all workmen employed or to be deployed on such work together with the brief description of particular job in advance for verification by the Engineer or Engineer's Representative and a statement also in duplicate showing the description and quantity of all materials and plant used thereon in approved format or therefor (other than plant which is included in the percentage addition in accordance with the Schedule hereinbefore referred to).

One copy of each list and statement will if correct or as agreed shall be signed by the Engineer's representative and returned to the Contractor. At the end of each month the Contractor shall deliver to the Engineer's representative a priced statement of the labour material and plant (except as aforesaid) used on day works as approved and the Contractor shall not be entitled to any payment unless such lists and statements have been fully and punctually rendered and approved by the Engineer. Provided always that if the Engineer shall consider that for any reason the sending of such list or statement by the Contractor in accordance with the foregoing provision was impracticable he shall nevertheless be entitled to authorise payment for such work either as day work (on being satisfied as to the time employed and plant and materials used on such work) or at such value therefor as shall in his opinion be fair and reasonable.

The measurement and valuation in respect of the Contract shall be completed within the "Period of Final Measurement" stated in the Appendix or if not stated then within two months of the completion of the Contract works.

(i) **Receipts & Vouchers**

The Contractor shall furnish to the Engineer such receipts or other vouchers as may be necessary to prove the amounts paid in accordance with approval obtained and before ordering materials shall submit to the Engineer quotations for the same for his approval.

33.(i) **Removal of Improper Work & Materials**

The Engineer shall, during the progress of the works, have power to order in writing from time to time the removal from the works within such reasonable time or times as may be specified in the order, of any materials which in the opinion of the Engineer are not in accordance with the Specifications or the instructions of the Engineer, the substitution of proper materials, and the removal and proper re- execution of any work executed with materials or workmanship not in accordance with the Drawings and Specifications or instructions, and the Contractor shall forthwith carry out such order at his own cost. In case of default on the part of the Contractor to carry out such order, the Employer shall have the power to employ and pay other persons to carry out the same, and all expenses consequent thereon, or incidental thereto, as certified by the Engineer shall be borne by the Contractor, or may be deducted by the Employer from any moneys due, or that may become due, to the Contractor.

(ii) **Default of Contractor in Compliance**

If the Contractor after receipt of written notice from the Engineer requiring compliance within ten days and fails to comply with such further drawings and/or Engineer's instructions the Employer may employ and pay other persons to execute any such work whatsoever that may be necessary to give effect thereto without the contractor being relieved of full filling his obligations for the entire project under this contract, and all costs incurred in connection therewith shall be recoverable from the Contractor by the Employer on the Certificate of the Engineer as a debt or may be deducted by him from any moneys due to the Contractor.

(iii) **Inspection & Testing during manufacture**

The Engineer shall be entitled during manufacture to inspect, examine and test on the Contractor's premises during working hours the materials and workmanship and check the progress of manufacture of all fabrication materials to be supplied under the Contract, and if part of the said materials is being manufactured on other premises the Contractor shall obtain for the Engineer permission to inspect, examine and test as if the said Plant were being manufactured on the Contractors premises. Such inspection, examination or testing if made shall not relieve the Contractor from any obligation under the Contract.

(iv) **Dates for Inspection & Testing**

The Contractor shall agree with the Engineer the date on and the place at which any plant/works will be ready for testing as provided in the Contract and unless the Engineer shall attend at the place so named on the date agreed the Contractor may proceed with the tests, which shall be deemed to have been made in the Engineer's presence, and shall forthwith forward to the Engineer duly certified copies of the test readings. The Engineer shall give the Contractor 24 hours notice in writing of his intention to attend the tests.

(v) **Facilities for Testing at Manufacturer's Works**

Where the Contract provides for tests on the premises of the Contractor or of any sub-contractor the Contractor shall provide such assistance, labour, materials, electricity, fuel, stores, apparatus and instruments as may be required and as may be reasonably demanded to carry out such tests efficiently.

(vi) **Certificate of Testing of Fabrication Materials**

As and when fabrication materials shall pass the tests referred in this, the Engineer shall furnish to the Contractor a certificate in writing to that effect.

(vii) **Rejection**

If as a result of such inspection, examination or test of the works (other than a Test on Completion under Clause 21.0) the Engineer shall decide that such material is defective or not in accordance with the Contract he shall notify the Contractor accordingly stating in writing his objection and reasons therefore. The Contractor shall with all speed make good the defect or ensures that the material complies with the Contract. Thereafter, if required by the Engineer, the tests shall be repeated under the same terms and conditions save that all reasonable expenses to which the Employer may be put by the repetition of the tests shall be deducted from the Contract Sum.

(viii) **Delivery of Materials & Equipment.**

Unless the Engineer shall otherwise approve, no material shall be delivered to site. Likewise Fabrication Materials or Contractor's Equipment shall be delivered to Site only upon an authorisation in writing applied for and obtained by the Contractor from the Engineer.

The Contractor shall be responsible for the receiving on site of all Materials and Contractor's Equipment delivered for the purposes of the Contract.

(ix) **Inspection & Testing and Re-inspection & Retesting**

All deficiencies revealed by testing and inspection shall be rectified by the Contractor at his own expense and to the satisfaction and approval of the Engineer. Rectified components shall be subject to retesting and re-inspection.

34. **Virtual completion Certificate.**

The works shall not be considered as completed until the Engineer has certified in writing that they have been virtually completed. The Defects Liability Period shall commence from the date of virtual completion as certified by the Engineer.

35. **Defects Liability Period.**

Any defect, shrinkage, settlement or other faults which may appear within the "Defects Liability Period" within one year from the date of the virtual completion of the works as certified by the Engineer, arising in the opinion of the Engineer from materials or workmanship not in accordance with the contract, shall upon the direction in writing of the Engineer, and within such reasonable time as shall be specified therein, be amended and made good by the Contractor, at his own cost and in case of default the Employer may employ and pay other persons to amend and make good such defects, shrinkage, settlements or other faults, and all damages, loss and expenses consequent thereon or incidental thereto shall be made good and borne by the Contractor and such damage, loss and expenses shall be recoverable from him by the Employer or may be deducted by the Employer,

upon the Engineer's Certificate in writing, from any money due or that may become due to the Contractor, or the Employer may in lieu of such amending and making good by the Contractor deduct from any monies due to the Contractor, a sum, to be determined by the Engineer equivalent to the cost of amending such work and in the event of the amount retained under Clause 49 hereof being insufficient, recover the balance from the Contractor, together with any expenses the Employer may have incurred in connection therewith. Should any defective work have been done or material supplied by any Sub-Contractor employed on the works who has been nominated or approved by the Engineer, the Contractor shall be liable to make good in the same manner as if such work or material had been done or supplied by the Contractor and been subject to the provisions of this Clause and Clause 24 hereof. The Contractor shall remain liable under the provisions of this Clause notwithstanding the signing of any certificate by the Engineer. The Contractor will not be responsible for defects arising out of fair wear & tear & damage caused by Employer's personnel during the use of the building after being occupied.

The defect liability period and unconditional warranty for all Mechanical works shall be one year from the date of commissioning and successful handing over of the entire work.

36. **Approval only by No dues Certificate**

(i) **Final Completion Certificate**

On successful completion of entire works covered by the Contract to the full satisfaction of Employer/Engineer, the Contractor shall ensure that the following works have been completed to the satisfaction of Engineer : (a) clear the site of all scaffolding, wiring, pipes, surplus materials, Contractor's labour, equipment and machinery (b) demolish, dismantle and remove all Contractor's site offices and quarters and other temporary works, structures and constructions and other items and things whatsoever brought upon or erected at the site or any land allotted to the Contractor by the Employer and not incorporated in the permanent works (c) remove all rubbish, debris etc. from the site and the land allotted to Contractor and shall clear, level and dress, compact the site as required and said land to the satisfaction of the Engineer (d) shall put the Employer in undisputed custody and possession of the site and all land allotted by the Employer to the Contractor. (e) All defects/imperfections have been attended including cleaning of floors, glazing and frames free from splashes of paints etc. and rectified to full satisfaction of the Engineer during the Defect Liability Period.

Unless the Contractor shall have fulfilled the provisions of the clause, the works shall not be deemed to have been completed.

Upon the satisfactory fulfilment by Contractor as stated above, the Contractor shall be entitled to apply to the Engineer for a Final Completion Certificate in respect of the entire work.

If the Engineer is satisfied of the completion of the work relative to which the Completion Certificate has been sought for the Engineer shall within 14(fourteen) days of the receipt of the application for Completion Certificate, issue a Completion Certificate in respect of the works for which the Completion Certificate has been applied.

This issuance of a Completion Certificate shall be without prejudice to the Employer's rights and Contractor's liabilities under the Contract, including the Contractor's liability for the Defect Liability Period nor shall the issuance of a Completion Certificate in respect of the works or work at any site be construed as a waiver of any right or claim of the Employer against the Contractor in respect of work or the works at the site and in respect of which the Final Completion Certificate has been issued.

(ii) **No dues Certificate**

The Contract shall remain valid and shall remain incomplete until no dues Certificate shall have been signed by the Engineer and delivered to the Employer with a copy to the Contractor. Such a certificate shall be given by the Engineer within 30 days of completion of defects liability period (the last period to be considered if different periods to be considered for different parts of the work) or within 30 days from the date of payment of final bill whichever is later.

The No Dues Certificate given by the Engineer shall be considered as approval of the Employer for due performance of the entire contract.

37. **Prime Cost Items**

i) **Nominated Sub-Contractors/Objection to Nomination**

All Specialists, Merchants, Tradesman and others executing any work of supplying and fixing any goods for which prime cost items or provisional sums are included in the Bill of Quantities and/or Specification who may be nominated or selected by the Engineer and or the Employer are hereby declared to be sub-Contractors employed by the Contractor and are herein referred to as nominated Sub-Contractors.

No nominated Sub-Contractor shall be employed on or in connection with the works against whom the Contractor shall make reasonable objection or (save where the Engineer and Contractor shall otherwise agree) who will not enter into a contract providing:

- (a) That the nominated Sub-Contractor shall indemnify the Contractor against the same obligations in respect of the Sub-Contract as the Contractor is under in respect of this contract.
- (b) That the nominated Sub-Contractor shall indemnify the Contractor against claims in respect of any negligence by the nominated Sub-Contractor, his servants or agents or any misuse by him or them of any scaffolding or other plant, the property of the Contractor or under any Workmen's Compensation Act in force.
- (c) Payment shall be made to the nominated Sub-Contractor by the Contractor within fourteen days of his receipt of payment from the Employer provided that before any Certificate is issued, the Contractor shall upon request furnish to the Engineer proof that all nominated Sub-Contractor's accounts included in previous certificates have been duly discharged, in default whereof the Employer may pay the same upon a Certificate of the Engineer and deduct the amount thereof from any sums due to the Contractor. The exercise of this power shall not create privity of contract as between the Employer and the Sub-Contractor.

38. **Work by other Agencies**

The Employer/ Engineer reserves the right to use premises and any portions of the site for the execution of any work not included in this contract which it may desire to have carried out by other persons simultaneously, and the Contractor shall allow all reasonable facilities for the execution of such work, but shall not be required to provide any plant or material for the execution of such work except by special arrangement with the Employer. Such work shall be carried out in such manner as not to impede the progress of the works included in the Contract and the Contractor shall not be responsible for any damage or delay which may happen to or occasioned by such work.

