

 सत्य मेव जयते	GOVERNMENT OF INDIA CENTRAL PUBLIC WORKS DEPARTMENT	 CPWD
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Name of Work : **Repair & renovation of E-Type Quarters at ICAR-NDRI, Karnal, Haryana.**

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Sr. D/Man
CPWD, Karnal

Assistant Engineer (P)
CPWD, Karnal

NIT approved for Rs. **94,88,607/-** comprises pages 1 to 69

Executive Engineer-Karnal
CPWD, Karnal

CHECK LIST FOR CONTRACTORS FOR SUBMISSION OF TENDERS

1. TENDER TO BE WITNESSED AT **PAGE-13 & 14** OF TENDER DOCUMENTS.
2. THE TENDER / TENDERS CONTAINING CONDITIONS CONTRARY TO THOSE SPECIFIED IN THIS DOCUMENT SHALL BE SUMMARILY REJECTED.
3. THE QUOTED PERCENTAGE ON ESTIMATED RATE FOR ABOVE OR BELOW OR AT PAR SHOULD BE WRITTEN BOTH IN WORDS & FIGURES AT SPACE PROVIDED IN SCHEDULE OF QUANTITY.
4. **THE CONTRACTOR(S) SHALL QUOTE THE RATES KEEPING IN MIND, GENERAL CONDITIONS OF CONTRACT CPWD MAINTENANCE WORK WORKS 2023** WITH UPTO DATE CORRECTION SLIPS TILL SUMISSION OF PRICE BID.

CPWD-6 FOR e-TENDERING

1. The Executive Engineer, Karnal Division, CPWD, NDRI Campus Karnal 'For & On' behalf of the President of India invites **online percentage rate bid** from approved & eligible CPWD registered contractors for the work of:-

Name of Work:- Repair & renovation of E-Type Quarters at ICAR-NDRI, Karnal, Haryana.

The enlistment of the contractors should be valid on the last date of submission of tenders. In case the last date of submission of tender is extended, the enlistment of contractor should be valid on the original date of submission of tenders.

- 1.1 The work is estimated to cost **Rs. 94,88,607/-** This estimate, however, is given merely as a rough guide.
- 1.1.1 The authority competent to approve NIT for the combined cost and belonging to the major discipline will consolidate NIT for calling the tenders. He will also nominate Division which will deal with all matters relating to the invitation of tenders.

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

- 1.2 Intending tenderer is eligible to submit the bid provided he has definite proof from the appropriate authority, which shall be to the satisfaction of the competent authority, of having satisfactorily completed similar works of magnitude specified below:-

Criteria of eligibility for CPWD contractor for submission of tender documents:-

Valid CPWD Registration Certificate of appropriate category as on last date of Tender. All the link papers / circulars / orders / OM's required to establish the link of validity of registration as on last date of tender, in case if the original registration order validity expired before the last date of tender, must be uploaded in sequence to establish the registration validity as on last date of tender. In case of non-uploading of required documents, the eligibility will not be considered.

- 1.2.2 **To become eligible for issue of tender, the tenderer shall have to furnish an affidavit as under:-**

I/We undertake and confirm that our firm/partnership firm has not been blacklisted and/or debarred by CPWD, MoUHA or Ministry of Finance. Further that, if such information comes to the notice of the department, then I/we shall be debarred for bidding in CPWD in future forever. Also, if such information comes to the notice of department on any day before date of start of work, the Engineer-in-Charge shall be free to cancel the agreement and to forfeit the entire amount of Earnest Money

Correction – Nil

Insertion – Nil

Deletion - Nil

3

Deposit/Performance Guarantee & Additional Performance Guarantee (Scanned copy of this notarized affidavit to be uploaded (**Form-E, Page-21**) at the time of submission of bid).

2. Agreement shall be drawn with the successful tenderer on prescribed Form No. CPWD 7 /**GCC CPWD Maintenance work 2023** with upto date correction slips upto submission of financial bid which is available as a Govt. of India Publication and also available on website www.cpwd.gov.in bidder shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.
3. The time allowed for carrying out the work will be **150 Days** from the date of start as defined in schedule 'F' or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the tender documents.
4. The site for the work is available.
The bidder should examine the site before participating in the bidding process and acquaint himself of the site conditions
5. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents except Standard General Conditions Of Contract Form-2023 can be seen from website <https://etender.cpwd.gov.in> OR www.cpwd.gov.in free of cost.
6. After submission of the bid the contractor can re-submit revised bid any number of times but before last time and date of submission of tender as notified.
7. While submitting the revised bid, contractor can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the items) but before last time and date of submission of tender as notified.
8. Earnest Money of **Rs. 1,89,772/-** can be paid in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee from any of the Commercial Banks (drawn in favour of **Executive Engineer, Karnal Central Division, CPWD, Karnal**) and shall be scanned and uploaded to the e-Tendering website within the period of bid submission. **The original EMD should be deposited either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission. (The EMD document shall only be issued from the place in which the office of receiving division office is situated). The EMD receiving Executive Engineer shall issue a receipt of deposition of earnest money deposit to the bidder in a prescribed format (enclosed Page-12) uploaded by tender inviting **EE** in the NIT.**

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

However, A part of Earnest Money is acceptable in the form of Bank Guarantee also. In such case, minimum 50% of EMD or Rs. 20 Lakh whichever is less will have to be deposited in the shape prescribed above, and balance may be deposited in the shape of Bank Guarantee of any commercial bank having validity for a period of 90

days from the last date of receipt of bids which is to be scanned and uploaded by the intending bidders.

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

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

The bid submitted shall be opened at 1530 Hours **on 04.08.2026.**

9. The bid submitted shall become invalid if:-
- (i) The bidders is found ineligible.
 - (ii) **The bidders does not deposit original EMD with division office of any Executive Engineer, CPWD.**
 - (iii) The bidder does not upload all the mandatory documents (including GST registration) as stipulated in the bid document **including the copy of receipt for deposition of original EMD.**
 - (iv) If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies as submitted physically by the lowest tenderer in the office of tender opening authority.
 - (v) **If a tenderer quotes nil rates against each item in item rate tender or does not quote any percentage above/below on the total amount of the tender or any section/sub head in percentage rate tender, the tender shall be treated as invalid and will not considered as lowest tenderer.**
10. The contractor whose tender is accepted, will be required to furnish performance guarantee & **Additional Performance Guarantee** of 5% (Five Percent) of the tendered amount within the period specified in Schedule F. This guarantee shall be in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee in accordance with the prescribed form. In case the contractor fails to deposit the said performance guarantee & **Additional Performance Guarantee** within the period as indicated in Schedule 'F', including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor. The earnest money deposited along with the bid shall be returned after receiving aforesaid performance guarantee & **Additional Performance Guarantee**.
- The contractor whose bid is accepted will also be required to furnish either copy of applicable licences/registrations or proof of applying for obtaining labour licences, registration with EPFO, ESIC and BOCW Welfare Board **including provident fund code No. if applicable and also ensure the compliance of aforesaid provisions by the sub contractors, if any engaged by the contractor for the said work and Program Chart (Time and progress) within the period specified in Schedule "F".**
11. **The description of the work is as follows:**

Intending Tenderers are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders as to the nature

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

In addition to the above, bidders are to advised to see for themselves the bridges existing on the approach passage to the site for assessing the position with regard to carriage of building materials and T&P. Nothing extra shall be payable to the successful bidder for any type of existing restricted conditions with regard to the above.

12. The competent authority on behalf of the President of India does not bind itself to accept the lowest or any other tender and reserves to itself the authority to reject any or all the tenders received without the assignment of any reason. All tenders in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the tenderer shall be summarily rejected.
13. Canvassing whether directly or indirectly, in connection with tenderers is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable for rejection.
14. The competent authority on behalf of President of India reserves to himself the right of accepting the whole or any part of the tender and the tenderer shall be bound to perform the same at the rate quoted.
15. The contractor (enlisted or non enlisted in CPWD) shall not be allowed to participate in the tender for work(s) in the CPWD Zone/circle /Division/Sub Division responsible for award and/or execution of contract(s) in which his near relative is posted as Divisional Accountant or as an officer in any capacity between the grades of the Chief Engineer and Junior Engineer (both inclusive). He shall also intimate the names of persons who are working or are subsequently employed by him and who are near relatives to any Officer working in the CPWD. Any breach of this condition by the contractor would render him liable to be debarred for a period upto two years from tendering in CPWD as decided by the accepting authority mentioned in Schedule F and his decision will be excepted from clause 25.
16. No Engineer of Gazetted rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as a contractor for a period of one year after his retirement from Government service, without the previous permission of the Government of India in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of India as aforesaid before submission of the tender or engagement in the contractor's service.

17. The bid for the works shall remain open for acceptance for a period of Thirty (30) days from the date of opening of tenders.
- i) If any tenderer withdraws his tender within 7 days after last date and time (24 hours basis) of submission of bids, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 50% of the earnest money absolutely irrespective of letter of acceptance for the work is issued or not.
 - (ii) If any tenderer withdraws his tender after expiry of 7 days after last date and time (24 hours basis) of submission of bids, then the Government shall or remedy, be at liberty to forfeit 100% of the earnest money absolutely irrespective of letter of acceptance for the work is issued or not.
 - (iii) In case of forfeit of earnest money as prescribed in para (i) and (ii) above, the bidders shall not be allowed to participate in the rebidding process of the same work
 - (iv) Withdrawal of the tender, by the tenderer, shall only be made through e-tender portal. Any other method i.e. through letter /e-mail etc. shall not be considered. The tender inviting authority gets intimation through SMS and e-mail in this regard.
18. This notice inviting Tender shall form a part of the contract document. The successful tenderer/contractor, on acceptance of his tender by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract consisting of:-
- a) The Notice Inviting Tender, all the documents including additional conditions, specifications and drawings, if any, forming part of the tender as uploaded at the time of invitation of tender and the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence leading thereto.
 - b) Standard C.P.W.D. Form 7 or other Standard C.P.W.D. Form as mentioned

For & on behalf of the President of India.
Signature

Executive Engineer
CPWD, Karnal

**INFORMATION AND INSTRUCTIONS FOR CONTRACTORS FOR e-TENDERING FORMING PART OF NIT AND TO BE POSTED ON WEBSITE
(Applicable for inviting open tenders)**

The Executive Engineer, Karnal Division, CPWD, NDRI Campus Karnal 'For & On' behalf of the President of India invites **online percentage rate bid** from approved & eligible CPWD registered contractors for the work of :-

S.No.	NIT No.	Name of work & Location	Estimated cost put to tender	Earnest Money	Stipulated Period of Completion	Last date & time of submission of bid, original EMD, copy of receipt for deposition of original EMD and other documents as specified in the bid.	Time & date of opening of bid
1	2	3	4	5	6	7	8
1	33/EE/KD/2026-27	Repair & renovation of E-Type Quarters at ICAR-NDRI, Karnal, Haryana.	Rs. 94,88,607/-	Rs. 1,89,772/-	150 Days	04.08.2026 upto 1500 Hours	04.08.2026 upto 1530 Hours

- The enlistment of the contractors should be valid on the last date of submission of bids.

In case only the last date of submission of bid is extended, the enlistment of contractor should be valid on the original date of submission of bids.

Criteria of eligibility for CPWD contractor for submission of tender documents:-

Valid CPWD Registration Certificate of appropriate category as on last date of Tender. All the link papers / circulars / orders / OM's required to establish the link of validity of registration as on last date of tender, in case if the original registration order validity expired before the last date of tender, must be uploaded in sequence to establish the registration validity as on last date of tender. In case of non-uploading of required documents, the eligibility will not be considered.

- The intending bidder must read the terms and conditions of CPWD-6 carefully. He should only submit his bid if he consider himself eligible and he is in possession of all the documents required.
- Information and Instructions for bidders posted on website shall form of bid document.
- The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen from website <https://etender.cpwd.gov.in> OR www.cpwd.gov.in free of cost.

5. But the bid can only be submitted after **deposition of original EMD either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission** and uploading the mandatory scanned documents such as Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee any of the Commercial Banks in favour of **Executive Engineer, Karnal Central Division, CPWD, Karnal as mentioned in NIT, receipt for deposition of original EMD to division office of any Executive Engineer, CPWD** and other documents as specified.

The contractors already registered on the e-tendering portal will have option to continue by paying tender processing fee up to one year from the date of registration, or to switch over to (new) registration without tender processing fee any time. All new registrations from 01-04-2015 will be without tender processing fee.

6. Those contractors not registered on the website mentioned above, are required to get registered beforehand. If needed they can be imparted training on online tendering process as per details available on the website.
7. The intending bidder must have valid class-III digital signature to submit the bid.
8. On opening date of the financial bid, the contractor can login and see the bid opening process. After opening of bids he will receive the competitor bid sheets.
9. Contractor can upload documents in the form of JPG format and PDF format.
10. Contractor must ensure to quote rate of each item. The column meant for quoting rate in figures appears in pink colour and the moment rate is entered, it turns sky blue.
In addition to this, while selecting any of the cells a warning appears that if any cell is left blank the same shall be treated as "0".