39. **Insurance Policies**

The Contractor shall be responsible for all injury or damage to persons, animals or things and for all damage to property which may arise from any factor/ omission on the part of the Contractor or any Sub- Contractor or any nominated Sub-Contractor or any of their employees. The liability under this clause shall cover also, any damage to structures, whether immediately adjacent to the works or otherwise, any damage to roads, streets, footpaths, bridges as well as damage caused to the building and other structures and works forming the subject matter of this contract. The Contractor shall also be responsible for any damage caused to the buildings and other structures and works forming the subject matter of this contract due to rain, wind, fire, flood or high tide or other inclemency of weather. The Contractor shall indemnify and keep indemnified the Employer and hold him harmless in respect of all and any loss and expenses arising from any such injury or damage to persons or property as aforesaid and also against any claim made in respect of injury or damage, whether under any statute or otherwise and also in respect of any award or compensation or damage consequent upon such claims.

Insurance for Works, Materials and Plant

Without limiting his obligations and responsibilities the Contractor shall insure in the joint names of the Employer and the Contractor against all loss or damage from whatever cause arising (other than the excepted risks) for which he is responsible under the terms of the Contract and in such manner that the Employer and the Contractor are covered during the period of the works and are also covered during the Period of Defects Liability/ Maintenance Period for loss or damage arising from the cause occurring prior to the commencement of the Defect Liability Period or Period of maintenance and for any loss or damage occasioned by the Contractor in the course of any operations carried out by him for the purpose of complying with his obligations.

- (a) The Works and the Temporary Works to the full value of such works executed from time to time.
- (b) The materials, Constructional Plant and other things brought to the Site by the Contractor to the full value of such materials, Constructional Plant and other things.

Such insurances shall be effected prior to commencement of works with an insurer and in terms approved by the Employer (which approval shall not be unreasonably withheld) and the Contractor shall deposit with the Employer policy or policies of insurance and the receipts for payment of the premiums paid. Provided always that without limiting his obligations and responsibilities as aforesaid nothing in this clause contained shall render the Contractor liable to insure against the necessity for the repair or reconstruction of any work constructed with materials or workmanship not in accordance with the requirements of the Contract.

The Contractor shall, at his own expense, effect and maintain till issue of the virtual completion certificate under this contract, with an insurance company approved by the Employer, an All Risks Policy for Insurance for the full amount of the contract including earthquake risk in the joint names of the Employer and the Contractor (the name of the former being placed first in the policy) against all risk as per the standard all risk policy for Contractors and deposit such policy or policies with the Employer before commencing the works.

The Contractor shall reinstate all damage of every sort mentioned in this clause so as to do delivery of the whole of the works complete and perfect in every respect and so as to make good or otherwise satisfy all claims for damage to property or third parties.

The Contractor shall also indemnify and keep indemnified the Employer against all claims which may be made against the Employer by any person in respect of anything which may arise in respect of the works or in consequence thereof and shall at his own expense, effect and maintain until the virtual completion of the contract, with an Insurance Company approved by the Employer a third party insurance policy in the joint names of the Employer and the Contractor (name of the former being placed first in the policy) against such risks and deposit such policy or policies to the Employer before commencement of the works. The minimum limit of the coverage under the policy shall be Rs.5.00 lacs per person for any one accident or occurrence and Rs.20.00 lacs in respect of damage to property for any one accident or occurrence. The Contractor shall also indemnify the Employer against all claims which may be made upon the Employer, whether under the workmen's Compensation Act or any other statute in force, during the currency of this contract or at Common Law in respect of any employee of the Contractor or of sub-contractor and shall be at his own expense effect and maintain until the virtual completion of the contract, with an Insurance Company, approved by the Employer, a policy of Insurance against such risks and deposit such policy or policies with the Employer from time to time during the currency of this contract.

In default of the Contractor insuring as provided above, the Employer may so insure and may deduct the premiums paid from any money due or which may become due to the Contractor.

The Contractor shall be responsible for any liability which may not be covered by the Insurance Policies referred to above and also for all other damages to any person, animal or defective carrying out of this contract, whatever, may be the reasons due to which the damage shall have been caused.

The Contractor shall also indemnify and keep indemnified the Employer against all and any costs, charges or expenses arising out of any claim or proceedings relating to the works and also in respect of any award of damage or compensation arising therefrom.

Without prejudice to the other rights of the Employer against Contractors in respect of such default, the Employer shall be entitled to deduct from any sums payable to the Contractor the amount of any damages, compensation costs, charges and other expenses paid by the Employer and which are payable by the Contractor under this clause.

The Contractor shall upon settlement by the Insurer of any claim made against the insurer pursuant to a policy taken under this clause, proceed with due diligence to rebuild or repair the works destroyed or damaged. In this event all the monies received from the Insurer in respect of such damage shall be paid to the Contractor and the Contractor shall not be entitled to any further payment in respect of the expenditure incurred for rebuilding or repairing of the materials or goods destroyed or damaged.

The Contractor, in case of re-building or reinstatement after damage shall be entitled to such extension of time for completion as the Engineer may deem fit, but shall, however, not be entitled to reimbursement by the Employer of any shortfall or deficiency in the amount finally paid by the insurer in settlement of any claim arising as set out herein.

Without prejudice to his liability under this clause, the Contractor shall also cause all nominated sub-contractors to effect, for their respective portions of the works, similar policies of insurance in accordance with the provisions of this clause and shall produce or cause to produce to the Employer such policies. The Contractor shall not permit a nominated sub-contractor to commence work at the site unless the said insurance policies are submitted. In the event of failure of the sub-contractor to take out such a policy of insurance before commencing the works at the site, the Contractor shall be responsible for any claim or damage attributable to the said sub-contractor.

40. **Commencement of Works**

The Contractor shall commence the Works on Site as per the detailed programme of work approved by the Engineer, within a period of 15 days after the date of issue of Letter of Intent to this effect from the Employer/Engineer or the date of handing over the site whichever is latter and shall proceed with the same with due expedition and without delay, except as may be expressly sanctioned or ordered by the Employer/Engineer or be wholly beyond the Contractor's control. The Contractor shall not be given possession of any site for commencement of execution of works unless and until he has deposited the Initial Security Deposit in accordance with the clause No. 7 of the General Conditions of Contract.

41.(i) **Possession of Site**

Save in so far as the Contract may prescribe the extent of portions of the Site of which the Contractor is to be given possession from time to time and the order in which such portions shall be made available to him and subject to any requirement in the Contract as to the order in which the Works shall be executed, the Employer will within 15 days from the Engineer's written order to commence the Works give to the Contractor possession of so much of the Site as may be required to enable the Contractor to commence and proceed with the programme referred to in Clause 17 hereof (if any) and otherwise in accordance with such reasonable proposals of the Contractor as he shall, by notice in writing to the Engineer, make and will from time to time as the Works proceed give to the Contractor possession of such further portions of the Site as may be required to enable the Contractor to proceed with the construction of the Works with due despatch in accordance with the said programme or proposals (as the case may be).

If the Contractor suffers delay or incurs expense from failure on the part of the Employer to give possession in accordance with the terms of this clause the Engineer shall grant an extension of time for the completion of the works and certify such sum as in his sole opinion, shall be fair & final to cover the expense incurred which sum shall be paid by the Employer.

(ii) **Way leaves, etc.**

The Contractor shall bear all expenses and charges for special or temporary way leaves required by him in connection with access to the Site. The Contractor shall also provide at his own cost any additional accommodation outside the Site required by him for the purpose of the Works.

42. **Extension of Time for Completion**

If in the opinion of the Engineer the works be delayed for reasons beyond the control of the Contractor, the Engineer may make a fair and reasonable extension of time for completion of the contract works.

If the Contractor needs an extension of time for the completion of the work or if the completion of work is likely to be delayed for any reasons beyond the due date of completion stipulated in the contract, the Contractor shall apply to the Employer for extension of time in writing at least 30 days before the expiry of the scheduled time and while applying for extension of time, the Contractor shall furnish the reasons in detail and his justification, if any, for the delays. While granting extension, the Engineer shall notify the Contractor the period of time which will not qualify for levy of liquidated damages.

For the balance period in excess of original stipulated period and authorised extension of time granted i.e. period not qualifying for levy of liquidated damages, by the Employer, the provision of liquidated damages as stated under Clause 46 will become applicable.

Further, the contract shall remain in force even for the period beyond the due date of completion irrespective whether the extension is granted or not, unless otherwise directed.

Application for extension of completion time, submitted after expiry of the stipulated period of completion, is liable to rejection and in such event when the Contractor continue the work with or without specific instructions from the Engineer or his representative, he will be deemed to be working under penal provisions of contract.

43.(i) **Rate of Progress**

The whole of the materials, plant and labour to be provided by the Contractor and the mode, manner and speed of execution and maintenance of the Works are to be of a kind and conducted in accordance with the approved programme of works and in a manner to the satisfaction of the Engineer. Should the rate of progress of the Works or any part thereof be at any time be in the opinion of the Engineer too slow to ensure the completion of the whole of the Works by the prescribed time or extended time for completion, the Engineer may so notify the Contractor in writing and the Contractor shall thereupon take such steps as considered necessary by the Engineer to expedite progress so as to complete the Works by the prescribed time or extended time for completion. The contractor shall not be entitled to any additional payment for taking such steps, and such communications from the Engineer neither shall relieve the Contractor from fulfilling obligations under the contract nor he will be entitled to raise claims arising out of such directions.

ii) **Work during Night or on Holidays**

Subject to any provision to the contrary contained in the Contract none of the permanent work shall save as herein provided be carried on during the night or on Holidays without the permission in writing of the Engineer, save when the work is unavoidable or absolutely necessary for the saving of life or property or for the safety of the Works in which case the Contractor shall immediately advise the Engineer. Provided always that the provisions of this clause shall not be applicable in the case of any work which becomes essential to carry out by rotary or double shifts in order to achieve the progress & quality of the part of the works being technically required/continued with the prior approval of the Engineer.

All work at night shall be carried out without unreasonable noise and disturbance and with the approval of the Engineer and in addition that of the local authority, if so applicable. The Contractor shall indemnify the Employer from and against any liability for damages on account of noise or other disturbance created while or in carrying out the work and from and against all claims, demands, proceedings, costs, charges and expenses whatsoever in regard or in relation to such liability.

44. **Suspension of Work**

The Contractor shall on the written order of the Engineer suspend the progress of the Works or any part thereof for such time or times and in such manner as the Engineer may consider necessary and shall during such suspension properly protect and secure the work so far as is necessary in the opinion of the Engineer. The extra cost including all running wages to be paid on the Site, salaries, depreciation and maintenance of plant, Site on-costs and overhead costs of the Contract related to the works done or incurred by the Contractor in giving effect to the Engineer's instructions under this Clause shall, be borne and paid by the Employer unless such suspension is :

(a) Otherwise provided for in the Contract

or

(b) Necessary by reason of inclement weather conditions affecting adversely the safety or quality of the Works.

or

c) Necessary by reason of some default on the part of the Contractor

Provided that the Contractor shall not be entitled to recover any such extra cost unless he gives notice in writing of his intention to claim to the Engineer within 28 days of the Engineer's order. The Engineer shall settle and determine such extra payment and/or extension of time under relevant Clause hereof to be made to the Contractor in respect of such claim as shall in the opinion of the Engineer be fair and reasonable and the Engineer's decision shall be final and binding.

45. Liquidated Damages for Delay

If the Contractor fails to complete the works by the date stated in the Appendix or within any extended time under Clause 43 hereof and the Engineer certifies in writing that in his opinion the same ought to have been reasonably completed by the original completion date or extended completion date, as the case may be, the Contractor shall pay the Employer the sum named in the Appendix as "Liquidated Damages" for the period during which the said works shall so remain incomplete or the Employer may deduct such damages from any monies due to the Contractor. The payment or deduction of such damage shall not relieve the Contractor from his obligation to complete the works or from any other of Contractor's obligations under the Contract.

46.(i) Default of Contractor/Forfeiture/Employer's Power to take Possession

If the Contractor shall become bankrupt, or have a receiving order made against him, or shall present his petition in bankruptcy, or shall make an arrangement with or assignment in favour of his creditors, or shall agree to carry out the contract under a committee of inspection of his creditors or, being a corporation, shall go into liquidation (other than a voluntary liquidation for the purposes of amalgamation or reconstruction) or if the Contractor shall assign the contract without the consent in writing of the Employer first obtained or shall have an execution levied on his goods or if the Engineer shall certify in writing to the Employer that in his opinion the Contractor :

(a) Has abandoned the Contract or

(b) Without reasonable excuse has failed to commence the Works; or

(c) Has suspended the progress of the Works for 14 days after receiving from the Engineer written notice to proceed; or

(d) Has failed to proceed with the Works with due diligence or

(e) Has failed to remove materials from the site or to pull down and replace work for 14 days after receiving from the Engineer written notice that the said materials or work had been condemned and rejected by the Engineer under these conditions; or

(f) Is not executing the Works in accordance with the Contract or is persistently or flagrantly neglecting to carry out his obligations under the Contract; or

(g) has to the detriment of good workmanship or in defiance of the Engineer's instructions to the contrary sub-let any part of the Contract; then the Employer may, after giving 14 days notice in writing to the Contractor, enter upon the site and the Works and expel the Contractor there from without thereby voiding the Contract or releasing the Contractor from any of his obligations or liabilities under the Contract or affecting the rights and powers conferred on the Employer or the Engineer by the Contract and may himself complete the works or may employ any other contractor to complete the Works and the Employer or such other contractor may use for such completion so much of the Constructional Plant, Temporary works and materials which have been deemed to be reserved exclusively for the construction and completion of the Works under the provisions of Contract as he or they may think proper and the Employer may, at any time, sell any of the said Constructional Plant Temporary works and unused materials and apply the proceeds of sale in or towards the satisfaction of any sums due or which may become due to him from the Contractor under the Contract.

(ii) **Valuation at Date of Forfeiture**

The Engineer shall as soon as may be practicable after any such entry and expulsion by the Employer fix and determine ex-parte or by or after reference to the parties or after such investigation or enquiries as he may think fit to make or institute and shall certify what amount (if any) had at the time of such entry and expulsion reasonably earned by or would reasonably accrue to the Contractor in respect of work than actually done by him under the Contract and what was the value of any of the said unused or partially used materials any constructional plant and any Temporary works upon the Site.

(iii) **Payment after Forfeiture**

If the Employer shall enter and expel the Contractor under this clause, he shall not be liable to pay to the Contractor any money on account of the Contract until the expiration of the period of Defect Liability/ Maintenance and thereafter until the costs of completion and maintenance, damages for delay in completion (if any) and all other expenses incurred by the Employer have been ascertained and the amount thereof certified by the Engineer. The Contractor shall then be entitled to receive only such sum or sums (if any) as the Engineer may certify would have been due to him upon due completion by him after deducting the said amount. But if such amount shall exceed the sum which would have been payable to the Contractor on due completion by him then the Contractor shall upon demand pay to the Employer the amount of such excess and it shall be deemed a debt due by the Contractor to the Employer and shall be recoverable accordingly.

(iv) **Assignment of benefit of Agreement**

If so required by the Employer or the Engineer the Contractor shall before the expiration of the notice referred to in sub-clause (i) of this clause assign to the Employer without payment the benefit of any agreement which the Contractor has entered into for the supply of materials and or for the execution of any works for the purposes of the Contract but on the terms that supplier or Sub-contractor shall be entitled to make any reasonable objection to any further assignment thereof by the Employer and the Employer may pay the supplier or sub-contractor for any such materials supplied and delivered to the Site or Works executed under such agreement (whether the same be assigned as aforesaid or not) before or after the giving of the notice the amount due by such agreement in so far as the supplier or sub-contractor or by the Employer to the Contractor. The Employer's right under this sub-clause are in addition to his rights to pay nominated sub-contractor may be made out of any retention money in the hands of the Employer.

47.(i) **Determination of Contract**

The Employer shall in addition to any other power enabling him to determine the Contract have power to determine the Contract at any time by giving not less than fourteen (14) days notice in writing to the Contractor and on the expiry of such notice the Contractor shall (with the exception of this clause and clause 28 hereof) forthwith determine but without prejudice to the claims of either party in respect of any antecedent breach thereof.

(ii) **Compliance with Engineer's direction on determination**

If the Contract shall be determined under the provisions of the clause 45 (i) the Contractor shall with all reasonable despatch comply with the directions of the Engineer in respect to:

- (a) Cancellation of outstanding commitments
- (b) Performance of further work required for the protection of work executed
- (c) The removal of Constructional Plant Temporary Works and materials from the Site
- (d) Any other matters arising out of the Contract with regard to which the Engineer decides that directions are necessary or expedient.

(iii) **Payment on determination**

In the event of the Contract being determined under the provisions of this Clause the sum payable to the Contractor shall be such sum as would have been payable under Clause 52 hereof as if the contract had been determined by the Employer under the provisions of Clause 48 hereof and

- (a) The reasonable cost of complying with the Engineer's directions under sub-clause (ii) hereof and
- (b) Such reasonable sum as may be agreed between the parties or in default of agreement settled by conciliation or arbitration in respect of the Contractor's overheads including any sums properly and necessarily incurred as the direct result of such determination.

iv) The Engineer has a right to ascertain the happening of any contingency, including but not limited to the contingencies listed below, which would vest in the Employer certain powers including, but not limited to, taking possession of the work so far as it has been performed, and to completing the work either by himself or by employing some other Agency, retaining property of the Contractor, such as materials, plant or money already due to the Contractor:

- a) Failure of Contractor to proceed with or complete the works in the time or manner stipulated
- b) Contractor's bankruptcy
- c) Failure of Contractor to commence the work
- d) Failure of Contractor to regularly proceed with the work for a certain fixed period
- e) Failure of Contractor to proceed with the work to the satisfaction of the Engineer or the Employer
- f) Failure of Contractor to proceed with the work for any reason independent of prevention by the Employer

- g) If in the Engineer's opinion, the Contractor is not exercising due diligence and proceeding with such despatch as will enable the works to be duly completed in time
- h) Failure of Contractor in complying with the orders and directions given by the Engineer
- i) Failure of Contractor in complying with the Specification, stipulations, conditions or Drawings
- j) The Contractor being guilty of any default in the fulfilment of the contract
- k) The Contractor leaves the work unfinished
- l) Failure of Contractor, after due notice, to rectify defective work
- m) The Contractor renouncing materials from site and
- n) Failure of Contractor to maintain the works

48. **Terms of Payment and Time of completion**

- (i) 70% prorate payment shall be paid against supply of equipments and items at site on production of manufacture's/OEM's test certificates of all the items/parts/machinery as per Supply order and its verification by the Engineer In charge. 15% of the contract value on completion of work. Final 15% payment shall be made after successful testing and commissioning of DG sets **and shall be in concurrence with the release of funds from the higher authorities.**
- (ii) **The job is to be completed within four months from the date of allotment and shall be co-related with other allied civil or electrical works.**
- (iii) **Performance Guarantee:-**
 - (a) **The Successful bidder will have to submit Performance Bank Gurantee (PBG) of an amount of 10% of the contract value valid upto the Defect Liability Period (DLP) and AMC period which shall be released after completion of contract period.**
 - (b) The Bank Guarantee should be valid as per General Conditions of Contract.
 - (c) Failure of the Successful Bidder to submit the required Performance Guarantee shall constitute sufficient grounds for the annulment of decision to award the Contract and forfeiture of the Bid Security.
 - (d) The EMD of the successful bidder shall be released after execution of the agreement with the Department and Submission of PBG. However the EMD of the unsuccessful bidder shall be released after finalization of rates and allotment to the successful bidder.
- (iv) **Forfeiture of Security Money/PBG**

In case the Contractor fails to commence the work within the stipulated period or after the expiry of 14 (fourteen) days from the date of issue of notice, calling upon the Contractor to commence the work, the Security Deposit shall be forfeited by the Employer. Further, in the event of the Contractor fails to complete the work or deserts the site or abandoning the contract, the Employer shall be at liberty to forfeit the Security Money so deposited with the Employer in respect of the work in full or in part, as, in the opinion of the Engineer, be proportionate to the work remained incomplete by the Contractor.

(v) **Engineer may withhold Payment**

The Engineer may, by any certificate, make correction or modification in any previous certificate/R.A. bills which **shall have been issued by him and shall have power to withhold any payment if the Works or any part** thereof is not being carried out to his satisfaction.

(vi) **Certificate of Payments shall not Constitute Approval of Work**

No certificate other than the No Dues on completion of Defect Liability Period Certificate referred to here shall be deemed to constitute approval of any work or other matter in respect of which it is issued or shall be taken as an admission of the due performance of the Contract or any part thereof or of the accuracy of any claim or demand made by the Contractor or of additional or valid work having been ordered by the Engineer nor shall any other certificate conclude or prejudice any of the powers of the Engineer.

(vii) **Testing and handing over :**

The contractor shall complete the following before handing over:

- a) Preparation of working drawings on the basis of actual site conditions and getting approval of the Engineer In Charge.
- b) Supply of necessary spare parts during the commissioning stage.
- c) On the completion of work the contractor shall arrange to carry out various initial tests, in the presence of and to the complete satisfaction of the Engineer in-charge or his representative. Any defects or shortcomings found during the tests shall be speedily rectified or made good by the contractors at his own expense.

In case if test readings are not satisfactory, contractor shall carry out all modifications required to bring the unit up to the level of acceptability within a period, not exceeding 10 days from the date test readings are rejected and failure to do so, will entitle the clients to forfeit the Security Deposit.

49. **Settlement of Disputes and Differences**

- a) The Contractor shall try to settle all matters pertaining to this contract first with the Engineer. The decision of the Engineer may be in the form of a certificate, instruction or otherwise. The decision, opinion, direction, certificate for payment with respect to all or any of the matters under Clauses 23, 26(i), 27, 35, 37(i) and 38 hereof (which matters are hereinafter referred to as excepted matters) of the Engineer shall be final and conclusive and binding on the Contractor and shall be without appeal.
- b) All other disputes and differences of any kind whatsoever between the Contractor and the Engineer and the Employer arising out of or in connection with the contract or carrying out the works (whether during progress of work or within defects liability period and whether before or within 2 years of determination / abandonment / breach of the contract) shall then be referred by the Contractor to the Employer giving interalia full details of matter under dispute and the reasons thereof. The Employer shall within a period of 60 days from the receipt of such reference from the Contractor, give his decision in writing. If the Contractor is dissatisfied with the decision of the Employer, he can refer the matter for conciliation/arbitration by serving a written notice on the Employer, through the Engineer within a period of 28 days of such decision. The notice shall specify the matters with full details and amount which are in dispute and referred for arbitration.