Therefore, if any cell is left blank and no rate is quoted by the bidder, rate of such item shall be treated as "0" (ZERO).

However, if a tenderer quotes nil rates against each item in item rate tender or does not quote any percentage above/below on the total amount of the tender or any section/sub head in percentage rate tender, the tender shall be treated as invalid and will not be considered as lowest tenderer.

11. **The contractor whose bid is accepted will also be required to furnish either copy of applicable licenses/registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC and BOCW Welfare Board and Programme Chart (Time and Progress) within the period specified in Schedule F. The letter of award shall be issued to the lowest contractor only on receipt of applicable labour licenses, registration with EPFO, ESIC and BOWC Welfare Board or on submitting the proof of applying thereof. No Running Account Bill shall be paid for the work till the applicable labour licenses, registration with EPFO, ESIC and BOCW Welfare Board, whatever applicable are received from the contractor by the Engineer-in-Charge.**

List of mandatory documents to be scanned and uploaded on due date and time mentioned above:

1. Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee of any Scheduled Bank against EMD.
2. Copy of receipt for deposition of original EMD issued from division office of any Executive Engineer, CPWD.

3. Enlistment order of the contractor.
 4. GST registration if already obtained by the bidder.
 5. If the bidder has not obtained GST registration as applicable, then he/she shall scan and upload following undertaking along with bid documents.
“If work is awarded to me, I/We shall obtain GST registration certificate, as applicable within one month from the date of receipt of award letter or before release of any payment by the CPWD, whichever is earlier, failing which I/We shall be responsible for any delay in payments which will be due towards me/us on a/c of the work executed and/or for any action taken by CPWD or GST department in this regard”.
 6. Email and mobile No. of the firm/agency on the letter head of firm/agency (for making correspondence).
 7. An affidavit on Rs. 100 stamp paper duly attested by Notary as regard to that I/We have not been debarred suspended for tendering in CPWD till the last date of submission of bid. **(Form-E, Page-21)**
 8. ERP training certificate.
 9. Copy of PAN card issued by Income Tax department.
 10. Bidders are required to upload the NIT in PDF as uploaded by EE. This will satisfy digital signing of the terms and condition of the NIT by the bidder.
12. **The bid submitted shall become invalid if:-**
- (i) The bidders is found ineligible.
 - (ii) **The bidders does not deposit original EMD with division office of any Executive Engineer, CPWD.**
 - (iii) The bidder does not upload all the mandatory documents (including GST registration) as stipulated in the bid document **including the copy of receipt for deposition of original EMD.**
 - (iv) If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies as submitted physically by the lowest tenderer in the office of tender opening authority.
 - (v) If a tenderer quotes nil rates against each item in item rate tender or does not quote any percentage above/below on the total amount of the tender or any section/sub head in percentage rate tender, the tender shall be treated as invalid and will not considered as lowest tenderer.

Note:- All the scanned documents should be clear and readable otherwise the bids shall not be opened and the responsibility for this shall lies with the bidder. The First lowest bidder shall deposit the copies of all affidavits self attested along with supporting documents uploaded with tender should reach in the office of Executive Engineer, CPWD Karnal within 7 days of the opening of tender failing which bid shall be rejected.

IRRELEVANT DOCUMENTS WHICH ARE NECESSARILY NOT REQUIRED FOR BIDDING SHOULD NOT BE UPLOADED. UPLOADING OF IRRELEVANT DOCUMENTS MAY ATTRACT REJECTION OF BID.

Executive Engineer
CPWD, Karnal.

Receipt of deposition of original EMD

Receipt No. _____ dated _____			
1.	Name of work	:	Repair & renovation of E-Type Quarters at ICAR-NDRI, Karnal, Haryana.
2.	NIT No.	:	33/EE/KD/2026-27
3.	Estimated Cost	:	Rs. 94,88,607/-
4.	Amount of Earnest Money Deposit	:	Rs. 1,89,772/-
5.	Last date of submission of bid	:	04.08.2026*

(*To be filled by / EE at the time of issue of NIT and uploaded along with NIT)

1. Name of Contractor :
2. Form of EMD :
3. Amount of original Bank guarantee as Earnest Money Deposit :
4. Date of submission of EMD :

Signature, Name and Designation of EMD
receiving **Officer (EE/AE(P)/AAO)**
along with Office Stamp

**GOVERNMENT OF INDIA
CENTRAL PUBLIC WORKS DEPARTMENT**

STATE:	HARYANA	CIRCLE: KARNAL
BRANCH:	B & R	DIVISION: KARNAL,
NIT ZONE:	SDG (PRCH)	SUB-DIVISION : KARNAL

PERCENTAGE RATE TENDER & CONTRACT FOR WORKS

(A) Tender for the work of: -

Repair & renovation of E-Type Quarters at ICAR-NDRI, Karnal, Haryana.

- ii) To be uploaded by **1500 Hours on 04.08.2026** to Executive Engineer, Karnal Division, CPWD, Karnal through e-Tendering/Online tendering.
- iii) To be opened in presence of tenderers who may be present at **1530 Hours on 04.08.2026** In the office of Executive Engineer, Karnal Division, CPWD, Karnal through e-Tendering/Online tendering.

TENDER

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

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

We agree to keep the tender open for Fifteen (15) days from the due date of its opening and not to make any modification in its terms and conditions..

**** to be filled by EE**

I/We have deposited EMD for the prescribed amount in the office of concerned Executive Engineer as per the bid document.. A copy of earnest money deposit receipt of prescribed amount deposited in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt (FDR), Bankers cheque or Bank Guarantee from any Commercial Bank (as prescribed) issued by Commercial Bank is scanned and uploaded. If I/We, fail to furnish the prescribed performance guarantee & **Additional Performance Guarantee** within prescribed period, I/We agree that the said President of India or his successors in office shall, without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I/we fail to commence work as specified, I/we agree that President of India or his successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the performance guarantee & **Additional Performance Guarantee** absolutely, The said Performance Guarantee & **Additional Performance**

Guarantee shall be a guarantee to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to those in excess of that limit at the rates to be determined in accordance with the provision contained in clause 12.2 and 12.3 of the tender form.

Further I/We agree that in case of forfeiture of earnest money or performance guarantee & **Additional Performance Guarantee** as aforesaid, I/We shall be debarred for participation in the re-tendering process of the work.

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

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

Dated	}	Signature of Contractor	}
Witness: -		Postal Address: -	
Address: -			
Occupation: -			
		Telephone No.	
		Fax:-	
		E-Mail:-	

ACCEPTANCE

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me 'For & On' behalf of the President of India for a sum of Rs..... (Rupees.....)

The letters referred to below shall form part of this contract agreement.

For & on behalf of the President of India.

a)	Signature
.....	
b)	
c)	

Dated: -	Executive Engineer
----------------	---------------------------

SCHEDULE - A to F

SCHEDULE 'A'

Schedule of quantities - : **(Page No. 66-69)**

SCHEDULE 'D'

Extra schedule for specific requirements/ documents for the work, if any.

-----Nil-----

SCHEDULE 'E'

Reference to General Conditions of Contract:

General Conditions of contract 2023 Maintenance Works for CPWD amended/modified up to last date of submission of bid.

- | | | | |
|-----|---------------------------|---|--|
| 1.1 | Name of Work | : | Repair & renovation of E-Type Quarters at ICAR-NDRI, Karnal, Haryana. |
| 1.2 | Estimated Cost of work: - | | <u>Rs. 94,88,607/-</u> |
| 1.3 | Earnest Money: - | | <u>Rs. 1,89,772/-</u> |
| 1.4 | Performance Guarantee | | 5.00% of Estimated Cost Put To Tender (ECPT) & tendered amount whichever is higher |
| 1.5 | Additional P.G. | | In case quoted bid amount is lesser than 80% of ECPT, difference of 80% of ECPT & total tendered amount quoted by the agency to be deposited. |
| 1.6 | Security Deposit | | 2.50% of tendered value |
| 1.7 | Time Allowed | | 150 Days |

SCHEDULE 'F' (General Rules & Directions)

Officer Inviting Tender: -

Executive Engineer
Karnal Division
CPWD, Karnal

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

See Below

Definitions:-

- | | | | |
|--------|---|---|--------------------------------------|
| 2 (i) | Engineer-In-Charge | : | Executive Engineer, KD, CPWD, Karnal |
| 2(ii) | Accepting Authority | : | Executive Engineer, KD, CPWD, Karnal |
| 2(iii) | Percentage on cost of materials and labour to | | |

Correction – Nil

Insertion – Nil

Deletion - Nil

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Sr. D/Man

A.E. (P)

	cover all overheads and profits	:	15%
2(iv)	Standard Schedule of Rates	:	As per Delhi Schedule of Rates 2023 with amendments upto the last date of submission of bids.
2(v)	Department	:	Central Public Works Department
2(vi)	Standard CPWD Contract		GCC 2023 Maintenance Works and CPWD Form 7 as modified & corrected up to the last date of submission of bid.
2(vii)	The order of preference: -	:	N.A.

Clause-1:-

- (i) Time allowed for submission of performance guarantee & **Additional Performance Guarantee**, program chart (Time and Progress) and applicable labour licences, registration : **7 Days**
with EPFO, ESIC and BOCW Welfare Board or proof of applying thereof from the date of issue of letter of acceptance.
- (ii) Maximum allowable extension with late fee @ 0.1% per day of Performance Guarantee & Addl. P.G. amount beyond the period provided in (i) above. : **3 Days**

Clause-2:-

Authority for fixing compensation : Superintending Engineer
Under clause-2/2A. CPWD Karnal

Clause-5:-

Number of days from the date of issue of letter of acceptance for reckoning date of start Mile stone(s) as per table given below:-

SI No.	Description of Milestone (Physical)	Time Allowed in days (from date of start)	Amount to be with-held in case of non achievement of milestone
1.	-----Nil-----		
2.			

Time allowed for execution of work.**150 Days**

Authority to decide**Authority to convey the decision of shifting of milestone and extension of time**

- ii. **Authority to decide rescheduling of milestone and extension of time** : Engineer-in-Charge
- ii Shifting of date of start in case of delay in handing over of site : Superintending Engineer –Karnal

Schedule of handing over of site		
Portion of site	Description	Time Period for handing over reckoned from date of issue of letter of intent
Portion without any hindrance	All	Available
Portions with encumbrances	Nil	N.A.
Portions dependent on work of other agencies	Nil	N.A.

Clause-5A:-

: Not Applicable

Clause-6:-

Mode of Payment : Electronic Measurement Book (EMB)

Clause-7:- Gross work to be done together with net payment / adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment

: 19.00 Lakh

Clause-7A:- Whether clause 7A shall be applicable : Yes**Clause-7B:****Applicable (Authority letter to be given by contractor as per Performa at page no. 65)****Clause-10A:-**

List of testing equipment to be provided by the contractor at site lab.

As per direction of Engineer-in-charge.

Clause-10-B (ii)

Whether clause 10-B (ii) shall be applicable

: No

Clause 10 C

Competent of labour expressed as percent of total value of work.

: Not Applicable

Clause-10-CC:- Clause 10CC to be applicable in Contracts with stipulated period of

: Not Applicable

completion exceeding the period.

Clause-11:- Specifications to be followed for execution of work : C.P.W.D. Specifications 2019 Vol.-I & II with up to date correction slips i/c special conditions.

Clause-12:-

Type of Work: : **Maintenance Work**
Authority of decide deviation up to 1.5 times of Tendered amount : **Superintending Engineer-Karnal Circle as per financial power or successor thereof**

12.2-C Deviation limit beyond which clause 12.2 (c) shall apply : No Limit
for Building work
(i) Deviation limit beyond which Clause 12. 2 (c) shall apply : No Limit
for foundation works
(except earth work Sub-Head in DSR)
(ii) Deviation limit for items mention in earth work. Sub-Head of DSR or related items : No Limit

a) The completion cost shall, in no case, exceed 1.5 times the contract amount.

Contractor will devise a system to keep a watch on quantum of work taken up vis-a-vis balance items required to complete defined scope of work and will give the alerts to Engineer-in-Charge before taking up extra items, deviations so that completion cost does not exceed above limit. Work executed beyond above limit will neither be recorded nor be paid. Engineer-in-Charge will verify and confirm the alerts before assigning deviations and / or extra items to the contractor. If additional work(s) is required to complete defined scope of work beyond above limit then Engineer-in Charge may take up such work(s) separately. The contractor will not have any claims whatsoever on this account.

b) The payment of extra/substituted items born on DSR shall be paid as per DSR rates applicable to the agreement plus prevailing cost index and plus / minus %age above or below of quoted contract amount.

The payment of the non scheduled extra items shall be paid as per clause 12.2 DG/CON/Construction 2023/03 dated 06.12.2023.

Clause-16:- Competent Authority for deciding reduced rates. : The Superintending Engineer Karnal Circle, CPWD, Karnal

Clause-18:-

List of mandatory machinery tools & Plants to be deployed by the Contractor at site : As per direction of Engineer-in-charge.

Clause 19 C:-

Authority to decide penalty for each Default : Executive Engineer-Karnal, CPWD, Karnal or his successor thereof

Clause 19 D:-

Authority to decide penalty for each : Executive Engineer- Karnal, CPWD,
default Karnal or his successor thereof

Clause 19 G:-

Authority to decide penalty for each : Executive Engineer- Karnal, CPWD,
default Karnal or his successor thereof

Clause 19 K:-

Authority to decide penalty for each : Not applicable

Clause 25

- (i) Conciliator ... : SDG
(ii) Arbitrator : SDG
(iii) Place of Arbitration..... : Karnal

Clause-32 (i): Requirement of Technical Representative(s) and Recovery Rates

S. No.	Minimum Qualification of Technical Representative	Discipline	Designation	Minimum Experience	Number	Rate at which recovery shall be made from contractor in the event of non- deployment.	
						Figures	Words
1.	Graduate Engineer or Diploma Engineer	Civil	Project Manager Cum Planning/Quality/ Site/Building Engineer	2 Years or 5 Years respectively	1 No.	15000/- per month	Rupees Fifteen Thousand Only per month

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

Diploma holder with minimum 10 years relevant experience with a reputed construction co. can be treated at par with Graduate Engineers for the purpose of such deployment subject to the condition that such diploma holders should not exceed 50% of requirement of degree engineers. The contractor shall submit a certificate of such employment of the technical representative(s) (in the form of copy of Form-16 or CPF deduction issued to the Engineers employed by him) along with every account bill/final bill and shall produce evidence if at any times so required by the Engineer-in-charge.

Clause-38:-

- i) Schedule / Statement for determining : **As per Delhi Schedule of Rates 2023 with**
theoretical quantity of cement & bitumen amendments up to the last date of
submission of bids.
- ii) Variations permissible on theoretical quantities.
- a) Cement for works with estimated cost : 3% plus / minus.
put to tender for not more than 25 Lakh.
- b) Cement for works with estimated cost : 2% plus / minus.
put to tender for more than 25 Lakh.
- c) Steel Reinforcement and structural : 2% plus / minus.

Correction – Nil

Insertion – Nil

Deletion - Nil

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steel sections for each diameter,
section and category.

- d) All other materials. : Nil
- e) Bitumen for all work. : 2.5% Plus side only and NIL on minus side.

RECOVERY RATES FOR QUANTITIES BEYOND PERMISSIBLE VARIATION

S. No.	Description of item	Rates in figure and words at which recovery shall be made from the contractor	
		Excess beyond permissible variation	Less use beyond the permissible variation
1	Cement (PPC)	NA	Not allowed Work shall not be accepted
2	Reinforcement bars(TMT) (a)Primary Producer	NA	
3	Structural steel	NA	

Assistant Engineer (P)
CPWD, Karnal

Executive Engineer
CPWD, Karnal

Undertaking on Rs. 100/- Non Judicial Stamp Paper.

I/We undertake and confirm that our firm/partnership firm has not been blacklisted and/or debarred by CPWD, MoUHA or Ministry of Finance. Further that, if such information comes to the notice of the department, then I/we shall be debarred for bidding in CPWD in future forever. Also, if such information comes to the notice of department on any day before date of start of work, the Engineer-in-Charge shall be free to cancel the agreement and to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee/ Additional Performance Guarantee (Scanned copy of this notarized affidavit to be uploaded at the time of submission of bid).

(To be attested by notary)

Date

Signature of Agency

SPECIAL CONDITIONS

1.0 General

- 1.1 Except for the items, for which Particular Specifications are given or where it is specifically mentioned otherwise in the description of the items in the schedule of quantities, the work shall generally be carried out in accordance with the "CPWD Specifications" and as per instructions of Engineer-in-Charge. Wherever CPWD Specifications are silent, the latest IS Codes / Specifications shall be followed and the rates should be all inclusive.
- 1.2 Any reference made to any Indian Standard Specifications, shall imply to the latest version of that standard, including such revisions / amendments as issued by the Bureau of Indian Standards upto last date of receipt of tenders. **The Contractor shall keep at his own cost all such publications including relevant Indian Standard applicable to the work at site.**
- 1.3 The work shall be executed and measured as per metric dimensions given in the Schedule of Quantities, drawings etc. (FPS units wherever indicated are for guidelines only).
- 1.4 The work should be planned in a systematic manner so that chase cuttings in the walls, ceilings and floors is minimized. Wherever absolutely essential, the chase shall be cut using chase cutting machines. Chases will not be allowed to be cut using hammer / chisel. The electrical boxes should be fixed in walls simultaneously while raising the brick work. The contractor shall ensure proper co-ordination of various disciplines viz. sanitary & water supply, horticulture & electrical etc.
- 1.5 All the hidden items such as water supply lines, drainage pipes, conduits, sewers etc. are to be properly tested before covering.
- 1.6 Samples including brand / quality of materials and fittings to be used in the work shall be got approved from the Engineer-in-Charge, well in advance of actual execution and shall be preserved till the completion of the work.
- 1.7 Equipment like concrete pump excavators/Transit mixer etc. shall be allowed to be moved away from the site when, in written opinion of Engineer-in-Charge, the same are no longer required at site of work.
- 1.8 The contractor, his agents / representative, workman etc. shall strictly observe orders pertaining to fire precautions prevailing in the area.
- 1.9 Contractor(s) shall study the soil investigation report for the site, available in the office of the Engineer-in-Charge and satisfy himself about complete characteristics of soil and other parameters at site. However, no claim on the alleged inadequacy or incorrectness of the soil data supplied by the department shall be entertained.
- 1.10 The tenderer shall see the approaches to the site. In case any approach from main road is required at site or existing approach is to be improved and maintained for cartage of materials by the contractor, the same shall be provided, improved and maintained by the contractor at his own cost.
- 1.11 Contractor shall take all precautionary measures to avoid any damage to adjoining property. All necessary arrangement shall be made at his own cost.
- 1.12 The contractor shall take all precautions to avoid accidents by exhibiting necessary caution boards day and night, speed limit boards, red flags, red lights and providing barriers. He shall be responsible for all damages and accidents caused to work due to negligence on his part. No hindrances shall be caused to traffic, during the execution of the work.
- 1.13 The contractor shall take instructions from the Engineer-in-Charge regarding collection and stacking of materials at any place. No excavated earth or building rubbish shall be stacked on areas where other buildings, roads, compound wall, services etc are to be constructed.
- 1.14 The contractor shall provide at his own cost suitable weighing, surveying and leveling and measuring arrangements as may be necessary at site for checking. All such equipments shall be got calibrated in advance from laboratory, approved by the Engineer-in-Charge. Nothing extra shall be payable on this account.

- 1.15 Contractor shall provide permanent bench marks, flag tops and other reference points for the proper execution of work and these shall be preserved till the end of work. All such reference points shall be in relation to the levels and locations, given in the Architectural and plumbing drawings.
- 1.16 Water tanks, taps, sanitary, water supply and drainage pipes, fittings and accessories should conform to byelaws and municipal body / corporation where CPWD Specifications are not applicable. The contractor should get the materials (fixtures/fittings) tested by the Municipal Body / Corporation authorities wherever required at his own cost.
- 1.17 The work shall be carried out in accordance with the Architectural drawings and Structural drawings, to be issued from time to time, by the Engineer-in-Charge. Before commencement of any item of work, the contractor shall correlate all the relevant architectural and structural drawings issued for the work, nomenclature of items, specifications etc. and satisfy himself that the information available there from is complete and unambiguous. The figures & the written dimensions of the drawing shall supercede the measurement by scale. The discrepancy, if any, shall be brought to the notice of the Engineer-in-Charge for immediate decision before execution of the work. The contractor alone shall be responsible for any loss or damage occurring by the commencement of work on the basis of any erroneous and/ or incomplete information and no claim, whatsoever shall be entertained on this account.
- 1.18 The Architectural drawings other than those indicated in nomenclature of items are only indicative of the nature of the work and materials/fittings involved unless and otherwise specifically mentioned.
- 1.19 The contractor should submit the shop drawing of staging and shuttering for approval of Engineer-in-Charge before actually commencing the execution of work under the item. Nothing extra shall be payable on this account.
- 1.20 Other agencies may also simultaneously execute and install the works and the contractor shall afford necessary facilities for the same. The contractor shall leave such recesses, holes, openings, trenches etc. as may be required for such related works (for which inserts, sleeves, brackets, conduits, base plates, clamps etc. shall be available as specified elsewhere in the contract) and the contractor shall fix the same at the time of casting of concrete, stone work and brick work, if required, and nothing extra shall be payable on this account.
- 1.21 The contractor shall conduct his work, so as not to interfere with or hinder the progress or completion of the work being performed by other contractor(s) or by the Engineer-in-Charge and shall as far as possible arrange his work and shall place and dispose off the materials being used or removed so as not to interfere with the operations of other contractor or he shall arrange his work with that of the others in an acceptable and coordinated manner and shall perform it in proper sequence to the complete satisfaction of others.
- 1.22 All material shall only be brought at site as per program finalized with the Engineer-in-Charge. Any pre-delivery of the material not required for immediate consumption shall not be accepted and thus not paid for.
- 1.23 The contractor shall procure the required materials in advance so that there is sufficient time for testing of the materials and approval of the same before use in the work.
- 1.24 Existing drains, pipes, cables, over-head wires, sewer lines, water lines and similar services encountered in the course of the execution of work shall be protected against the damage by the contractor at his own expense. The contractor shall not store materials or otherwise occupy any

part of the site in a manner likely to hinder the operation of such services. In case temporary supporting/shifting of such services is required to facilitate the work, the same shall be done by the contractor at no extra cost.

In case the existing services are to be shifted permanently, then before dismantling the existing services, alternate/diversion of service lines has to be laid by the contractor so that there is no interruption in use of existing services. The contractor has to plan the alternate suitable route for diversion/shifting of service lines and get the same approved from the Engineer-in-Charge before

starting shifting of services. Nothing extra shall be paid except the payment of dismantling and laying of new service lines as per conditions of contract.

- 1.25 The contractor shall be responsible for the watch and ward / guard of the buildings, safety of all fittings and fixtures including sanitary and water supply fittings and fixtures provided by him against pilferage and breakage during the period of installations and thereafter till the building is physically handed over to the department. No extra payment shall be made on this account.
- 1.26 The contractor shall be fully responsible for the safe custody of materials brought by him/ issued to him even though the materials may be under double lock key system.
- 1.27 For construction works which are likely to generate malba / rubbish to the tune of more than a tempo / truck load, contractor shall dispose of malba, rubbish & other unserviceable materials and wastes at his own cost to the notified specified dumping ground and under no circumstances these shall be stacked / dumped even temporarily, outside the construction premises.
- 1.28 The excavated surplus earth shall be dispose off by the contractor as per directions of Engineer-in-Charge.

1.29 BATCH MIX CONCRETE

- 1.29.1 The contractor shall establish a laboratory at site of batch mix plant to test the coarse aggregate, fine aggregate, water, sand, cement etc. Contractor is also required to depute technical personnel specifically for running of Batch Mix Plant and for quality control of mix produced.
- 1.29.2 All incidental expenditure on security, construction of cement godown, access roads, arrangement of water, electricity etc. to be incurred or anticipated by the agency for arranging, installing and operation of Batch Mix Plant shall be deemed to have been included in his quoted rates and no claim whatsoever will be tenable on this account.
- 1.30 With each Running Bill, the details of test carried out shall be submitted by the contractor as per proforma at **Page-59**.
- 1.31 ~~On completion of work, the contractor shall submit at his own cost four prints of "as built" drawings to the Engineer-in-Charge as per direction.~~
 - a) ~~Run off of all piping and their diameters including soil, waste pipes and vertical stacks.~~
 - b) ~~Ground and invert level of all drainage pipes together with locations of all manholes and connections, upto out fall.~~
 - c) ~~Run off of all water supply lines with diameters, location of control valves, access panels etc.~~

~~In case the contractor fails to supply "as built drawing" aforesaid within 30 days of the date of completion, then the recovery @ Rs.10,000/- each for such set of drawings shall be made from the contractor's final bill.~~
- 1.32 In the item of providing and fixing precast reinforced cement concrete in shelves the cost of cutting chases and making good the same shall be inclusive in the item and nothing extra shall be paid on this account.