50. **Arbitration**

All matters in dispute between the parties arising out of these presents shall be referred to the arbitration by a mutually appointed arbitrator or a panel of three arbitrators in case the parties agree

upon the same; but in default of such agreement, the reference shall be made to the arbitration of two arbitrators, one to be appointed by each party and the two appointed arbitrators shall appoint the third arbitrator, who shall act as the presiding arbitrator. If one party fails to appoint an arbitrator within thirty days from the receipt of a request to do so from the other party or the two appointed arbitrators fail to agree on the third arbitrator within thirty days from the date of their appointment, the appointment shall be made upon request of a party by the Chief Justice of High Court of Jammu & Kashmir or any person or registered Society or institution designated by him. The arbitrator(s) or the Presiding Arbitrator shall be the fellow of Institution of Engineers (India) or Institution of Architects (India). The award of the Arbitrator(s) as the case may be, shall be final and binding upon the parties. The provisions of the Arbitration and Conciliation Act, 1996 and all statutory modifications thereof for the time being in force shall apply to all such arbitration which shall be held in Jammu.

The arbitrator(s) shall have power to open up, review and revise any certificate, opinion, decision, requisition or notice and any matter required in his opinion, save in regard to excepted matters referred as above and to determine all matters in dispute which shall be submitted for arbitration.

The arbitrator(s) shall make his award within one (1) year (or such further extended time as may be decided by him with the consent of the parties) from the date of entering on the reference. In case, during the arbitration proceedings the parties mutually settle/compromise or compound their dispute or difference, the reference to arbitration and the appointment of the Arbitrator shall deem to have been revoked and the arbitration proceedings shall stand withdrawn or terminated, with effect from the date on which the parties file a joint memorandum of settlement thereof, with the Arbitrator(s).

This submission shall be deemed to be a submission to arbitration within the meaning of the Indian Arbitration and Conciliation Act, 1996 or any statutory modification thereof.

Upon every or any such reference, the cost of arbitration incidental to the reference and award respectively shall be in the discretion of the Arbitral Tribunal consisting of the sole Arbitrator or panel of three arbitrators, as the case may be and agreed by the parties, who may determine the amount thereof or direct the same to be shared between the party and party, and shall direct by whom and to whom and in what manner the same shall be borne and paid. This submission shall be deemed to be submission to Arbitration within the meaning of Indian Arbitration and Conciliation Act, 1996 or any statutory modification thereof.

It is agreed that the Contractor shall not delay the carrying out of the works by reason of any such matter, question or dispute being referred to arbitration, but shall proceed with the works with all due diligence and shall, until the decision of the Arbitrator is given, abide by the decision of the Engineer and no award of the Arbitrator shall relieve the Contractor of his obligations to adhere strictly to the Engineer's instructions with regard to the actual carrying out of the works. The Employer and the Contractor hereby also agree that arbitration under this Clause shall be a condition precedent to any right of action under the contract.

51. Progress Report/Photograph

Four copies of fortnightly progress reports containing the following shall be submitted by the Contractor to the Employer through the Engineer on or before the 3rd day of the next fortnight.

(a)Fortnightly detailed progress report showing the progress of individual activities of programme as achieved at site till such period and being suitably marked on the approved network diagram, or as directed by the Engineer, shall be provided by the Contractor indicating the actual state of progress during the course of the contract, together with other details of procurement & delivery schedules of materials/equipments and deployment of labour as required by the Engineer.

(b)Four copies of coloured photographs in post card size showing important progress.

(c) Labour report in the form prescribed by the Engineer.

(d) Equipment & machinery report in the form prescribed by the Engineer.

(e) Supervisory staff report in the form prescribed by the Engineer.

(ii) Progress Report

The submission to and comments/approval by the Engineer or Engineer's Representative shall not relieve the Contractor of any of his duties, responsibilities or liabilities under the contract.

52. **Urgent Repairs**

If by reason of any accident or failure or other event occurring to in or in connection with the Works, or any part thereof, either during the execution of the Works or during the Period of Defect Liability/ Maintenance any remedial or other work or repair shall, in the opinion of the Engineer or Engineer's representative be urgently necessary for security and safety of life or for the works or of adjoining property, and the Contractor is unable or unwilling at once to do such work or repair, the Employer may employ his own or other workmen do such work or repair, as the Engineer or the Engineer's representative may consider necessary. If the work or repair so done by the Employer which is in the opinion of the Engineer, the Contractor was liable to do at his own expense under the Contract, all costs and charges incurred by the Employer in so doing shall on demand be paid by the Contractor to the Employer or may be deducted by the Employer from any monies due or which may become due to the Contractor. Provided always that the Engineer or the Engineer's representative (as the case may be) shall, as soon after the occurrence of any such emergency, as may be reasonably practicable notify, the Contractor thereof in writing.

53. **Boreholes & Exploratory Excavation**

If at any time during the execution of the works the Engineer shall require the Contractor to make boreholes or to carry out exploratory excavation, such requirement shall be ordered in writing and shall be deemed to be an addition ordered under the provisions of Clause 31 hereof unless a provisional sum in respect of such anticipated work shall have been included in the Bill of Quantities.

54. **Fossils, etc.**

All fossils, coins, articles of value or antiquity and structures and other remains or things of geological or archaeological interest discovered on the site of the Works shall be deemed to be the absolute property of the Employer and the Contractor shall take reasonable precautions to prevent his workmen or any other persons from removing or damaging any such article or thing and shall immediately upon discovery thereof and before removal acquaint the Engineer's representative of such discovery and carry out at the expense of the Employer and the instructions of Engineer's representative's to the disposal, or otherwise, of the same.

55. **Contractor to Search**

The Contractor shall, if required by the Engineer in writing, search, test as shall be necessary to determine the cause of any defect, imperfection or fault under the directions of the Engineer. Unless such defect, imperfection or fault shall be one for which the Contractor is liable under the contract the cost of the work carried out by the Contractor in searching as aforesaid shall be borne by the Employer. But if such defect, imperfection or fault shall be one for which the Contractor is liable as aforesaid, the cost of the work carried out in searching as aforesaid shall be borne by the Contractor

and he shall in such case repair rectify and make good such defect, imperfection or fault at his own expense in accordance with the provisions of Clause 33 hereof.

56. Interference with Traffic and adjoining properties

All operations necessary for the execution of the Works and for the construction of any Temporary Works shall so far as in compliance with the requirements of the Contract permits be carried on so as not to interfere unnecessarily or improperly with the public convenience or the access to use and occupation of public or private roads and footpaths or to or of properties whether in the possession of the Employer or of any other person and the Contractor shall save harmless and indemnify the Employer in respect of all claims, demands, proceedings, damages, costs, charges and expense whatsoever arising out of or in relation to any such matters in so far as the Contractor is responsible therefore.

57.(i) Extraordinary Traffic

The Contractor shall use every reasonable means to prevent any of the highways or bridges communicating with or on the routes to the Site from being damaged or injured by any traffic of the Contractor or any of his sub- contractors and in particular shall select routes and use vehicles and restrict and distribute loads so that any such extraordinary traffic as will inevitably arise from the moving of plant and material from and to the site shall be limited as far as reasonably possible and so that no unnecessary damage or injury may be occasioned to such highways and bridges.

(ii) Special Loads

Should it be found necessary for the Contractor to move one or more loads of Constructional Plant Machinery or pre-constructed units or parts of units of work over part of a highway or bridge the moving whereof is likely to damage any highway or bridge unless special protection or strengthening is carried out then the Contractor shall adopt proper & adequate measures and shall be responsible for all the costs and consequences thereof.

(iii) Settlement of Extra Ordinary Traffic Claims

If during the carrying out of the works at any time or thereafter the Employer shall receive any claim arising out of the execution by the Contractor of the Works in respect of damage or injury to highways or bridges he shall immediately report the same to the Engineer and the Contractor and thereafter the Contractor shall negotiate the settlement of and pay all sums due in respect of such claims and shall indemnify the Employer in respect thereof and in respect of all claims, demands, proceedings, damages, costs charges and expenses in relation thereto provided always that if and so far as any such claims or part thereof shall in the opinion of the Engineer be due to any failure on the part of the Contractor to observe and perform his obligations then the amount certified by the Engineer to be due to such failure shall be paid by the Contractor.

58. (i) Contractor to keep site clear

During the progress of the works the Contractor shall keep the site reasonably free from all unnecessary obstruction and shall store or dispose of any constructional plant and surplus materials and clear away and remove from the site any wreckage, rubbish or temporary works which are no longer required.

(ii) Clearance of Site on Completion

On the completion of the Works the Contractor shall clear away and remove from the site all constructional plant, surplus materials, rubbish and temporary works of every kind and leave the

whole of the site and works clean and in a workmanlike condition to the full satisfaction of the Engineer/local authorities not later than 30 days from the virtual completion of the works or by such other date as fixed by the Engineer/local authorities.

59. Power, Water & other facilities

- (a) The rate quoted by the Contractor shall include expenditure for providing all the water required for the work and the Contractor shall make his own arrangements for the supply of good quality potable water, including obtaining Municipal connection for his labour as well as for construction purpose, and all charges for water shall be borne by him. If Municipal water is not available and should it become necessary for Contractor to bore wells for obtaining water for construction purposes or to bring water from outside by tankers, the Employer shall not be liable to pay any charges in connection therewith. After the completion of work, the bore well along with pumps and accessories shall be handed over to owner free of cost and the contractor shall have no claim whatsoever on this account.

Alternatively

Water shall be supplied from the existing tube-well at one point and thereafter, the contractor will lay his own grid of pipes, storage arrangement and necessary pump etc. for execution of the work.

1% of the cost of work done shall be recovered from the contractor for supply of water at one point from his R.A. / final bill. In case, there is any interruption in supply of water or there is some fault, temporarily, the contractor shall make the necessary arrangement at his own cost and nothing extra shall be paid to the contractor on this account, however, recovery shall be made on R.A. bill.

- (b) The rate quoted in the tender shall also include electric consumption charges for power. If no power is available at the site, the Contractor shall have to make his own arrangements to obtain power connections including installation of adequate capacity of generator at his own cost and maintain also at his own expenses an efficient service of electric light and power and shall pay for the electricity consumed. The Employer, as well as the Engineer, shall give all possible assistance to the Contractor to obtain the requisite permission from the various Authorities, but the responsibility for obtaining the same shall be that of the Contractor. The existing power connection if available shall be taken over by the contractor at the time of commencement of work and all the expenses incurred for installation and obtaining the connections shall be reimbursed by the contractor to the owner / employer.
- (c) For water and Electricity, the Contractors for subsidiary trades appointed by the Employer shall be entitled to take connections from the temporary water and electric supply connection obtained by the General Building Contractor, at his cost. The subsidiary Contractors shall install a sub-meter for measuring electric/ water consumption at their own cost and maintain the wiring/ installation in good condition as per the local rules and reimburse the actual consumption charges directly to the General Building Contractor at mutually agreed rates between them. In case of any dispute, the reimbursement charges shall be decided by the Engineer, whose decision shall be final and without appeal.
- d) All Municipal charges for drainage and water connection for construction purposes shall be borne by the Contractor and charges payable for permanent connections, if any, shall be initially paid by the Contractor and the Employer will reimburse the amount on production of receipts.
- e) The water and electricity charges shall be borne by the tenderer for installation of various items. However testing and commissioning shall be to the account of JKPCC Ltd.

60. **Construction Plant**

(i) **For the Purpose of this Clause**

- a) The expression "Constructional Plant" shall be deemed to exclude vehicles engaged in transporting any plant, equipment or materials & staff to or from the site.
- b) The expression "Hired Plant" shall mean any Constructional Plant, Temporary Works and materials for Temporary Works held by the Contractor under any agreement for hire thereof.
- c) The expression "Hire Purchase Plant" shall mean any Constructional Plant Temporary Works and materials for Temporary Works held by the Contractor under any agreement for hire purchase thereof.