- 1.33 In the item of finishing walls with Acrylic smooth exterior paint, only the plain/flat area shall be measured for payment and nothing extra shall be paid on account of pointed wall surface.
- 1.34 The rates quoted by the Contractor are deemed to be inclusive of site clearance, setting out work, profile, establishment of reference bench mark(s), taking spot levels, construction of all safety and protection devices, barriers, preparatory works, working during monsoon, working at all depths, height, lead, lift and location etc. unless clearly specified otherwise in the description of item in schedule of quantities of work and any other incidental works required to complete this work. Total station survey instruments only shall be used for layout, fixing boundaries, and centre lines, etc. Nothing extra shall be payable on this account.
- 2.0 Unless otherwise specified in the schedule of quantities, the rates for respective items shall be all inclusive and apply to the following: -
- (i) All lifts & all heights, floors including terrace, leads and depths.
 - (ii) All labour, material, tools and plants and other inputs involved in the execution of the item.
 - (iii) Any of the conditions and specifications mentioned in the tender documents.
 - (iv) Pumping / bailing out surface water / rain water / sub soil water, if necessary for any reason.
 - (v) Providing sunk flooring in bath-rooms, kitchen, etc.
 - (vi) Any legal or financial implications resulting out of disposal of earth, if any.
 - (vii) Payment of Royalty at the prevailing rates, if any, on the boulders, metal, shingle, sand and bajri etc. or any other material collected by him for the work direct to revenue authorities.
 - (viii) Performance test of the entire installation(s) before the work is finally accepted.
 - (ix) Any cement slurry added over base surface (or) for continuation of concreting for better bond is deemed to have been built in the items .
 - (x) All incidental charges for cartage, storage and safe custody of materials brought to site.

3.0. **TESTING OF MATERIAL: -**

- 3.1 Samples of materials required for testing shall be provided free of charge by the contractor. The cost of tests shall be borne by the contractor / department in the manner indicated below: -

Note:- All expenditure to be incurred for testing of samples e.g. packaging, sealing, transportation, loading, unloading etc. including testing charges shall be borne by the contractor. These test shall be got from list of approved laboratory for testing as approved by ADG/SDG.

- 3.2 However, if any ultrasonic pulse velocity / load testing or special testing is to be done for concrete whose strength is doubtful, the cost of the same shall be borne by the contractor.
- 3.3.1 In case there is any discrepancy in frequency of testing as given in list of mandatory tests and that in individual sub-heads of work as per CPWD Specifications higher of the two frequencies of testing shall be followed and nothing extra shall be payable on this account.

3.4 **FIELD LABORATORY**

The contractor has to establish field laboratory at site including all necessary equipments and skilled manpower for the **Field Tests as at Page-58** his own cost to have proper quality control. For performing the above tests, the **Field Testing Equipments and Instruments as at Page-58** are to be arranged and maintained by the contractor.

- 3.5. The contractor shall ensure quality construction in a planned and time bound manner. Any sub-standard material / work beyond set-out tolerance limit shall be summarily rejected by the Engineer-in-Charge & contractor shall be bound to replace / remove such sub-standard / defective work immediately.
- 3.6 The list of Laboratory/ Field equipment referred above are to be arranged and maintained by the contractor at the site of work. In case the equipment required for any test is not available at site, the department shall get the test conducted from the third party. However in that event, besides providing free materials of sample, the cost of taking of sample, packing, transportation, testing charges etc. shall be borne by the contractor irrespective of the results.

4.0 SECRECY

- 4.1 The contractor shall take all steps necessary that all persons employed on any work in connection with the contract have notice that the Indian Official Secrets Act 1923 applies to them & will continue so to apply even after the execution of such works under the contract.
- 4.2 The contract in confidential and must be strictly confirmed to the contractor's own use (except so far as confidential disclosure to sub-contractors or suppliers as necessary) and to the purpose of the contract.
- 4.3 All documents, copies thereof & extracts there from furnished to the contractor shall be returned to the Engineer-in-Charge on the completion of the work / works or the earlier determination of the contract.

5.0 LABOUR AND SECURITY

- 5.1 Contractor should provide his plan for labour huts as per his requirement and get it approved from the Engineer-in-Charge. The contractor will be provided space for labour huts etc. inside the campus but the space requirement and location, as assessed by Engineer-in-Charge shall be final and binding.
- 5.2 Contractor has to follow the security requirement of the campus and obtain necessary entry passes for the labour and vehicles and follow security checks at entry / exit gates, restriction on movement of vehicle, restricted timings of working etc. The Department however shall assist the contractor in obtaining such passes for movement of vehicles and labour. No claim whatsoever shall be entertained on account of delay in entry of vehicles and labour including restrictions in working hours, if there is any.
- 5.3 The contractor shall employ only Indian Nationals after verifying their antecedents and loyalty. The contractor shall, on demand submit list of his agents, employees and work people concerned & shall satisfy as to the bonafides of such people.
- 5.4 The contractor & his work people shall observe all relevant rules regarding security promulgated in which work is to be carried out by the Controlling Administrative Authority of the campus/area (hereinafter referred to as "Administrator").
- 5.5 The contractor, his representative, workman shall be allowed to enter through specified gates & timing as laid down by the controlling authority. They shall be issued an identity card or an individual pass in accordance with the standing rules & regulations & they should possess the same while working. The contractor shall be responsible for the conduct & actions of his workman, agents / representatives.
- 5.6 Normally contractor shall be allowed to carryout work between 7 AM to 6 PM. However, he may also be allowed to carryout the work beyond 6 PM & upto 7 AM if the site conditions / circumstances so demand with prior written permission from the "Administrator". However, if the work is carried out in more than one shift or at night, no claim on this account shall be entertained.

- 5.7 Normally contractor's material / vehicles etc shall be allowed to move in / go-out between 7 AM to 7 PM only & no movement of material / vehicles out of site of work shall be allowed during night hours unless specific permission is obtained from the "Administrator".
- 5.8 In case if a separate entry has been allowed, the contractor has to make all arrangement for making a separate entry gate and barricading of the working area to segregate/separate the same from other areas. All these have to be done by the contractor at his own cost including safeguarding any untoward incident in the restricted area due to separate entry gate and barricading arranged by the contractor. No extra amount on this account shall be payable by the department.

6.0 TRANSPORTATION AND OFFICE INFRASTRUCTURE:

- 6.1 In order to complete the work within the scheduled time if the contractor shall be required to do the work in more than one shift and accepted by the department the contractor will provide vehicular facilities to the CPWD site staff to reach the site and their residence at his own cost for their services required beyond the normal office hours. In case the contractor fails to provide the facilities Engineer-in-Charge shall be at liberty to make the arrangement themselves and deduct the respective cost from the contractor's bills.

~~7.0 PROGRAM CHART:-~~

- ~~7.1 The Contractor shall prepare an integrated program chart for the execution of work, showing clearly all activities from the start of work to completion, with details of manpower, equipment and machinery required for the fulfillment of the program within the stipulated period or earlier and submit the same for approval of the Engineer in Charge within **15 days** of the issue of letter of acceptance for the contract.~~
- ~~7.2 The work has to be completed in stages as indicated in the **Milestones under Schedule 'F'** and the program should be prepared in such a manner to achieve these Milestones as indicated therein or earlier.~~
- ~~7.3 The program chart should include the following:-~~
- ~~a) Descriptive note explaining sequence of various activities.~~
 - ~~b) Network (PERT / CPM / BAR CHART) which will indicate resources in financial terms, manpower and specialized equipment for every important stage.~~
 - ~~c) Program for procurement of materials by the contractor.~~
 - ~~d) Program of procurement of machinery / equipments having adequate capacity, commensurate with the quantum of work to be done within the stipulated period, by the contractor.~~
- ~~7.4 If at any time, it appears to the Engineer in Charge that the actual progress of work does not conform to the approved program referred above, the contractor shall produce a revised program showing the modifications to the approved program by additional inputs to ensure completion of the work within the stipulated time.~~
- ~~7.5 The submission of revised program or approval by the Engineer in Charge of such program or the furnishing of such particulars shall not relieve the contractor of any of his duties or responsibilities under the contract. This is without prejudice to the right of Engineer in Charge to take action against the contractor as per terms and conditions of the agreement.~~

~~Notwithstanding the fact that the contractor will have to pay to the labourers and other staff engaged directly or indirectly on the work according to the provisions of the labour regulations and the agreement entered upon and/or extra amounts for any other reason.~~

8.0 PROGRESS AND MONITORING OF WORK:

Contractor shall give the Engineer-in-Charge on the 10th day of each month, progress report of the work done during the previous month. Such progress report will include the project progress summary, work progress (planned v/s. actual), PERT chart, milestone status, financial progress status, manpower deployment status, important materials consumed, materials at site at the beginning of the month, materials consumed during the month and the balance quantities at the end of month and progress of the work stating the reasons for shortfall, if any including the steps and measures to be taken for making good the shortfall in the succeeding period. Non submission of aforesaid progress report shall make contractor liable for action under breach of contract conditions.

9.0 SAMPLE OF MATERIALS:-

9.1 All materials and fittings brought by the contractor to the site for use shall conform to the samples approved by the Engineer-in-Charge which shall be preserved till the completion of the work. If a particular brand of material is specified in the item of work in Schedule of Quantity, the same shall be used after getting the same approved from Engineer-in-Charge. Wherever brand / quality of material is not specified in the item of work, the contractor shall submit the samples as per **List of Preferred Makes as at Page 61-64** for approval of Engineer-in-Charge. For all other items, ISI Marked materials and fittings shall be used with the approval of Engineer-in-Charge. Wherever ISI Marked material / fittings are not available, the contractor shall submit samples of materials / fittings manufactured by firms of repute conforming to relevant Specifications or IS codes for the approval of Engineer-in-Charge.

9.2 To avoid delay, contractor should submit samples as stated above well in advance so as to give timely orders for procurement. If any material, even though approved by Engineer-in-Charge is found defective or not conforming to specifications shall be replaced / removed by the contractor at his own risk & cost.

9.3. BIS marked materials except otherwise specified shall also be subjected to quality test besides testing of other materials as per the specifications described for the item/material. Wherever BIS marked materials are brought to the site of work, the contractor shall, furnish manufacturer's test certificate or test certificate from approved testing laboratory to establish that the material procured by the contractor for incorporation in the work satisfies the provisions of specifications relevant to the material and / or the work done.

BIS marked items (except cement & steel for which separate provisions have been made in para 10.0) required on the work shall be got tested, for only important tests, which govern the quality of the product, as decided by the Engineer-in-Charge. The frequency of such tests (except the mandatory test) shall be 5% of the frequency as specified in BIS. For mandatory test, frequency shall be as specified in the CPWD Specifications

9.4 For certain items, if frequency of tests is neither mentioned in the CPWD Specifications & BIS, then tests shall be carried out as per decision of Engineer-in-Charge.

10.0 CEMENT & STEEL REINFORCEMENT (IF NOT STIPULATED TO BE SUPPLIED BY THE DEPARTMENT).

10.1 Contractor has to produce manufacturers test certificate for each lot of Cement & Steel Reinforcement procured at site.

10.2 CEMENT:-

10.2.1 The contractor shall procure 43 Grade Ordinary Portland Cement and/or Portland Pozzolona Cement (Fly Ash based), required in the work from reputed manufacturers of cement as per the approved make in 50 kg. bags bearing manufacturer's name and ISI marking, along with manufacturers test certificate for each lot. Portland Pozzolona Cement is to be used for RCC works subject to fulfillment of conditions of circular number CDO / SE (RR) / fly ash (MAN) 02 dated 09.04.09. In case contractor / firm uses OPC only nothing extra shall be paid.

- 10.2.2 Samples of cement arranged by the contractor shall be taken by the Engineer-in-Charge and got tested in accordance with provisions of relevant BIS Codes. The cement for such testing purpose shall be supplied by the contractor free of charge. In case test results indicate that the cement arranged by the contractor does not conform to the relevant BIS Codes, the same shall stand rejected and shall be removed from the site by the contractor at his own cost within a week's time of written order from the Engineer-in-Charge to do so. The cost of tests shall be borne in the manner indicated below:

All expenditure to be incurred for testing of samples e.g. packaging, sealing, transportation, loading, unloading etc. including testing charges shall be borne by the contractor. These test shall be got from list of approved laboratory for testing as approved by ADG/SDG.

- 10.2.3 OPC/ PPC shall be brought at site in bulk supply of approximately 30 tonnes or as decided by the Engineer-in-Charge.

- 10.2.4 OPC/ PPC bags shall be stored in separate godowns. Separate godowns for tested cement and fresh cement (under testing) to be constructed by the contractor at his own cost as per sketches given in C.P.W.D Specifications having weather-proof roofs and walls. The size of the cement godown is indicated in the sketches for guidance. The actual size of godown shall be as per site requirements and nothing extra shall be paid for the same. Each godown shall be provided with a single door with two locks. The keys of one lock shall remain with Engineer-in-Charge of the work and that of other lock with the authorized agent of the contractor at the site of work so that the cement is issued from godown according to the daily requirement with the knowledge of both parties. The account of daily receipt and issue of cement shall be maintained in a register in the prescribed proforma and signed daily by the contractor or his authorized agent and Engineer-in-Charge or his authorized representative in token of its correctness. The day to day receipt and issue accounts of different grade/brand of cement shall be maintained separately in the standard proforma by the contractor or his authorized representative which shall be duly signed by the authorized representative of the Engineer-in-Charge before issue to the work on day to day basis.