(ii) **Hire Purchase of Plant exclusively for Works**

All Constructional Plant, Temporary Works and materials owned by the Contractor or by any person, company or firm in which the Contractor has a controlling interest shall when brought on to the Site (or in the case of Hire Purchase Plant on the Site on its becoming the property of the Contractor) shall be deemed to be exclusively intended for execution of the works and shall be deemed to be the property of the Employer till completion of the works.

(iii) **Conditions of Hire of Certain Plant**

With a view to securing in the event of a forfeiture under Clause 47 hereof the continued availability for the purpose of executing the Works of any of Hired Plant the Contractor shall not bring on to the Site any Hired Plant unless there is an agreement for the hire thereof which contains a provision that the Employer thereof will on request in writing made by the Employer within seven days after the date on which any such forfeiture has become effective and on the Employer undertaking to pay all hire charges in respect thereof from such date, hire such Hired Plant to the Employer on the same terms in all respects as the same was hired to the Contractor save that the Employer shall be entitled to permit the use thereof by any other Contractor employed by him for the purpose of completing the works under the terms of the said Clause 47.

(iv) **Cost of Hiring Plants for purposes of Clause 47 (Default of Contractor)**

In the event of the Employer entering into any agreement for hire of Hired Plant pursuant to the provisions of Sub-Clause (iii) of this Clause all sums properly paid by the Employer under the provisions of any such agreement and all expenses incurred by him (including stamp duties) in entering in to such agreement shall be deemed for the purpose of Clause 47 hereof to be part of the cost of completing the Works.

(v) **Contractor's Certificate as to Hiring Provisions**

The Contractor shall upon request made by the Engineer at any time in relation to any item of Hired Plant forthwith notify to the Engineer in the name and address of the Employer thereof and shall certify that the agreement for the hire thereof contains a provision in accordance with the requirements of sub-clause (iii) of this Clause. The Contractor shall also upon request as aforesaid give a like notification (but without certificate) in regard to any Hire Purchase Plant. The Contractor shall upon the request made by the Engineer provide the Engineer with true copy/copies of such agreement(s).

(vi) **Hire Purchase Payments by the Employer**

The Employer shall in order to avoid seizure by the Employer of any Hire Purchase Plant be entitled to pay to such Employer the amount of any overdue instalment or other sum payable under any agreement for hire purchase of plant and in the event of his doing so any amount so paid by him shall be debt due from the Contractor to the Employer and shall be deducted by the Employer from any monies due or that may become due to the Contractor under the Contract or otherwise or may be recovered by the Employer from the Contractor as per the law.

(vii) **Plants etc. not to be removed**

No Constructional Plant, Temporary Works or materials or any part thereof shall be removed from the site without the written consent of the Engineer which consent shall not be unreasonably withheld where the same is no longer immediately required for the purpose of completion of the Works. The Employer will permit the Contractor the exclusive use of all such Constructional Plant, Temporary Works and materials in and for the completion of the Works until the happening of any event which gives right to the Employer to exclude the Contractor from the Site and proceed with the completion of the Works.

(viii) **Re-vesting & Removal of Plant**

Upon removal of any such Constructional plant Temporary Works or materials as have been deemed to have become the property of the Employer under sub-clause (ii) of this Clause with consent of the Employer the property therein shall be deemed to revert in the Contractor and upon completion of the Works the property in the remainder of such Constructional Plant, Temporary Works and Materials as aforesaid shall subject to the provisions of Clause 47 hereof be deemed to revert in the Contractor who shall remove the same together with Hire Purchase Plant.

(ix) **Disposal of Plant**

If the Contractor shall fail to remove any Constructional plant Temporary works or materials as aforesaid or any Hired plant, or Hire Purchase Plant within such reasonable time after completion of the Works as may be allowed by the Engineer at its discretion then the Employer may

- (a) sell any such Constructional Plant, Temporary works and materials as aforesaid and
- (b) return at the Contractor's expense to the person or company from whom any hired Plant or any Hired Purchases Plant was hired by the Contractor; and after deducting from any proceeds of sale the costs, charges and expenses of and in connection with such sale and of and in connection with return as aforesaid shall pay the balance (if any) to the Contractor but to the extent that the proceeds of any sale are insufficient to meet all such costs, charges and expenses the excess shall be a debt due from the Contractor to Employer and shall be a deductible or recoverable by from any items that may be due from any monies to the Contractor.

(x) **Liability for Loss or Injury to Plant**

The Employer shall not at any time be liable for the damage/loss of or injury to any of the Constructional Plant Temporary works or materials which have been deemed to become the property of the Employer under sub-clause (ii) of this Clause, save as mentioned in Clause 39 & 47.

(xi) **Incorporation of Clause in Sub-Contracts**

The Contractor shall when entering into any sub- contract for the execution of any part of work incorporate in such sub-contract by reference or otherwise the provisions of this Clause in relation to Constructional Plant, Temporary Works and Materials, Essential Hired Plant and Hire Purchase Plant brought on to the site by the Sub-Contractor.

61. (i) **Engagement & Conditions of Labour**

- a. The Contractor shall observe and strictly adhere to all prevailing labour laws inclusive of Contract Labour (Regulation and Abolition) act of 1970 (latest revision) and other safety regulations.
- b. The Contractor shall make his own arrangements for the engagement of all labour. In respect of the engagement, employment, wages, transport, paying, feeding, housing and working conditions of labour and of all matters connected therewith the Contractor shall be responsible and liable and shall at all times during the continuance of the Contract conform in all respects with and carry out all obligations imposed on him by the provisions and requirements of any Central or State Statute ordinance or other Law or any Regulation or Bye-law of any local or other duly constituted authority which may be applicable including any such law regulation or order passed or made or coming into force during the period of the Contract.
- c. The Contractor shall employ labour in sufficient numbers either directly or through approved sub-contractors to maintain the required rate of progress and of quality to ensure workmanship of the degree specified in the contract and to the satisfaction of the Engineer.
- d. The Contractor shall not employ, in connection with the works, any person who has not completed his fifteenth year of age.
- e. The Contractor shall furnish to the Engineer fortnightly distribution return of the number and description by trades of work, people employed on the works.
- f. The Contractor shall also submit on the 4th and 19th of every month to the Engineer a true statement showing in respect of the second half of the preceding month and the first half of the current month (1) the accidents that may have occurred, if any, during the said fortnight showing the circumstances under which they happened and the extent of damage and injury caused by them and (2) the number of female workers who have been allowed Maternity Benefit as provided in the Maternity Benefit Act or Rules made thereunder and the amount paid to them.
- g. The Contractor shall indemnify the Employer against any payments to be made under and for the observance of the Regulations aforesaid, without prejudice to his right to claim indemnity from his sub-contractors.
- h. The decision of the Engineer in matters relating to the reports from the Inspecting Officers shall be final and binding and deductions for recovery of any liquidated damages in this respect may be made from any amount payable to the Contractor.

(ii) **Supply of Water**

The Contractor shall having regard to local conditions provide on the Site to the satisfaction of the Engineer an adequate supply of drinking and other water for the use of the Contractor's staff, workmen, Engineer's staff and for the work.

(iii) **Festivals & Religious Customs**

The Contractor and sub-contractor's agents and employees shall in all their dealings with their workmen and labourers for the time being employed on or in connection with the works have due regard to all recognised festivals and religious and other customs.

(iv) **Epidemics**

In the event of any outbreak of illness of an epidemic nature the Contractor shall comply with and carry out such regulations, orders and requirements as may be made by the Government or the local medical or public health authorities for the purpose of overcoming the same.

(v) **Disorderly Conduct**

The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst his or his sub-contractor's employees and for the preservation of peace and protection of persons and property in the neighbourhood of the works against the same but the Contractor shall not interfere with member of any authorised Police Force who shall have free and undisputed access at all times to any part of the Works in the execution of their duties.

(vi) **Accidents**

The Contractor shall immediately on occurrence of any accident at or about the Site or in connection with the execution of the work report such accident to the Engineer's representative. The Contractor shall also report such accident immediately to the competent authority whenever such report is required to be lodged by law & take appropriate actions thereof.

(vii) **Alcoholic Liquor or Drugs**

The Contractor shall not at any time give sell or barter any alcoholic liquors or permit or suffer any such sale, gift or barter to be made by any Sub-contractor, employee or agent of the Contractor, nor import of permit or suffer the importation of any alcoholic liquors into India.

(viii) **Arms and Ammunition**

The Contractor shall not at any time import or sell, gift, barter or otherwise dispose of any arms or ammunition or explosive of any description to any person or persons whatsoever and nor permit or suffer any of his sub-contractors agents or employees to make any such sale, gift, barter or other disposition.

(ix) **Fair Wages**

The Contractor shall in respect of all persons employed by him in factories, workshops or other places occupied or used by him for the execution of the Contract including the Works, pay rates or wages, emoluments and expenses and observe hours and conditions of labour not less favourable than those established for the trade or industry in the district where the work is carried out to which the organisations of employers and trade unions representatives or a substantial proportions Of the employers and workers engaged in the trade or industry in the district are affiliated. In the absence of such established rates and conditions the Contractor shall pay rates or wages and observe hours and conditions of labour which are not less favourable than the general level of wages, hours and conditions observed in the trades or industries similar to those in which the Contractor is engaged.

The Contractor shall comply with the provision of all labour legislation including the latest requirements of all the Acts, Laws, any Regulation or Bylaws or any local or other statutory Authority applicable in relation to the execution of works, such as:

- a) Minimum wages Act, 1948 (Amended)
- b) Payment of Wages Act, 1936 (Amended)
- c) Workmen's Compensation Act, 1923 (Amended Act No 65 of 1976)

- d) Contract Labour Regulation & Abolition Act, 1970 and Central Rules 1971 (Amended)
- e) Apprentices Act 1961
- f) Any other Act or enactment relating thereto and rules framed thereunder from time to time
- g) Industrial Employment (standing order) Act, 1946 (Amended)
- h) Personal Injuries (Compensation Insurance) Act, 1963 and any modifications thereof & rule made there under from time to time.
- i) Employees' Provident Fund & Miscellaneous Provisions Act, 1952 and amendment thereof.

(x) **Workmen's Compensation:**

If, for any reason, the Employer is obliged, by virtue of the provisions of the Workmen's Compensation Act, 1923, or any statutory modification or re-enactment thereof to pay compensation to a workman employed by the Contractor in execution of the works, the Employer shall be entitled to recover from the Contractor the amount of compensation so paid and without prejudice to the rights of the Employer under the said Act. The Employer shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due by the Employer to the Contractor under this Contract or otherwise. The Employer shall not be bound to contest any claim made against it under the said Act, except on the written request of the Contractor and upon his giving to the Employer full security to the satisfaction of the Employer for all costs for which the Employer might become liable in consequence of contesting such claim.

(xi) **Observance by Sub-Contractors**

The Contractor shall be responsible for the observance by sub-contractors employed by him in the execution of this Contract of the provisions hereof and applicable laws, rules and regulations.

62. Safety Code.

- a) First aid appliances including adequate supply of sterilized dressings and cotton wool shall be kept in a readily accessible place.
- b) An injured person shall be taken to a public hospital without loss of time, in cases where the injury necessitates hospitalisation.
- c) Suitable and strong scaffolds from ground should be provided for workmen for all works that cannot safely be done.
- d) No portable single ladder shall be over 8 meters in length. The width between the side rails shall not be less than 30 cm. (clear) and the distance between two adjacent rungs shall not be more than 30 cm. When a ladder is used an extra mazdoor shall be engaged for holding the ladder.
- e) The excavated material shall not be placed within 1.5 metres of the edge of the trench or half of the depth of trench whichever is more. All trenches and excavations shall be provided with necessary fencing and lighting.