The capacity of each cement go-down shall be 1000 bags of cement or more as decided by the Engineer-in-Charge and shall be constructed by the contractor at site of work and at the site of batching plant for which no extra payment shall be made. The contractor shall be responsible for the watch and ward and safety of the cement go-downs. The contractor shall facilitate the inspection of the cement go-downs by the Engineer-in-Charge at any time.

- 10.2.5 The actual issue and consumption of cement on work shall be regulated and proper accounts maintained as provided in the contract. The theoretical consumption of cement shall be worked out as per procedure prescribed in Clause-38 of the contract and shall be governed by the conditions laid therein.

- 10.2.6 If the quantity of cement actually used in the work is found to be more than the theoretical quantity of cement including authorized variation, nothing extra shall be payable to the contractor on this account. In the event of it being discovered that after the completion of the work, the quantity of cement used is less than the quantity ascertained as herein before provided (allowing variation on the minus side as stipulated in Clause - 38), the cost of quantity of cement not so used shall be recovered from the contractor as specified in schedule. Decision of the Engineer-in-Charge in regard to theoretical quantity of cement which should have been actually used as per the schedule and recovered at the rate specified, shall be final and binding on the contractor.

For non-scheduled items, the decision of the Superintending Engineer regarding theoretical quantity of the cement, which should have been actually used, shall be final and binding on the contractor.

- 10.2.7 Cement brought to site and cement remaining unused after completion of work shall not be removed from site without written permission of the Engineer-in-Charge.

- 10.2.8 In case the contractor brings surplus quantity of cement the same shall be removed from the site after completion of work by the contractor at his own cost after approval of the Engineer-in-Charge.

10.2.9 Cement, which is not used within 90 days from its date of manufacture, shall be retested at approved laboratory. Until the results of such tests are found satisfactory, it shall not be used on the work.

10.3 STEEL REINFORCEMENT: -

10.3.1 The contractor shall procure Thermo Mechanical Treated (TMT) Steel Reinforcement bars of Fe500D grade or more from Primary producers such as SAIL or Rashtriya Ispat Nigam Ltd. or TISCO as approved by Ministry of Steel. In case of non availability of steel from Primary Producers, the NIT approving authority may permit use of TMT reinforcement bars produced from Secondary Producers. Approved Secondary producers, if any, shall be in accordance with those appearing in “**LIST OF PREFERRED MAKES**” on **page-61**. **Subject to fulfilling the following conditions:**

- a) The grade of the steel shall be Fe500D as per BIS 1786-2008.
- b) The secondary producers have valid BIS licence to produce HSD bars conforming to IS 1786: 2008. In addition to BIS licence, the secondary producer must have valid licence from either of the firms Tempcore, Thermax, Evcon Turbo & Turbo Quench to produce TMT bars.
- c) The TMT bars procured from primary producers shall conform to manufacture's specifications.
- d) The TMT bars procured from secondary producers **(in case primary producer TMT bar not available)** shall conform to the specifications as laid by Tempcore, Thermax, Evcon Turbo & Turbo Quench as the case may be. **With prior approval of Engineer-In-Charge**
- e) TMT bars procured either from primary producers or secondary producers, the specifications shall meet the following provisions of IS 1786: 2008 pertaining to Fe500D grade of steel:

Samples shall also be taken and got tested by the Engineer-in-Charge as per the provisions in this regard in relevant BIS codes. In case the test results indicate that the steel arranged by the contractor does not conform to the specifications, as defined under para 10.3.1 (d) and (e) above, the same shall stand rejected, and it shall be removed from the site of work by the contractor at his cost within a week time or written orders from the Engineer-in Charge to do so: -

10.3.2 In case if contractor uses TMT reinforcement bars procured from **SECONDARY PRODUCERS** then:

- (i) The base price of TMT reinforcement bars as stipulated under schedule 'F' shall be reduced by **Rs. 3.10 per Kg.**
- (ii) The rate of providing & laying TMT reinforcement bars as quoted by the contractor in the tender shall also be reduced by **Rs. 3.60 per Kg.**

The contractor shall submit original vouchers from the manufacturer for the total quantity of steel supplied under each consignment to be incorporated in the work. All consignment received at the work site shall be inspected by the Site staff along with the relevant documents before acceptance. The contractor shall obtain Original Vouchers and Test Certificates and furnish the same to the Engineer-in-Charge in respect of all the lots of steel brought by him from approved supplier to the site of work. The original vouchers and test certificates shall be defaced by the Site staff and kept on record in the site office.

- 10.3.3 The steel reinforcement shall be brought in bulk supply of 20 tonnes or more or as decided by the Engineer-in-Charge alongwith manufacturer test certificate for each lot.
- 10.3.4 The steel reinforcement shall be stored by the contractor at site of work about 30cm. to 45 cm. above ground. A coat of cement wash shall be given to steel bars when stored at site for long duration so as to prevent corrosion. Nothing extra shall be paid on these accounts. Bars of different sizes and lengths shall be stored separately to facilitate easy counting and checking.
- 10.3.5 The contractor shall have to obtain and furnish test certificates to the Engineer-in-charge in respect of all supplies of steel brought by him to the site of work.
- Samples shall also be taken and got tested by the Engineer-in-Charge as per the provisions in this regard in relevant BIS codes. In case the test results indicate that the steel arranged by the contractor does not conform to the specifications .the same shall stand rejected, and it shall be removed from the site of work by the contractor at his cost within a week time on written orders from the Engineer-in-Charge to do so.
- 10.3.6 The Actual issue and consumption of steel on work shall be regulated and proper account maintained as per provision of the contract. The theoretical consumption of steel shall be worked out as per procedure prescribed in Clause 38 of the contract and shall be governed by conditions laid therein.
- 10.3.7 Steel brought to site and steel remaining unused shall not be removed from site without the written permission of the Engineer-in-Charge.
- 10.3.8 In case the contractor bring surplus quantity of steel, the same after completion of the work will be removed from the site by the contractor at his own cost after approval of the Engineer-in- Charge.
- 10.3.9 Reinforcement including authorised spacer bars and lappages shall be measured in length of different diameters as actually (not more than as specified in the drawings) used in the work nearest to a centimetre. Wastage and unauthorized overlaps shall not be measured.
- 10.3.10 The standard sectional weights referred to as in Table IV in para 5.3.3 in CPWD Specifications will be considered for conversion of length of various sizes of M.S. Bars, Tor Steel Bars and T.M.T.bars into Standard Weight.
- 10.3.11 Records of actual Sectional weights shall also be kept dia-wise and lot-wise. The average sectional weight for each diameter shall be arrived at from samples from each lot of steel received at site. The decision of the Engineer-in-Charge shall be final for the procedure to be followed for determining the average sectional weight of each lot. Quantity of each diameter of steel received at site of work each day will constitute one single lot for the purpose. The weight of steel by conversion of length of various sizes of bars based on the actual weighted average sectional weight shall be termed as Derived Actual Weight. However for the stipulated issue of steel reinforcement up to and including 10mm diameter bars, the actual weight of steel issued shall be modified to take into account the variation between the actual and the standard coefficients and the contractors' accounts will be debited by the cost of modified quantity.

- 10.3.12 a) If the Derived Weight as in sub-para (10.3.11) above is less than the Standard Weight as in Sub-para (10.3.10) above then the Derived Actual Weight shall be taken for payment, provided it is

within the following tolerances, otherwise whole lot will be rejected:

Tolerances on Nominal Mass			
Nominal Size in mm	Tolerance on Nominal mass Percent		
	Batch	Individual sample +	Individual sample for coil*
a) Upto and including 10	± 7	-8	± 8
b) Over 10 upto and Including 16	± 5	-6	± 6
c) Over 16	± 3	-4	± 4

+ For individual sample plus tolerance is not specified.

* For coils batch tolerance is not specified.

- a) If the Derived Actual Weight is found more than the Standard Weight, the Standard Weight as per in sub-para (10.3.10) above shall be taken for payment. In such case nothing extra shall be paid for the difference between the Derived Actual W

b) eight and the Standard Weight.

11.0 ENGAGING SPECIALISED AGENCIES FOR WORKS: -

- 11.1 The Contractor shall engage specialized agency unless otherwise approved by any Government Department having adequate technical capability and experience of having executed at least one work of similar items of 80% or more magnitude or two works of similar items of minimum 60% magnitude or three works of similar items of minimum 40% magnitude individually for executing the following items of the work and/or any other items of work where specialized firm is required to be engaged as per contract conditions. For determining the required magnitude, the value of the work executed may be suitably enhanced with the prevailing approved cost index.

- i) Anti Termite treatment work.
- ii) Factory made Wooden Shutters of all types except Flush Doors.
- iii) Water proofing treatment work of all types.
- iv) Tubewell installations
- v) Overhead Tank.
- vi) Aluminium Work
- vii) Internal Electrical Installations
- viii) Pile foundation

- 11.2 The Specialized agency for the work shall be got approved from the Engineer-in-Charge well before actual commencement of the item of work. The contractor shall submit the list of Specialized agencies except for Internal Electrical Installation, proposed to be engaged by him along with necessary performance certificates, within 30 days from the date of issue of acceptance letter to substantiate technical capability and experience of the agency for prior approval of the Engineer-in-Charge.

- 11.3.1 For Internal Electrical Installation work as contained in the Electrical component work under Section VII, the Electrical Agency to be associated shall be of appropriate class of CPWD. Provisions mentioned under Sr. No. 11.1 above are not applicable for engagement of Electrical Agency. However contractor shall submit MOU to Executive Engineer (Elect.) in-charge, signed with eligible Electrical Contractor/Agency along with consent letter of Electrical Agency **at least 7 days before the last date of submission of Performance Guarantee & Performance Guarantee.**

- 11.3.2 In case the Contractor intends changing the above agency for the work during the operation of the Contract, he shall obtain prior approval of the Engineer-in-Charge. The new agency also shall have to satisfy the conditions prescribed in **Para 11.3.1** above. In case the Engineer-in-Charge is not satisfied with the performance of the agency during the currency of the contract, he shall have the

option to direct the contractor to change the agency executing these works, which shall be binding upon him.

- 11.4 For the specialized item of Polypropylene Pipes the contractor shall engage such vendors as approved by the manufacturer. Provisions mentioned under Sr. No. 11.1 above not applicable for Polypropylene Pipes.
- 11.5 The conditions of approval of specialized agency shall be final and binding on the contractor and he shall comply with such conditions of approval.

12.0 ~~SAMPLE QUARTER/ ROOM/Dormitory:-~~

~~The contractor shall construct a sample quarter/ room complete in all respects including all Civil and Electrical details/ fixtures, as contained in "Table of Mile Stone(s)" (Page-19). The sample quarter/ room shall be inspected and approved by the Engineer in Charge. Slight changes with regard to the fixtures/ fittings/ details/ dimensions etc. may occur as per the actual requirement or in order to enhance the functionality of the product or the unit. Thus, the procurement for all the internal fittings/fixtures/ fabricated material and other material etc. shall be done by the contractor only after the approval of the sample quarter/room.~~

13.0 Defect liability:

- 13.1 The contractor's liability during the defect liability period from the final date of completion as per clause 17 shall be limited to rectification of defects including replacement as follows which in the opinion of Engineer-in-Charge are not man made.

	Description	Defect Liability
	Anti termite treatment.	(a) Termites found if any till guarantee period to be rectified through post ATT.
	Concrete	(a) Rectification of structural / superficial / non-structural cracks. (b) Rectification of dampness / seepage in roof slab / junctions & sunken portion. (c) Rectification of cracks in beam, shade, column.
	Brick work	(a) Rectification of cracks in panel wall / portion. (b) Cracks / settlement of dwarf walls. (c) Rectification of efflorescence.
	Joinery	(a) Replacement of warped joinery. (b) Cracks in panels, rails / styles etc.
	Builders Hardware	(a) Repairs / Replacement of loosened / pre-mature failure of fittings. (b) Tightening / Replacement of sag in mosquito proofing.
	Steel & Iron work	(a) Rectification / Replacement of defective part of rolling shutter. (b) Redoing of defective portion in fabrication / welding including painting. (c) Steel windows, grills, gates etc. – defects to be rectified.
	Roof treatment	(a) Rectification of leakage / seepage of roof slab including covering at junc guarantee period.
	Plastering	(a) Rectification of structural / superficial cracks if any. (b) Rectification of protruding / peeling off plaster if any. (c) Rectification of efflorescence
	Flooring	(a) Rectification of sinking portion of plinth protection including saucer drain. (b) Settlement of foundation & floors.

	Description	Defect Liability
	Plumbing / Sanitary fittings	(a) Making good of leakage through soil / waste pipe joints. (b) Replacement of looking mirror if found wavy. (c) Rectification of leakage of over head tanks. (d) Leakage / seepage of sunken floor, blockage of taps / pipes, non-functioning of cistern.
	Finishes	(a) Making good of defective / dissimilar patches of painting to match with remaining surfaces.
	Internal Water Supply	(a) Repairs / Replacement of defective taps / fittings. (b) Repair to leakage of GI water pipe lines including joints. (c) Removal of blockage of GI pipe lines.
	Roads	(a) Repair of sinking portion of road & potholes, if any
	Sewage	(a) Rectification of slope / system if found defective during use. (b) Rectification of major blockage in Sewer lines. (c) Cracks & settlement of sewage lines.
	Drains	(a) Repair to Drains. (b) Settlement of Drains
	External Water Supply	(a) Repairs to installations & fittings.
	General	(a) All manufacturing defects of structures / fixtures / fittings / equipments other than listed above.

14.0 INSTALLATION OF TUBEWELL

- 14.1 The department reserves the right to abandon a particular tube well due to lack of sufficient water bearing strata and the contractor will be paid for the item executed at the respective quoted rates. In case tube well is to be abandoned due to negligence of the contractor, nothing will be paid to the contractor. The decision of the Engineer-in-Charge will be final and binding on the contractor.
- 14.1.2 The recommendation regarding slot size of the strainer, location of the strainer will be given by the contractor. However, the final decision regarding the same will be of Engineer-in-Charge
- 14.2 The contractor will not lower the assembly until and unless the size of screen and the design of the assembly are approved by the Engineer-in-Charge. In case he lowers the assembly without the approval of the Engineer-in-Charge, the same will not be paid. The agency shall submit the proposal for lowering of assembly along with the Strata Chart, Electric Log-in Report, and Sieve Analysis Graph etc. to Engineer-in-Charge for necessary approval. The lowering of assembly should be done in the presence of Engineer-in-Charge or his authorized representative.
- 14.3 The tube well should be handed over to the department in the complete shape. The housing pipe should be closed by a well cap for the period between the completion of the tube well and the installation of the pump set. The cap should be of such design that it is easily removable causing no damage to the housing pipe.
- 14.4 The following information should be furnished by the drilling agency to the department on completion of the tube well;
- Strata chart of the bore hole indicating the different type of soil met with at different depth.
 - Samples of strata collected and neatly packed; correctly marked in sample bags kept in wooden sample boxes.
 - Chart of the actual pipe assembly lowered, indicating the size of pipes, depth ranges where SS screen has been used, depth and diameter of housing pipe, starting from the top of the housing pipe and also the diameter and design of bore hole.

- (d) Hours of developing by air compressor and pumping set duly certified by authorized official of the department.
 - (e) Results of the development and its draw down test on the performance of the tube well to be recorded on the prescribed proforma.
 - (f) Results of mechanical (Sieve) analysis of samples of aquifer material wherever applicable.
 - (g) Recommendations on the safe pumping yield pump set and specification for suitable pump set.
 - (h) Verticality test results to be recorded in accordance with the proforma given in relevant IS code.
- 14.5 Nothing extra will be payable for temporarily suspension of work on any ground.
- 14.6 The digging of pits for storage of water and the water required for drilling the tube well will be arranged by the contractor/firm at its own cost and nothing is payable on this account.
- 14.7 The drilling will be made to such depth, which should be sufficient to accommodate the tube well assembly.
- 14.8 The bail plug shall rest on firm strata. Before the assembly is lowered, the portion of the bore hole below the assembly shall be filled with gravel.

15.0 OVER HEAD TANK

- 15.1 The contractor shall not remove the staging/scaffolding assembled for the tank till the complete casting and successful testing of the tank. The staging/scaffolding shall be removed only after the permission of the Engineer-in-Charge.
- 15.2 After the completion of the work, the ground shall be dressed to 100 ft. radius from the centre of the tank.
- 15.3 The contractor shall make his own arrangement for electricity required for operations of vibrators, mixers, pump for dewatering, welding, testing and for general use etc.
- 15.4 The tank shall be cleaned and disinfected before handing over to the department.
- 15.5 The RCC staircase shall be constructed simultaneously along with the progress of the over head tank.
- 15.6 All the RCC surfaces shall be exposed finished unless or otherwise specified. No cement plaster will be allowed on RCC exposed surface except in the case where the Engineer-in-Charge permits to apply the same for which the extra payment shall be made.

~~15.7 SUBMISSION OF DRAWINGS AND DESIGNS~~

- ~~15.7.1 The successful tenderer shall be required to submit 3 sets of complete detailed drawings of the tank and staging within 15 days from the date of start of the work. These drawings shall be submitted to the local administration if necessary for their concurrence. The department shall extended full cooperation for getting these drawings approved by local administration but it shall be contractor's responsibility to get these drawings approved within one and half month from the date of start of work. This period will be treated as a part of the stipulated period for the completion. In case, modifications in the architectural features of the tank or staging are required for obtaining the approval of the local administration, the same shall have to be done by the contractor at his own cost and noting extra shall be paid for the same.~~
- ~~15.7.2 After the approval of drawings by local administration, the contractor shall submit within a month detailed structural design and drawings along with detailed structural design calculations in 3 sets to Engineer in Charge for approval. All details as given in this tender document shall be taken into due consideration by the contractor for preparation and submission of designs. The drawings and design calculations shall be very clear and give all necessary details so that there may not be any ambiguity. These designs shall be checked by the department. In case changes in design and drawings are~~

~~required for ensuring structural stability of the structure and water tightness of the tank, these shall be made accordingly by the contractor for which nothing extra shall be paid to him.~~

~~In case of dispute or difference of opinion, the decision of the Superintending Engineer shall be final and binding on both the parties. Approval to drawings may be given either in parts or in full by the department. Notwithstanding such approval by Engineer in Charge, the contractor shall remain fully responsible for safety, soundness and water tightness of the tank. Defects or omissions in the design and/or construction shall be made good by the contractor, without payment of any extra cost, whenever they are noticed by such remedial measures as the Engineer in Charge may decide to bring the work upto the required standards and specifications.~~

~~15.7.3 Only drawings approved by the local administration (where necessary) and the Engineer in Charge shall form the basis of the contract and shall be adopted for the execution of the work.~~

~~15.7.4 The tenderer shall submit 3 sets of completion plans after completion of the work.~~

16.0 Worker welfare cess

16.1 1% workers welfare cess shall be deducted from the contractor on tendered amount as per DG(W) letter No. 1/1/2006-07/Audit/DGW/1392-1425 dt. 17.9.2009.

17.1(a) The contractor shall deploy resources e.g. manpower, labour, T&P, Plant & Equipment etc. as per actual requirement of work. No damages/compensation shall be payable on account of idle manpower, labour, T&P, Plant and Equipment and loss of profit etc. for whatsoever reason.

17.1(b) Any cement slurry added over base surface for continuation of concreting for better bond is deemed to have been built in the items and nothing extra shall be payable and no extra cement considered in consumption on this account.

18.1 Intending bidders should have its own HOT Mix Plant or MoU signed with the owner of Hot Mix Plant who will execute the work of bituminous macadam and bituminous concrete. The Hot Mix Plant of 100-120 capacity shall have to be approved from competent authority by the contractor with 10 days of issue of acceptance letter.

18.2 No change of plant except unavoidable conditions and without approval of the Engineer-In-Charge will be allowed.

19. Special Condition For Facade Upgradation

19.1 The nature of work is facade upgradation of existing building. Thus nothing extra shall be payable on account of head load for shifting of materials for execution of all activities from ground floor to terrace.

19.2 Since it is a facade upgradation of existing building, offices /labs/classes etc. will continue in the existing floors as it is already functional and agency will ensure the cleanliness and upkeep of corridors/staircase, doors & windows and covering the existing building with green nets/safety nets wherever required and nothing extra will be paid on this account.

19.3 Contractors will require to make their own arrangement for reaching the site of work, shifting of material etc. Since running of the existing offices /labs/classes etc. will not be allowed to be disturbed, nothing extra will be paid on this account what so ever. Contractor is requested to visit the site before submitting the Bid.

19.4 Protective sheets, boards etc. shall be fixed on all existing windows, ventilators, door, to avoid the entry of dust, sand, cement, malba etc. into the building and to safeguard the existing windows, door, ventilators nothing extra will be paid on this account.

19.5 The existing labs are research premier venue of ICAR-IIWBR, Karnal and activities remain continued with targeted achievements, therefore it is imperative for the agency to ensure timely completion of the work.

19.6 Nothing extra will be paid on account of working in odd hours, which may be required for early completion of work.

PARTICULAR SPECIFICATIONS

1.0 EARTH WORK:-

1.1 Anti Termite Treatment: -

- 1.2.1 The work shall be executed by specialized agency to be approved by the Engineer in Charge.
- 1.2.2 The Chemical shall strictly conform to Specifications & shall be as per BIS covered by ISI marking. Chemical has to be of approved quality out of preferred make. 100% material has to be procured of approved make before start of work. The chemical shall be used only after due testing & if found conforming to the Specifications. Proper account has to be kept for day to day use of Chemical.
- 1.2.3 Ten years Guarantee bond in prescribed Performa attached shall be submitted by the contractor which shall also be signed by both the specialized agency and the contractor to meet their liability / liabilities under the guarantee bond. However, the sole responsibility about efficiency of anti termite treatment shall rest with the building contractor. **Ten per cent of the cost of anti termite work shall be retained as Security Deposit and the amount so deducted would be released after ten years from the date of completion of the entire work under the agreement, if the performance of the treatment/work done is found satisfactory.** If any defect/shortcoming is noticed during the guarantee period, the contractor shall rectify it within 15 days of receipt of intimation of such defects/shortcomings. In the event of failure to attend to the complaint within the specified period, the same will be got done from another agency at the risk and cost of contractor.

2.0 R.C.C. WORK:-

2.1 Design Mix Concrete.

- 2.1.1 The RCC work shall be done with Design Mix Concrete. Wherever letter M has been indicated, the same shall imply for the Design Mix Concrete. The Design Mix Concrete will be designated based on the principles given in IS: 456, 10262 & SP 23. The Conditions & Specifications stated herein shall have precedence over all conditions & specifications stated in relevant I.S. Codes/ C.P.W.D. Specifications. The concrete mix shall be designed for the specified target mean compressive strength in order to ensure that work test result do not fall below the acceptance criteria specified for the concrete mix. The Contractor shall design mixes for each class of concrete indicating that the concrete ingredients and proportions will result in concrete mix meeting the requirements specified.

(a) The contractor has to submit design mix without use of admixtures.

(b) Admixture may be added (by maintaining the minimum cement content as given under para- 2.1.3) in case of specific technical requirement so as to meet the workability / slump requirement or for any other reason but nothing extra is to be paid to contractor on account of adding admixtures.

- 2.1.2 The sources of coarse aggregate, fine aggregate, water, admixture & cement to be used in concrete work shall be identified by the contractor & he will satisfy himself regarding their conforming to the relevant specifications & their availability before getting the same approved from the Engineer-In-Charge.

- (a) **Coarse Aggregate:-**
(b) **Fine Aggregate:-**
(c) **Water:-**

As per CPWD Specifications
As per CPWD Specifications
It shall conform to requirements laid down in IS:456-2000 / Para 3.1.1 of CPWD Specifications. If on testing, water from the

source is not found fit for construction, the necessary arrangement for treatment of water shall have to be made by the contractor at the site and nothing extra shall be payable for the same.

(d) **Cement:-**

OPC of grade 43 shall conform to IS: 8112 or IS: 12330 and / or Portland Pozzolona Cement (Fly ash based), required in the work from reputed manufacturers of cement as per the approved make in 50 kg. bags bearing manufacturer's name and ISI marking, along with manufacturers test certificate for each lot. Portland Pozzolona Cement is to be used for RCC works only subject to fulfillment of conditions of circular No. CDO/SE(RR)/Fly ash (MAN) 02 dated 09.04.09 shall be used for Design Mix Concrete and shall conform to IS: 1489-Part-I. However, if the contractor uses higher grade of cement nothing extra shall be paid.

(e) **Admixture/ Plasticizer:-**

The admixture shall conform to IS: 9103. Whenever required, the admixture of approved quality & approved only shall be used to attain the required workability. Nothing extra on account of use of Admixture / Plasticizer shall be payable.

2.1.3 Water Cement Ratio and Slump:-

2.1.3.1 In proportioning a particular mix, the manufacturer/ producer/ contractor shall give due consideration to the moisture content in the aggregates, and the mix shall be so designed as to restrict the maximum free water cement ratio to less than 0.5.

2.1.3.2 Due consideration shall be given to the workability of the concrete thus produced. Slump shall be controlled on the basis of placement in different situations. For normal methods of placing concrete, maximum slump shall be restricted to 100mm when measured in accordance with IS: 1199.