- f) Every opening in the floor of a building or in a working platform be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be one metre.
- g) No floor, roof or other part of the structure shall be so overloaded with debris or materials as to render it unsafe.
- h) Workers employed on mixing and handling material such as asphalt, cement mortar or concrete and lime mortar shall be provided with protective footwear and rubber hand-gloves.
- i) Those engaged in welding works shall be provided with welder's protective eye-shields and gloves.
- j) (i) No paint containing lead or lead products shall be used except in the form of paste or readymade paint.
(ii) Suitable facemasks should be supplied for use by the workers when the paint is applied in the form of spray or surface having lead paint dry rubbed and scrapped.
- k) Overalls shall be supplied by the Contractor to the painters and adequate facilities shall be provided to enable the working painters to wash during the periods of cessation of work.
- l) Hoisting machines and tackle used in the works, including their attachments, anchorage and supports shall be in perfect condition.
- m) The ropes used in hoisting or lowering materials or as a means of suspension shall be of durable quality and adequate strength and free from defects.

**Deputy General Manager
Mechanical Unit JKPCC Ltd.,
Jammu**

TECHNICAL SPECIFICATIONS

1.0 **DIESEL GENERATOR SETS**

1.1 **INTENT OF SPECIFICATION**

This specification covers the Supply, Installation Testing Commissioning of 750 kVA, 415 V Diesel **Gen-Sets with Acoustic Enclosure**, complete in all respects with all equipment, fitting and accessories for efficient and trouble free operation as specified here under.

SCOPE OF WORK

1.1.1 **Scope of Supply & Services:**

General Scope of work shall include, supply, erection, testing and commissioning of the following:

- a) Diesel engine complete with all accessories, an Alternator directly coupled to the engine through flexible/rigid coupling complete with all accessories for starting, regulation and control, including base frame etc. interconnecting piping and accessories, power and control cable glands and lugs.
- b) Diesel Local/Remote control panel including cables between bidders local equipment and special cables if any.
- c) Equipment necessary for engine cooling system, radiators, pumps, valves, inter connecting pipes etc.
- d) Equipment necessary for fuel storing and distribution, day oil tank (990 Lt.), pipings, pumps, valves, level indicators etc.
- e) Flexible connections and residential type silencer of exhaust system, including thermal lagging.
- f) Batteries with iron battery stand and battery charging equipment, including their connections as necessary along with tools & accessories for battery maintenance.
- g) Anti-Vibration Mountings etc.
- h) Preparing all related shop drawings for approval from client/consultant and statutory bodies.
- i) Obtaining approval of the installation of Diesel Generators by the Electrical Inspectorate and Pollution Control bodies and any other statutory bodies.
- j) Minor civil works like chasing, grouting etc. for execution of jobs.
- k) Carrying out performance and guarantee test at site available load but not more than the capacity of D.G. Set.
- l) Acoustic enclosure as per CPCB norms and type approved.
- m) All power & control Cabling between alternator & Panel will be in the scope of work and will be inclusive in the price.
- n) Major civil work such as foundations, trenches.

- o) Minor civil work like cutting and making good all damages caused during installation and restoring the same to their original finish will be inclusive in the price.

1.1.2 The installation work shall conform to Indian Electricity act and Indian Electricity Rules as amended up to the date of installation.

The fuel oil installation shall meet all statutory requirements of Govt. of India as amended up to the date of installation. Any approval required from statutory authorities shall be obtained by the Contractor. Nothing in this specification shall be construed to relieve the contractor of these responsibilities.

Equipment conforming to any other National/International Standard which ensures equal or better quality may be accepted. In such case the bidder shall furnish copies of the standards in English along with his bid and shall clearly bring out the salient features of comparison with corresponding listed standards.

The equipment furnished under this specification has to operate in a tropical climate and shall be given tropical and fungicidal treatment as per relevant specification

1.2 **PERIOD OF OPERATION / DUTY CYCLE**

The sets are intended to supply power only during an emergency for essential services and may be idle for long periods except for periodic routine tests once in a week.

The set shall be capable of running at full load for not less than 300 hrs continuously or as per manufactures recommendations. The change period both for the lube oil, lube oil filters shall be minimum 300 Hours of operations or as per manufactures recommendations.

The time to Top overhaul, major overhaul & maintenance schedules shall be specified by the bidders.

1.3 **CODES & STANDARDS**

The design, construction, manufacture, inspection, testing and performance shall comply with all the currently applicable statutes, safety codes, relevant Bureau of Indian Standard (BIS), British Standards (BS), International Electro Technical Commission (IEC) publication, NEMA & VDE standards amended upto date.

Some of the applicable standards are listed below :

BS- 5514/ISO 3046/DIN 6271	Reciprocating internal combustion engines
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BS – 4613	Electrical performance of rotating electrical machine
BS – 4999/5000	Applicable parts of BS 4999/5000
IEC–34–1/IS–4722/VDE 0530	Specification for rotating electrical machines.
IS – 4889	Method of determination of efficiency of rotating electrical machinery.
IS – 6491	Degrees of protection provided by enclosures for rotating electrical machinery.
IS – 4729	Measurement and evaluation of vibration of rotating electrical machines.
AIEE – 606	Recommended specification for speed governing (1959) of internal combustion engine generator units.
IS – 2705	Current transformers.
IS – 1248	Electrical indicating instruments.
IEEE – 115	Test procedure for synchronous machine.
CPWD Norms CPCB NORMS	CPCB -2 (Latest)

CPWD General Specification for electrical Part VII DG set 2013

1.4 **ENGINE**

1.4.1 **Type**

The diesel engine shall be of stationary type four stroke/two stroke with vertical in line or (V) type cylinder arrangement, Turbo-charged, cooled with radiators.

1.4.2 **Rating**

Prime power BHP rating of the engine shall be such that the DG set deliver the specified net electrical output while supplying power/driving all electrical and mechanical auxiliaries connected to alternator terminals and engine shaft at specified site conditions and ambient temperature of 40°C. The bidder shall submit the deration calculations if the engine is not designed for 40deg C. ambient temperature.

- a) It shall also be capable of satisfactorily driving the alternator at 10% over load at the rated speed for one hour in any period of 12 hours of continuous running.

The bidder shall have to furnish copy of deration chart from the original manual of the engine manufacturer and supporting calculations to arrive at diesel engine rating.

1.4.3 **Speed and Vibration Levels**

- a) Speed shall be 1500 revolutions per minute. Speed governor/over speed protection shall be provided.
At due running conditions, speed shall be stabilized at plus or minus 2% nominal speed, regardless of load. At transient condition, engine speed shall vary not more than 10% plus or minus. Governor class shall be A1 (4% drop) for normal application unless otherwise specified.

1.4.4 **Lubrications**

The engine shall have a closed cycle forced & splash lubricating system with positive oil pressure and a crank chamber for collection/storage of the lubricating oil during circulation.

- a) A lubricating oil filter shall be provided for operation under normal conditions for a period of 300 hours without the necessity of its replacement or cleaning.
- b) In case lubricating oil coolers are required it shall be supplied as an integral part of the Diesel Generator Set.
- c) Necessary temperature and pressure gauges and other instruments shall be supplied and fitted on the lubrication system.
- d) A lubricating oil level dipstick suitably graduated shall be provided and located in the accessible position.

1.4.5 **Fuel System**

- a) The engine shall be capable of running on HSD fuel oil normally all types of diesel fuel oil normally available in India.
- b) The fuel consumption of the engine at full, three quarters and half of its rated power output shall be indicated by the Contractor in the bid.
- c) A fuel service tank of 990 litres capacity with each D.G. Set shall be provided on a suitably fabricated steel platform. The tank shall be complete with level indicator marked in litres, filling inlet with removable screen, an outlet, a drain plug, an air

vent and necessary piping. The fuel tank shall be painted with oil resistant paint. All pipe joints should be brazed/welded.

1.4.6 **Air Intake System**

The diesel engine shall be provided with special dry type air filters having low resistance to air passage, high dust retaining efficiency and provision for easy cleaning. Filters shall be suitable for achieving satisfactory engine operation and ensuring the engine life under tropical humid conditions, with sulphur dioxide fumes, abrasive dust and coal particles of 5 to 100 microns present in the atmosphere. The minimum efficiency of filters shall be 90% down to 5 micron size.

1.4.7 **Cooling**

The diesel engine should be water cooled with radiator cooled system. The cooling system should include temperature gauge with high temp., alarm/trip corrosion resistor etc.

1.4.8 **Engine Governor**

The governor shall be Electronic ISO-Chronous type to maintain zero speed rate or regulation and shall be AI type as per BS:5514 in order to take care of heavy motor starting. It shall have necessary characteristics to maintain the speed substantially constant even with sudden variation in load. However, a tripping shall be provided if speed exceeds maximum permissible limit. The governor shall be suitable for operation without external power supply.

1.4.9 **Turbo Charger**

It shall be of a robust construction, suitable of being driven by engine exhaust having a common shaft for the turbine and blower. It shall draw air from filter of adequate capacity to suit the requirements of the engine.

1.4.10 **Quietness of Operation**

- a) The engine shall be designed to achieve maximum quietness of operation.
- b) Efficient residential silencer shall be provided as per engine manufacturer's approved make only for the exhaust.
- c) Noise level of the DG set shall be as per the CPCB norms.

1.4.11 **Engine Starting**

- a) Engine starting shall be by electric starting motor complete with manual/automatic starting arrangement. The starter motor shall conform to IS:4722 and shall be of adequate power for its duty and be of inertia or pre-engaged type. The pinion shall positively disengage when the engine starts up or when the motor is de-energized. The engine cranking shall be only from the panel both for AMF & DG sets (Manual) and any engine starting devices etc. that are given as original fitment on the engine by engine manufacturers shall be either removed or padlocking arrangement

given for this so that all normal start/stop operations could be done only from panel whether the set is AMF or manual.

The engine wiring shall be appropriately modified, ferruled to totally match with schematic drawings of the panel.

- b) Time for Run-up to Speed :
From the initial operation of the starting device, the engine shall start, run up to normal speed and be capable of accepting 60% of full load within a maximum time of 20 seconds, and full load within a further 20 second.

1.4.12 **Starter Battery**

- a) The battery shall conform to the requirement of IS:1651. Starting battery each of 12 V, heavy duty high performance approved make/quality shall be provided to enable crank & start the engine even in cold/winter morning conditions. Type/voltage/AH capacity of same on 20 hour rated discharge period shall be indicated in the offer. The battery set shall be capable of performing at least (5) five normal starts without recharging.
- b) The battery shall be provided with good quality teakwood stand painted with acid proof black paint with min 3mm thick rubber mat below the batter.
- c) Batteries shall be of load container type only and not with PVC moulded sealed container so that each individual cells are available for individual monitoring during its life span. Each cell shall be provided with electrolyte filling cap with level floats for easy monitoring of electrolytic level.
- d) The battery shall be provided with 2 Nos. cables, minimum 1.5m long heavy duty rubber/PVC insulated cabling with brazed tinned lug at one end and with brazed tinned brass terminal lug at battery end - for connecting batteries to cranking system - with 0.25 m long inter battery connecting cable.
- e) The lugs shall be clearly stamped (+) or (-) and positive cable also red sleeved for easy identification.
- f) The batteries Set shall be supplied fully filled and first charged ready to use.