Characteristic Compressive Strength compliance Requirement

Specified Grade	Mean of the Group of 4 Non-Overlapping Consecutive Test Results in N/mm ²	Individual Test Results in N/mm ²
(1)	(2)	(3)
M20 or above	$\geq f_{ck} + 0.825 \times \text{established standard deviation (rounded off to nearest 0.5 N/mm}^2)$ Or $f_{ck} + 4 \text{ N/mm}^2$, whichever is greater Where f_{ck} is characteristic compressive strength of CC Cube at 28 days	$f_{ck} - 4 \text{ N/mm}^2$
Note: In the absence of established value of standard deviation, the values given in Table may be assumed, and attempt should be made to obtain results of 30 samples as early as possible to establish the value of standard deviation.		

2.1.4 The Contractor shall engage one of the following approved laboratories / test house for designing the concrete mix in accordance with relevant IS Code and to conduct laboratory tests to ensure the target strength & workability criteria for a given grade of concrete: -

- i) National Institute of Technical Teacher Training & Research (NITTTR), Sector 26, Chandigarh.
- ii) Punjab Engineering College, Chandigarh.
- iii) NIT, Jalandhar. (Formerly known as REC, Jalandhar.)
- iv) IIT, New Delhi.
- v) Chandigarh Engineering College, Sector 26, Chandigarh.
- vi) NIT, Kurukshetra.

The various ingredients for mix design / laboratory tests shall be sent to the lab / test houses through the Engineer-in-charge and the samples of such aggregates sent shall be preserved at site by the department.

In the event if all the **above** laboratories are unable to carry out the requisite design / testing, the contractor may have it done from any other laboratory with prior approval of the **Chief Engineer**.

- 2.1.5 The contractor shall submit the report on design mix from any of above approved laboratories for approval of Engineer in Charge within 30 days from the date of issue of letter of acceptance of the tender. No concreting shall be done until the design mix is approved. In case of White Portland Cement and the likely use of admixtures in concrete with ordinary Portland/White Portland Cement, the contractor shall design and test the concrete mix by using trial mixes with white cement and / or admixtures also, for which nothing extra shall be payable.
- 2.1.6 In case of change of source or characteristic properties of the ingredients used in the concrete mix during the work, the contractor as per the directions of the Engineer-in-charge shall submit a revised laboratory mix design report conducted at laboratory established at site.
- 2.1.7 All cost of mix designing and testing, connected therewith, including charges payable to the laboratory shall be borne by the Contractor including redesigning of the concrete mix whenever required & as directed by Engineer-In-Charge.
- 2.1.8 The mix design for a specified grade of concrete shall be done for a target mean compressive strength $T_{ck} = F_{ck} + 1.65s$

Where F_{ck} = Characteristic compressive strength at 28 days.
 s = Standard deviation which depends on degree of quality control.

The standard deviation for different grades of concrete shall be as follows: -

GRADE OF CONCRETE	STANDARD DEVIATION
M-20	4.0
M-25	4.0
M-30	5.0
M-35	5.0

2.1.9 TRIAL BATCHES

- (a) The designed mix proportions shall be checked for target mean compressive strength by means of trial batches.
- (b) Minimum three sets of separate preliminary tests shall be carried out for each trial batch of concrete mix. Each test shall comprise of six specimens and only one test-set of six specimens shall be made on any particular day.
- (c) The quantities of materials for each trial mix shall be sufficient for at least six specimens (cubes) and the concrete required for carrying out workability tests.

- (d) The workability of trial mix No.1 shall be measured and mix shall be carefully observed for freedom from segregation, bleeding and its finishing characteristics. The water content, if required, shall be adjusted corresponding to the required changes in the workability.
- (e) With the modified Water Content, the mix proportions shall be recalculated by keeping with water cement ratio unchanged. The mix proportion, as modified, shall form the Trial Mix No.2 and tested for the specified strength and workability.
- (f) In addition, trial mix No.3 and 4 shall be designed by keeping water contents same as that determined for trial mix 2 but varying the water cement ratio by ± 10 percent of the specified value and tested for their design characteristics.
- (g) Out of the six specimen of each set, three shall be tested at seven days and remaining three at 28 days. The preliminary tests at seven days are intended only to indicate the strength to be attained at 28 days, while the design mix shall be approved only on the basis of test strength at 28 days.

2.1.10 APPROVAL OF DESIGN MIX

The design mix shall be considered satisfactory and approved if at least three preliminary test-sets individually satisfy the following strength and workability criteria:

- (a) The average strength of each test-set is not less than the specified target mean compressive strength (Tck).
- (b) The strength of any specimen cube is not less than 0.85 Tck.
- (c) The concrete mix is of required degree of workability and acceptable concrete finish.

2.2 BATCHING & MIXING:-

- (a) All design mix concrete shall be done using fully automatic batching plant conforming to IS: 4925 of minimum 15 cum per hour capacity. The automatic batching plant shall be charged by devices when actuated by a single starter switch, will automatically start the weighing operation of each material (i.e. stone aggregate, sand, cement, water, admixture etc.) and stop automatically when designated weight of each material has been reached and also it should have rated capacity (in terms of concrete in a single batch). It shall have control panel for operation of the batching plant complete with printing facility.
- (b) The contractor shall be free to use Ready Mix Concrete (RMC) in place of Batch mix concrete at his own cost. The contractor shall ensure that transit mixtures shall transport the concrete to site. All the precautions shall be taken during the transportation and handling of concrete to achieve the desired strength, durability, etc. as envisaged in the Mix Design. Contractor has to get the approval from Engineer-In-Charge regarding source of RMC by giving the details of such plants indicating name of owner / company, its location, technical establishment, past experience and text of Memorandum of Understanding (proposed to be entered between purchaser and supplier). The Engineer-in-Charge, after satisfying himself about quality / capability of the company shall give approval in writing (subject to drawing of MOU). The MOU shall be drawn with RMC plant owner / company and submitted to Engineer-in-Charge within a week of such approval. The contractor will not be allowed to purchase RMC without completion of above formalities for use in the project. Notwithstanding the approval granted by Engineer-in-Charge in aforesaid manner, the contractor shall be fully responsible for quality of concrete including input control, production, transportation and placement etc. The Engineer-in-Charge will reserve the right to deploy his supervisor at plant site to inspect at any such stage and reject the material / concrete etc if he is not satisfied about quality of material / product.

- (c) All measuring equipment shall be maintained in a clean and serviceable condition and their accuracy shall be checked at least once a month.
- (d) Only single sized good quality stone aggregate shall be brought to site of work from the approved source. The grading of the stone aggregate shall be controlled by blending the aggregate of different sizes in the required proportions at site of work

The aggregate of different sizes shall be stock-piled separately, preferably a day before use.

The grading of coarse and fine aggregates shall be checked as frequently as possible and as directed by the Engineer-In-Charge to ensure that the specified grading and quality of aggregate is maintained.

- (e) It is important to maintain the Water Cement Ratio constant at its specified or approved value by making adjustment for the moisture contents of both fine and coarse aggregates.

The moisture contents in the aggregate shall be determined as frequently as possible in keeping with the weather conditions and as per the provisions of IS: 2386 (Part-III).

2.3 OTHER OPERATIONS: -

All other operations in concreting work like mixing, slump, laying, placing of concrete, compaction, curing etc. not mentioned in this particular specifications for Design Mix of Concrete shall be as per CPWD Specifications.

2.4 SAMPLING:-

- (a) Samples from fresh concrete shall be taken as per IS 1199-1959 and the test cubes shall be made, cured and tested in accordance with IS: 516-1959.
- (b) Each test sample shall comprise of six test cubes (specimen), three of which shall be tested at 7 days and remaining for tests at 28 days.

(c) FREQUENCY OF SAMPLING: -

- (i) A random sampling procedure shall be adopted to ensure that the sampling is spread over the entire period of concreting and cover all mixing units. The concrete work shall be notionally divided into lots as under for the purpose of sampling conditions.
 - Footings, rafts etc.
 - Columns and walls at all levels.
 - Beams at all levels.
 - Slabs at all levels.
- (ii) At least one test sample shall be taken for each lot of concrete work.
- (iii) Each grade of concrete shall form different lot for testing.
- (iv) The minimum frequency of sampling of concrete of each grade shall be in accordance with CPWD specification 2019, Vol I with upto date correction slips:-
- (v) The concrete work shall be assessed on day to day basis & samples shall be taken as specified.
- (vi) Work strength test shall be conducted in accordance with IS: 516 on random sampling.

2.4.1 TEST RESULTS OF SAMPLES: -

The test results of the sample shall be the average of the strength of three specimens. The individual variation shall not be more than $\pm 15\%$ percent of the average. If variation is more, the test results shall be treated as invalid. 90% of the total tests shall be done at the laboratory established at site by the contractor and remaining 10% in any other laboratory as directed by the Engineer-in-Charge.

2.4.2 STANDARD OF ACCEPTANCE: -

- i) In case the test results of all the samples are above the characteristic compressive strength, the concrete shall be accepted.
- ii) In case the test result of one or more samples fails to meet the requirement (i) above, it shall be accepted if it meets the requirement as laid down in CPWD Specification.
- vii) Concrete of each grade shall be assessed separately.
- viii) Concrete is liable to be rejected, if it is porous or honeycombed or its placing has been interrupted without providing a proper construction joint or the reinforcement has been displaced beyond the tolerances specified, or construction tolerances have not been met.

2.5 MEASUREMENT –

- (i) As per CPWD Specifications.
- (ii) In respect of all projected slabs at all levels including cantilever, canopy, the payment for the RCC work shall be made under the item RCC slabs. The payment for shuttering at the edges shall be made under item of centering and shuttering for RCC slabs. Nothing extra shall be paid for the side shuttering at the edge of these projected balconies / projected verandah slabs.

2.6 TOLERANCES - As per CPWD Specifications.

2.7 RATES: -

- (i) The rate includes the cost of materials, labour and T&P, including mixing, placing, transportation involved in all the operations described above except for the cost of centring, shuttering & reinforcement which will be paid for separately.
- (ii) In case of rejection of concrete on account of unacceptable compressive strength, governed by para “Standard of Acceptance” as above, the work for which samples have failed shall be redone at the cost of contractor. However, the Engineer-in-charge may order for additional tests (like cutting cores, ultrasonic pulse velocity test, load test on structure or part of structure, etc) to be carried out at the cost of contractor to ascertain if the portion of structure wherein concrete represented by the sample has been used, can be retained on the basis of results of individual or combination of these tests. The Contractor shall take remedial measures necessary to retain the structure as approved by the Engineer-in-charge without any extra cost. However, for payment, the basis of rate payable to contractor shall be governed by the 28 days cube test results and reduced rates shall be regulated in accordance with CPWD Specifications.

2.8 RCC WORK (ORDINARY)

- 2.8.1 The work shall be done in accordance with CPWD Specifications.
- 2.8.2 Water Cement ratio for Ordinary RCC work shall not be more than 0.5. Contractor shall use concrete mixture of proper design having arrangement for measuring water for mixing of concrete.

2.9 FORM WORK

- 2.9.1 The work shall be done in general as per CPWD Specifications.
- 2.9.2 Only M.S. centring / shuttering and scaffolding material unless & otherwise specified shall be used for all R.C.C. work to give an even finish of concrete surface. However, marine-ply shuttering in exceptional cases as per site requirement may be used on specific request from contractor to be approved by the **Engineer-in-Charge**.
- 2.9.3 Nothing extra shall be paid for the centring and shuttering, circular in shape whenever the formwork is having a mean radius exceeding 6m in plan.
- 2.9.4 Nothing extra shall be paid for grid beams and the corresponding slabs having clear span more than 1.20 metres.
- 2.9.5 In order to keep the floor finish as per architectural drawings and to provide required thickness of the flooring as per specifications, the level of top surface of R.C.C. shall be accordingly adjusted at the time of its centring, shuttering and casting for which nothing extra shall be paid to the Contractor.

As per general engineering practice, level of floors in toilet / bath, balconies, shall be kept 12 to 20mm or as required, lower than general floors shuttering should be adjusted accordingly. Nothing extra is payable on this account.

- 2.9.6 Steel shuttering as approved by the Engineer-in-Charge shall be used by the contractor. Minimum size of shuttering plates shall be 600mm x 900mm except for the case when closing pieces are required to complete the shuttering panels.

Dented, broken, cracked, twisted or rusted shuttering plates shall not be allowed to be used on the work.

The shuttering plates shall be cleaned properly with electrically driven sanders to remove any cement slurry or cement mortar or rust. Proper shuttering oil or de-bonding compound shall be applied on the surface of the shuttering plates in the requisite quantity before assembly of steel reinforcement.