1.4.13 **Battery Charging System**

- a) Float rate charging and quick rate charging system shall be provided at the generator panel with appropriate bridge charger system, LC network, rate selector switch and generously rated charging transformer and silicon one rectifier bridge, so that the cranking battery system can be kept fully charged at all times from E.B. supply network with quick charging rate limited to 0.8 times rated discharge current with provision in control transformer and Si rectifier present to enable boost charging the battery at 2 times rated discharge current in case of emergencies. To this and in the

mode selector switch boost charge position shall be present which however shall be kept disconnected at mode selector switch normally.

b) DC ammeters to clearly indicate float charging current and quick/boost charging current shall be provided.

c) Dropper resistor network on the load side of battery charger system shall be provided so that higher charger voltages in quick or boost conditions does not get impressed on the I/L and Contactor coils, which voltage shall remain well within +10% of rated voltage.

d) Battery charging subsystem shall be designed for continuous operation at cubicle ambient of 50°C corresponding to 45°C ambient outside and should be designed to operate at 1.5 times rated maximum current corresponding to boost charge current which can reach in practice as high as 2.5 times or 3 times rated discharge current.

e) Any charger dynamo and dynamo charging current network present on the set shall be made in operative so that both for AMF and manual application the cranking battery system is kept charged from the charger at the panels at all times during or shut down periods of the set.

f) To the above and in case of manual DG sets, the input to charger subsystem viz., 240 V AC is foreseen to be provided from customer network from the portion that is normally supplied by manual DG Set during DG operation or being fed by E.B. System.

1.4.14 **Engine Fitments**

The engine shall be provided with but not limited to following essential basic fitments:

Crank case breather	-	Dry type Element.
Air Cleaner	-	Dry type Mounted.
Corrosion Resistor	-	To Control Acidity and Impurities from Coolant.
Lubricating Oil Cooler Filters	-	Lub Oil & Fuel Oil, Paper Element type.
Coolant Pump	-	Gear Driven.
Fuel Pumps	-	Priming & Transfer
Governor	-	Electronic Class A1.
Turbo Charger	-	Exhaust Gas Driven in case of Turbo.
Flywheel with Flywheel		
Housing	-	SAE Type
Vibration Dampers	-	One Set
Exhaust / Intake Manifolds	-	

Oil Sump (Crane Case) with dip stick

Engineer Supports

Residential TYPE Silencer in Exhaust system Electrical Starter 12 V or 24 V Safety Controls & Instruments.

1.4.15

Engine Instrumentation

The following instruments mounted on instrument panel shall be essentially present as minimum:

- Engine speed tachometer with service hour counter
- Lub oil pressure gauge
- Coolant water temperature gauge

The instrument panel shall be mounted on engine using rubber dampers for vibration.

The gauges shall have clear red marking to identify the limiting dangerous levels, 'Zone Markings' on the scale to indicate the normal healthy & abnormal operating zones for the parameters concerned.

The metering could be either normal electro-mechanical analogue type or electronic digital type, latter being preferred as manufacturers fitment only.

The engine control panel must be supplied by the engine manufacturer only.

1.5

ALTERNATOR

The alternator shall have brushless type with rotating field and static excitation circuit controlled by field control unit suitably compounded for voltage and load current for a self excited self regulated system.

The alternator shall be in SP-DP enclosure, foot mounted with ball and roller bearings on end shields.

The alternator shall conform to IS:4722/BS:2613 and shall be suitable for tropical conditions.

The alternator shall comply with the following specifications: -

Rating - As per BOQ.

(Shall be capable of 10% over loading at the rated speed for one hour of 12 hours continuous running).

Voltage - 415 V

Speed - 1500

RPM Frequency - 50 Hz.

P.F.	-	0.8 lag
Enclosure	-	IP:23
Insulation	-	H
Execution	-	Self-excited, self-regulated with brushless system and static voltage control unit suitably compounded for voltage and current to maintain terminal voltage constant at $\pm 5\%$ at all load for p.f. not less than 0.8. lag.
Terminal Box	-	As per BOQ.
Earthing Studs	-	2 Nos. in each DG

1.5.1 **Neutral Point**

The winding of the alternator shall be star-connected.

1.5.2 **Terminal Box and Connection**

The alternator output terminals shall be enclosed in a terminal box mounted in an accessible position on the alternator frame. As far as possible, connections between the exciter and alternator shall be contained within the machine frame and connections carrying A.C. and D.C. shall be segregated from each other. The terminal box shall be of sufficient size to conveniently terminate the size and number of the Owner's cables, which shall be intimated during detailed engineering. Suitable tinned copper pads shall be provided for power cable termination along with all necessary hardware and cable lugs. Glands and lugs shall be provided for control cables also. For single phase cables, gland plate shall be of non-magnetic material. Gland plate shall be removable type.

The generating set shall be so designed that it is capable of reaching its full voltage and frequency and shall be ready to take full load within 30 seconds of a remote starting impulse being received.

1.5.3 **Acoustic Enclosure
Thickness of Sheet**

High Class sheet metal fabricated enclosure for reducing the noise level of DG Set and also acts as weather proof housing. Genset will be an integral part of acoustic enclosure and whole construction will be on multi-fold sheet channels and ISMC sections. Enclosure construction is fully bolted keeping in view the major service requirements all doors are provided with specially designed hinges and lockable handles, battery, fuel tank is placed outside the enclosure.

Acoustic Materials

Rock wool in the form of slabs of 75 – 100 mm thickness and 48 KG/Metric cube density (Specification of Rock wool conforms to IS:8183). Further to increase the life of Acoustic material resin coated fiber glass cloth is provided on exposed surface of Rock wool slabs and the panels are supported by perforated sheets.

Ventilation

Acoustic enclosure is designed in such a way that there are no hot pockets around engine and it is provided with suitable designed engine radiator/or additional axial flow fan and does not allow the temperature to rise more than 7⁰C.

To achieve optimal output and minimum sound level from the DG Set, suitable openings with acoustic hoods are provide for increasing the inflow of air required for combustion and forced ventilation. Air intake system as per the recommendations and engine requirement are provided.

- Acoustic hoods with noise splitters provided to block and reduce the sound leakage.
- The sound control system designed to suppress the sound insertion loss of 25 Db maximum at 1 meters distance in open environment.

Silencer

Residential type silencer shall be provided. Silencer & engine exhaust outlet, connected with flexible SS below.

Vibration Isolation

To avoid transfer of vibration from Genet to enclosure & surrounding specially designed vibration isolators are used.

1.6 MICROPROCESSOR BASED GENSETS CONTROLLER BASED AUTO STARTING, AUTO SYNCHRONISATION, AUTO LOAD SHARING AND MICRO PLC FOR AUTO LOAD MANAGEMENT PANEL FOR DG SETS

1.6.1 General

Floor mounting type, totally enclosed, sheet metal type panel incorporating all the instruments, protective devices, alarms etc, as required Auto-Starting/ Auto synchronisation/ Auto-Load Sharing/ Micro PLC for Load Management based on demand feedback suitable for 4 DG Sets. The Power Panel shall be rated for 50KA RMS fault level withstand for 1 sec. & degree of protection shall be IP54 or better.

The panel shall have provision for synchronisation of (Auto mode as well as in fully manual mode) 4 No. DG sets.

DG Panel consists of two nos. bus Sections with one no. Bus Coupler (tie) breakers. All ACBs shall be E.D.O type. The Gen set controller based Panel shall

ensure providing suitable interlocks, in addition to hard wired interlocks, to achieve the desired sequence of operation. DG Control & Operation Logic shall be monitored & controlled by DG Controller which shall be suitable for the above functions including Auto-changeover. The Panel shall be provided with Total Manual Over-ride (inbuilt in Gen set controller). The Panel shall be complete with all Aux. Relays, Timers, Contactors, DG Controller & Control wiring / interconnections etc.

The Microprocessor based Gen set controller based AMF panel shall afford the following operational requirements

1.6.2

Auto – Starting

A line voltage monitor shall monitor supply voltage on each phase & when the Mains Supply fails completely or falls below set value (variable between 80% to 95% of the nominal value) on any phase, the logic shall initiate start-up of the diesel engine. The Microprocessor based Gen set controller logic shall avoid start up due to momentary dips or system disturbance through adjustable time delays of 0.5 to 5 sec.

A three attempt starting facility (inbuilt in microprocessor Gen set controller) shall be provided with a desired time sequence of on time / off time of adjustable time period between 1-10 sec. through a Man – Machine Interface (MMI). In case the engine does not start in the first attempt, two more attempts would be made in auto mode. At the end of third attempt if the engine has not been already started & built up voltage, engine shall locked out for start. An Audio – Visual Alarm shall be given with a suitable alarm message “DG fails to start” on the MMI or PC.

Once the DG has built up the desired voltage, necessary commands shall be given to operate the DG / Bus Coupler ACBs/MCCBs as per logic sequence / interlocks required. Auto change over shall be taken care by PLC ensuring mechanical interlocking to avoid mixing of power, Gen set controller shall give closing/opening to DG incomer breaker.

System provided in the Panel shall check & ensure that all the Engine Auxiliaries like Lube Oil Pump are running & healthy. In case of any fault in Engine Aux., System shall automatically stop the DG Set with an Audio – Visual Alarm. Suitable inputs for O/L for the Alternator & for each of the Engine Aux. shall also be considered as Inputs for this function.

After the first DG has reached 90% of its rated voltage & frequency, command is given to close its Breaker & Load taken as per the requirement. Once a preset load is attained, the DG set shall start cyclically depending on the load monitored continuously.

When the mains supply is restored & is healthy as sensed by Line Voltage Monitor setting, both for under voltage and unbalance & after the quality of mains power is

monitored for a set time delay of 1 mt. to 30 mts., the load shall be transferred automatically to mains by giving commands to Mains / DG / Bus Coupler ACBs as per logic sequence required. The DG ACBs shall open before Mains ACBs close.

The DGs are shut down after a certain time delay, adjustable through HMI or PC between 1 mt. To 30 mts.

1.6.3

Auto – Synchronisation

Synchronization facility shall be available for both Auto & Manual mode. In normal circumstances, Auto Synchronization shall work, however, if due to any reason the Auto Synchronization fails the synchronization shall be carried out manually as mentioned below.

Voltage & Frequency of individual DG Sets shall be monitored & necessary commands shall adjust the parameters of that DG Set feeding the respective Bus.

Logic System shall verify the phase angle of both sets & also compensate for ACB closing time by initiating closing of the breaker ahead of the predictable synchronization thereby ensuring a phase difference of near zero degree.

Auto – Synchronization shall be achieved by using microprocessor based Gen set controller with following features:

- Auto – Synchronization
- Auto Load Sharing
- Electrical Parameter monitoring
- Protection for
 - Over Current
 - Short Circuit
 - Load Shedding
 - Reverse Power Relay Active & Reactive
 - Excitation Failure Relay
 - Amp Sentry Protection
 - Over voltage & frequency Relay
 - Over load
 - Low Battery voltage warning
 - Over crank (failure to start)

4/3 Pole ACBs, with neutral isolating contactor (NIC) shall be accepted to ensure negligible circulating current. Otherwise, Neutral Isolating Contactor (NIC) of the DG started first shall close first & then command for ACB closing can be effective. Only one NIC (of the first started DG Set) shall be closed during parallel operation. In the event of tripping of NIC of the master DG Set, the next selected DGs NIC shall close before the NIC of master DG trips. While switching off, the DG Set which has started first is selected, then NIC of either of the remaining sets shall be switched on & then tripping signal of the first started DG Set shall be initiated. At

any moment of time, only one Neutral is in the circuit to avoid circulating currents in the System.

Synchronizing system shall take KW data from each main source. Micro PLC shall start the number of DG sets as per last load on main source. PLC During running of DG sets micro PLC shall continuous monitor the each DG sets loads & micro PLC shall decide to start / stop of the DG set based on load specified in detail load management scheme.

If power fail, Micro PLC shall sense power fail through mains voltage monitor relay, Micro PLC shall issue necessary start command to DG sets as per last records (on mains). Controller shall switch on the outgoing ACBs one by one. To avoid tripping of DG sets on overload. PLC shall start feeding load from DG.

If power restores, micro PLC system shall wait for predetermined time and switch off outgoing feeder one by one & stop the DG set. PLC shall ensure the load transfer from DG to mains.

1.6.4 **Auto Load Sharing (ALS)**

Active Power shall be made equal on both machines automatically with the help of Active Load Balancing system through Governor Control, required to be achieved through DG set Controller.

Reactive Power shall be balanced automatically with the help of quadrature droop kit already fitted on the machine. However, if quadrature droop system is not functionally accurately, Reactive Load Balancing system shall control the motorized potentiometer to achieve KVAR regulation within the preset band.

In the event of a set failing to synchronize, audio – Visual Alarm from the Annunciator would invite the attention of the Operator for manual intervention along with the alarm message on the HMI or PC.

Genset controller Logic would ensure that the DG sets share the load in proportion to the capacity of each set within a preset band.

Auto Load Management (ALM) through micro PLC & microprocessor based Genset controller

Load on each DG Set shall be continuously monitored. In case, the load on any of the DG Sets is less than 60% of the rated value, the micro PLC shall assess the load on the adjacent DG Set. In case, the summation of the loads is within 80% of the rating of one of the DG Sets, one DG Set shall shutdown & load shall be transferred to the second DG Set.

In case, the total load on the system is not more than 80% of the full load rating of a single DG Set, the micro PLC Logic shall shutdown the other DG Sets & transfer the total load to any one of the installed DG Sets.

In case, a DG Set is shut down due to non-availability of adequate load & shall the load increase, the micro PLC Logic shall automatically start the DG Set & start feeding the load as required.

The Auto-Load Management System shall be designed to provide optimum utilization of DG Sets so that the operation of the DG Sets is need based in order to achieve optimum Load Factor on each Set. The micro PLC Logic shall ensure transfer of loads from one Bus / DG to the other with auto-control of interlocks while simultaneously ensuring smooth & safe operation of the System as per predefined logic sequence.

The micro PLC/Microprocessor based Gen set controller Logic shall ensure that the ACBs are closed / opened & DG Sets are started / stopped according to the predetermined logic & interlocking scheme to provide a fail – safe system.

The Microprocessor based Gen set controller Logic shall automatically arrange for sequential starting of DG Sets to be based on operating hours of each DG Set in order to ensure that all DG Sets are operated as equally as possible. It shall also be possible to alter the starting sequence of the DG Sets through HMI or PC. It shall also give Audio – Visual Alarm along with a suitable message on the HMI or PC after a DG Set has completed its recommended operating hours for maintenance purposes. This would be as per the recommendations of the DG Supplier.

The ALM System shall have suitable outputs for tripping predefined least priority loads by field wiring to avoid overloading of the DG Sets. In case, the overload still persists, the micro PLC Logic shall give an Audio-Visual Alarm to enable the Operator to switch off loads as required & if this is not taken care of in a predefined time, the micro PLC Logic shall put the DG in shutdown mode with an Audio – Visual Alarm & a message on the HMI or PC. This is essential to avoid under loading / overloading or cascading effect of tripping & unnecessary ‘Fuel Wastage’.

It shall be noted that micro PLC Logic / Controls / Sequence of operation are indicative of requirements & the System shall, notwithstanding the above, be complete in all respects to achieve the control, monitoring & operation of the DG Sets

1.6.5

Manual Mode

In the event, the selector switch is Manual mode, complete System Operation shall be done manually. Hence, Starting of DG Sets, Synchronization Procedure, ACB Closing or Tipping etc. through respective switches, provided on the Synchronization panel. Three attempt starting facility shall also be operative for the startup function through push button in microprocessor Gen set controller.

Synchronization shall also be done manually through Double Voltmeter / Double Frequency Meter / Synchro scope / Dark Lamps / Check Synchronizing Relay etc. provided on the Panel (inbuilt in microprocessor Gen set controller).

DG (by Microprocessor based Gen set controller) / Mains / Bus Coupler ACBs 'Close' & 'Trip' operations as per logic sequence shall be manual through P.Bs provided on the Panel. Closure shall be possible only after alternator has built up full voltage. If the load is already on 'Mains', pressure on 'close' button shall be ineffective. Engine shutdown, other than due to faults, shall be manual by pressing a 'Stop' button.

1.6.6 **Test Mode**

When the selector switch is in Test Mode, PLC Logic shall only complete the startup sequence simulation & start the Engine. The simulation shall be that of Mains Failure.

Engine shall build up the voltage but the logic shall not close the DG ACB. Monitoring performance for voltage / frequency etc. shall be feasible without supply to load, that is, ACB closing shall not be permitted. ACB can be closed when there is mains supply on the bus.

If during Test run, the power supply has failed, the load shall automatically get transferred to DG. Bringing the mode selector to Auto position shall shutdown the sets.

1.6.7 **Synchronizing module or as per Microprocessor based Genset controller standard**

The standalone module must be capable to synchronize the system even in the failure of Genset Controller. The inputs from CT and PT (in case of HT) shall be fed to module and shall perform synchronization. All the three pre requirements i.e matching of Voltage through AVR exciter, Frequency through governor of prime mover (DG) and Phase Angle shall be taken care by this module.

1.6.8 **System Requirements**

The Synchronising Panel shall be complete with Controller Micro Memory Card (MMC, 32 / 64 / 128 KB), Input & Output Modules, Power Supply for Black Start, PLC to HMI / PC communication with cable, Generator Protection & Synchronisation Module, for Synchronisation & Load Sharing including all the components for Auto / Manual Synchronising. (inbuilt in Microprocessor Gen set controller + Micro logic plc) It shall also include:

- Control of DG Aux. etc.
- Monitoring & Report generation of all the electrical parameters of Mains I/C & DG I/C as indicated in SLD.

- Controller to HMI or PC Communication
- PC of latest configuration complete with 19” LCD Monitor, Keyboard, Optical Mouse, Multimedia Speakers for Alarm, UPS with 30 minutes battery backup, Laser Jet Printer along with Graphics Software for SCADA purposes or equivalent as suitable to Allen Bradley
- Alarm Annunciator / Status Indicator for Mains & each DG separately
- Back-up protection through Controller besides external relays that would be provided in the LT Panel.(inbuilt in Microprocessor genset controller)
- Mimic for LT Distribution System as per SLD

Data Acquisition System shall be incorporated for the purpose of recording & display of all important & critical parameters of Engine, Alternator & System in totality. Operation & Maintenance of the System shall be through HMI or PC with graphics screen. It shall generate separate reports for Alarms / Events / Trends, all on real time & date basis.

Logic Panel shall be complete in all respects without any cost implication to the Owner.

All panels shall be complete in all respect as indicated in Single Line Diagram.

Controller synchronisation module shall be from single manufacturer.

1.7 INSPECTION AND TESTING

POL i.e. HSD oil and lub. oil for diesel engine for testing & commissioning or 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.

1.7.1 Inspection and Testing of DG sets :-

Testing shall necessarily be carried out at factory/ manufacturer premises by CEIL and the **cost of Inspection shall be borne by the successful tenderer**

For testing, following procedure will be followed: All major items/equipments i.e. engine & 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 department also reserves the right to inspect the fabrication job at factory and the successful tenderer has to make arrangements for the same.

DG set will be tested on load of unity power factor for the rated KW rating.

During testing, each of the D.G. sets covered under scope of work, shall be DG set will be tested on load of unity power factor for the rated KW rating. During testing, each of the D.G. sets covered under scope of work, shall be operated for a period of 12 hours on the rated KW at DG set's KW rating including one hour on 10% overload 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 be rectified. The testing will be declared successful only when no abnormality/ failure is noticed during the testing. The DG set will be cleared for dispatch to site only when the testing is declared successful by authorised representative/ Engineer-in-Charge.

1.7.2 **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.

Deputy General Manager,
Mechanical Unit JKPCCLtd
Jammu

2.0

LIST OF APPROVED MAKES

2.1.1

THE OWNER RESERVES THE RIGHT TO SELECT ANY OF THE BRANDS INDICATED IN THE 'LIST OF APPROVED MAKES'. THE TENDERER SHALL QUOTE HIS RATES ON THE BASIS OF THE PRICE OF THE BRAND / MAKE STIPULATED IN THE ITEM OF WORKS AS DESCRIBED IN BOQ & SPECIFICATION AS WELL AS IN THE LIST OF APPROVED MAKE. THE CONTRACTOR CANNOT CLAIM ANYTHING EXTRA IF THE OWNER CHANGES THE MAKE BUT WITHIN THE LIST OF APPROVED MAKE, BEFORE PLACING THE ORDER. ORDER OF THE MAKES IS NOT PREFERENTIAL. FINAL CHOICE OF MAKES LIES WITH THE EMPLOYER. CONTRACTOR SHALL GET MAKES APPROVED BEFORE PROCUREMENT.

2.1.2

Sl. No.	Item	Name of Manufactures
1.	DG SET	CUMMINS (SUDHIR) / CATERPILLAR / PERKINS (STERLING)
2.	ALTERNATOR	STAMFORD/LEROY SOMER
3.	LT PANEL / CAPACITOR PANEL / DG PANEL	ABB / SIEMENS / SPC ELECTROTECH PVT. LTD / RISHA CONTROL ENGINEERS PVT. LTD
4.	ATS	ASCO / SOCOMEC / RUSS ELECTRIC
5.	CURRENT TRANSFORMER	AE / KAPPA / PRECISE / ADVANCE / GILBERT MAXWELL / INDCOIL
6.	CONTACTORS	L & T / SCHNEIDER - TESYS / SIEMENS / ABB (A RANGE) / LEGRAND(CTX3)
7.	PUSH BUTTONS	ABB / SIEMENS / L&T / TELEMECHANIQUE / SCHNEIDER
8.	PROTECTION RELAYS	ABB / AREVA / L&T / SCHNEIDER / SIEMENS
9.	INDICATING LIGHTS	ABB / SIEMENS / L&T / AE / VAISHNAV / SCHNEIDER
10.	INDICATING INSTRUMENTS	RISHABH / CONSERVE / L&T / YOKINS INSTRUMENTS / ENERCON

Sl. No.	Item	Name of Manufactures
11.	SELECTOR SWITCH	KAYCEE / L&T / SIEMENS / BCH / GE
12.	MULTIFUNCTION METER	SIEMENS/ L&T / SOCOMAC
13.	SELECTOR SWITCH, PUSH BUTTONS, EMERGENCY SWITCHES	KAYCEE / L & T / LEGRAND / BCH / TELEMECHANIQUE
14.	MCB	L & T (AU) / SCHNEIDER - (ACTI-9) / SIEMENS - (3VA) / LEGRAND (DX3)
15.	MOULDED CASE CIRCUIT BREAKER (MCCB)	L&T (D-SHINE) / SIEMENS (3VA) / SCHNEIDER - NSX / ABB (TMAX) / LEGRAND (DPX3)
16.	ACB	SCHNEIDER MASTERPACT(NW) / SIEMENS (3WL/WT) / ABB - EMAX / L&T UPOWER/ LEGRAND- (MP4-DMX3)

The tenderer is required to submit the brochures of the DG set to be supplied, depicting the technical details.

**Deputy General Manager,
Mechanical Unit JKPCC Ltd
Jammu**