2.10 REINFORCEMENT:-

- 2.10.1 The reinforcement shall be done as per CPWD Specifications.
- 2.10.2 The rate of item of reinforcement of RCC work includes all operations including straightening, cutting, bending, welding, binding with annealed steel or welding and placing in position at all the floors with all leads and lift complete as per CPWD Specifications.
- 2.10.3 The contractor shall provide approved type of support for maintaining the bars in position and ensuring required spacing and correct cover of concrete to reinforcement as called for in the drawings, spacer blocks of required shape and size. Chairs and spacer bars shall be used in order to ensure accurate positioning of reinforcement. **Spacer blocks shall be cast well in advance with approved proprietary pre-packed free flowing mortars (Conbextra as manufactured by M/S Fosroc Chemicals India Ltd. or approved equivalent)** of high early strength and same colour as surrounding concrete, Pre-cast cement mortar/concrete blocks/blocks of polymer shall not be used as spacer blocks unless specially approved by the Engineer-in-charge, rate of RCC items is inclusive of cost of such cover blocks.

2.11 PRE-CAST RCC WORK

- 2.11.1 The work shall be done in accordance with CPWD Specifications.
- 2.11.2 Pre-cast reinforced concrete units shall be of grade or mix as specified. Provision shall be made in the mould to accommodate fixing devices such as hooks etc. and forming of notches and holes. Each unit shall be cast in one operation. A sample of the unit shall be got approved from Engineer-in-charge before taking up the work.
- 2.11.3 Pre-cast units shall be clearly marked to indicate the top of member and its location.
- 2.11.4 Pre-cast units shall be stored, transported and placed in position in such a manner that these are not damaged.
- 2.11.5 The compaction of the concrete shall be done by vibrating, table or external vibrator, as approved by Engineer-in-charge. The rate quoted for the item shall include the element for framework and mechanical vibration.
- 2.11.6 Rate for item includes cost of all materials, labour, and all operations involved. Cost of M.S. frames, lugs including their welding, lifting hooks is also included.

3.0 BRICK WORK:-

- 3.1 The brickwork shall be carried out with good quality well common burnt clay machine moulded modular bricks of class designation 7.5 as per CPWD Specifications.
- 3.2 The rate shall also include for leaving chases / notches for dowels / cramps for all kinds of cladding to come over brick work.
- 3.3 Brick work provided around shaft or lift walls or around slab cutouts shall be measured in the brick for corresponding floor level. Nothing extra shall be paid on this account.
- 3.4 M.S. bars provided at every third course of half brick masonry shall be in single piece. If required, welding joint can be used without overlaps. Nothing extra shall be paid for welding and overlaps.

4.0 STONE / MARBLE WORK :-

- 4.1 General: -The execution of stones work shall be in general as per CPWD Specifications.

4.2 SAMPLES FOR STONE WORK:-

Samples of each item of stone work either individually or in combination shall be prepared for approval of Engineer-in-charge before commencement of work.

5.0 WOOD WORK:-

- 5.1 The wood work in general shall be carried out as per CPWD Specifications.
- 5.2 The sample of timber to be used shall be deposited by the contractor with Engineer-in-charge before commencement of work.
- 5.3 Glazing for toilets shall be of translucent type.
- 5.4 The shape and size of beading shall be as per drawings. The joints of beading shall be mitred.

- 5.5 Timber shall be of specified species, good quality and well seasoned. It shall have uniform colour, reasonably straight grains and shall be free from knots, cracks, shakes and sapwood. It shall be close grained. The contractor shall deposit the samples of species of timber to be used with the Engineer-in-Charge for testing before commencement of the work.
- 5.6 Wood work shall not be painted, oiled or otherwise treated before it has been approved by the Engineer-in-charge. All portion of timber including architrave abutting against masonry, concrete, stone or embedded in ground shall be painted with approved wood preservative or with boiling coaltar.
- 5.7 The contractor(s) shall produce cash voucher and certificates from approved Kiln Seasoning Plants about the timber used on the work having been kiln seasoned and chemically treated by them, falling which it would not be so accepted as kiln seasoned and/or chemically treated.
- 5.8 Transparent sheet glass conforming to IS: 2835 – 1977 shall be used. Thickness being governed as under unless otherwise specified in the item in wood work/steel work:

Area of Glazing	Thickness
(a) For glazing area up to 0.50 sqm	4.0 mm
(b) For glazing area more than 0.50 sqm	5.5 mm

- 5.9 Factory made panelled / wire gauge door shutters
- 5.10 The work shall be executed through specialized agencies to be approved by the Engineer in Charge.
- 5.11 The shutters should be fabricated in factories & fabrication should conform to CPWD Specifications Para 9.6.6 & IS 1003 Part-I.
- 5.12 The contractor shall propose well in advance to Engineer-in-Charge, the names and address of the factory where from the contractor intends to get the shutters manufactured along with the credential of the firm. The contractor shall place the order for manufacturing of shutters only after obtaining approval of the Engineer in Charge whose decision in this case shall be final & binding. In case the firm is not found suitable he shall propose another factory. The factory may also be inspected by a group of officers before granting approval; shutters shall however be accepted only if these meet the specified test.
- 5.13 Contractor will arrange stage wise inspection of the shutters at factory by the Engineer-in-Charge or his authorized representative. The contractor will have no claim if the shutters brought at site in part or full lot are rejected by the Engineer-in-Charge due to bad workmanship / quality. Such defective shutters will not be measured and paid. The contractor shall remove the same from the site of work with in 7 days after the written instruction in this regard are issued by the Engineer-in-Charge.
- 5.14 The shutters should be brought at site without primer / painting.

6.0 **STEEL WORK:-**

6.1 The work shall be carried out as per CPWD Specifications.

6.2 **Pressed Steel Frame / T Iron Frames:** - The work shall be done as per CPWD Specifications. The frames shall be fabricated in approved workshops. The angle and flat iron frames for cupboard shall also be fabricated from the above approved workshops.

6.3 **Steel windows / ventilators:** The work shall be done strictly as per CPWD Specifications. Flash butt-welded steel windows / ventilators only shall be provided and shall be procured from the approved manufacturers. The corners should be welded to form a solid fused welded joint conforming to the requirement given below.

- a) Weld shall be made all along the place of meeting the member.
- b) Weld should be properly grounded.
- c) Complete cross section of the corner shall form a solid joint with no cavities, free from cracks, under cutting, overlaps, gross porosity and entrapped slag.\

All sub dividing and glazing bars shall be tennoned & riveted into the frames i.e. all centre mullion section F4B and glazing section T2, T6 shall not be directly welded to the frames. For this a slot has to be cut in the frames, the F4B / T2 / T6 section inserted into it & head be hydraulically tennoned & riveted by Tennon Rivetting Machine.

The thickness of projecting type hinges shall not be less than 3.15 mm. For fixing of hinges to outer frame, slot shall be cut, hinges inserted & welded at the back. For non projected type hinges if allowed, the wall thickness shall not be less than 3 mm & total width not less than 40 mm. For fixing, the slot shall be cut in the fixed frames, hinge flap inserted & welded from the back.

The fixing lug shall be as per IS 1038 with adjustable slot & fixed to window frames by screws & nuts.

The fixing of unit shall be done as per IS 1081.

6.4 **M.S. Sheet Door** – M.S Sheet shall be in one piece i.e. no joint in M.S. Sheet shall be permitted.

7.0 **FLOORING:-**

7.1 All work in general shall be carried out as per CPWD Specifications.

7.2 Whenever flooring is to be done in patterns of tiles and stones, the contractor shall get samples of each pattern laid and approved by the Engineer-in-charge before final laying of such flooring. Nothing extra shall be payable on this account.

7.3 Different stones / tiles used in pattern flooring shall be measured separately as defined in the nomenclature of the item and nothing extra for laying pattern flooring shall be paid over and above the quoted rate. No additional wastage, if any, shall be accounted for any extra payment.

7.4 Samples of flooring stones (Kota/ Marble/ Granite etc.) shall be deposited well in advance with the Engineer-in-Charge for approval. Approved samples should be kept at site with the Engineer-in-Charge and the same shall not be removed except with the written permission of Engineer-in-Charge. No payment whatsoever shall be made for these samples.

7.5 The Marble/ Kota/ Granite or any other stone shall be fully supported by the details establishing the quarry and its location.

- 7.6 Full width Marble/ Kota/ Granite stone over kitchen platform shall be provided which shall not be less than 900mm long except to adjust for closing pieces. The marble / stone flooring in treads and risers of staircase shall not be less than 1500mm long except to adjust the closing pieces. Nothing extra shall be paid on these accounts

7.7 **PVC& WoodenFlooring**

The PVC & wooden flooring shall be procured from the approved manufacturer and work shall be carried out as per approved drawings and direction of Engineer-in-charge.

7.8 **Ceramic/ Vitrified Tiles Flooring**

The tiles shall be procured from the approved manufacture of the approved shade & colour.

The tile shall be conforming to IS-13755, IS-13753 and IS-15622 for floor and wall tiles respectively.

Tiles for dado shall be 200mm x 300mm (minimum size) GROUP-III as approved.

Tiles for flooring shall be 300mm x 300mm (minimum size) GROUP-V Tiles as approved.

Test shall be conducted to satisfy the quality of material as per CPWD Specifications

- 7.9 Glass Mosaic Tile Flooring shall be with approved random colour mix design tiles and work shall be carried out as per direction of Engineer-in-charge.

- 7.10 The rate of items of flooring is inclusive of providing sunken flooring in bathrooms, kitchen etc. and nothing extra on this account is admissible. The proper gradient shall be given to flooring for toilets, verandah, kitchen, courtyard, etc. as per the directions of Engineer-in-charge.

8.0 **WATER PROOFING FOR SUNKEN FLOORS:-**

- 8.1 The work shall be got executed from the specialized agency as approved by the Engineer in Charge.

- 8.2 Total quantity of the water proofing compound required shall be arranged only after obtaining the prior approval of the make by Engineer-in-charge in writing. Materials shall be kept under double lock and key and proper account of the water proofing compound used in the work shall be maintained. It shall be ensured that the consumption of the compound is as per specified requirements.

- 8.3 The finished surface after water proofing treatment shall have adequate smooth slope as per the direction of the Engineer-in-charge.

- 8.4 Before commencement of treatment on any surface, it shall be ensured that the outlet drain pipes / spouts have been fixed and the spout openings have been chased and rounded off properly for easy flow of water.

8.5 **GUARANTEE BOND:-**

Ten years Guarantee bond in prescribed proforma attached shall be submitted by the contractor which shall also be signed by both the specialized agency and the contractor to meet their liability / liabilities under the guarantee bond. However, the sole responsibility about efficiency of water proofing treatment shall rest with the building contractor. **10% (Ten per cent) of the cost of water-proofing work shall be retained as Security Deposit and the amount so deducted would be released after ten years from the date of completion of the entire work under the agreement, if the performance of the treatment is found satisfactory.** If any defect is noticed during the

guarantee period, the contractor shall rectify it within 15 days of receipt of intimation of defects in the work. If the defects pointed out are not attended to within the specified period, the same will be got done from another agency at the risk and cost of contractor.

9.0. **FINISHING:-**

9.1 The work shall be done in accordance with CPWD Specifications.

9.2 All painting material of approved brand and manufacturer shall be brought to the site of work in the original sealed containers. The material brought to the site of work shall be sufficient for at least 30 days of work. The material shall be kept under the joint custody of contractor and representative of the Engineer-in-charge. The empty containers shall not be removed from the site till the completion of the work without permission of the Engineer-in-charge.

10.0 **SANITARY INSTALLATIONS /WATER SUPPLY / DRAINAGE:-**

10.1 The contractor shall submit schematic drawing of water supply and sanitary installation showing details of layout, including internal water supply and drainage details, showing the detail of water supply lines including fittings diameter wise and fixtures connecting to soil waste through traps and connection of W.C. to main shaft pipe for drainage including its ventilation system for approval of Engineer-in-Charge.

10.2 For the work of water supply and sanitary installations, the contractor shall engage the approved licensed plumbers and submit the name of proposed plumbing agencies with their credentials for approval of the Engineer-in-Charge.

10.3 The work in general shall be carried out as per CPWD Specifications.

10.4 The tendered rates shall include the cost of cutting holes in walls, floors, RCC slabs etc. wherever required and making good the same for which nothing extra shall be paid.

10.5 The Centrifugally spun cast iron pipe IS: 3989-1984 wherever necessary shall be fixed to RCC columns, beams etc. with rawl plugs of approved quality and nothing extra shall be paid for on this account.

10.6 The pig lead to be used in the jointing should be as per CPWD specifications.

10.6(a) The Centrifugally spun cast iron pipe IS: 3989-1984 wherever necessary shall be fixed to RCC columns, beams etc. with rawl plugs of approved quality and nothing extra shall be paid for on this account.

10.6.(b) Nothing extra for providing and fixing CP brass caps/ extension pieces wherever required for CP brass fittings shall be paid beyond the rates payable for corresponding CP brass fittings.

10.7 The pig lead to be used in jointing should be as per C.P.W.D. Specifications.

10.8 Nothing extra for providing & fixing CP Brass caps /extension pieces wherever required for CP Brass fittings shall be paid beyond the rates payable for corresponding CP Brass fittings

11.0 **Aluminium doors, windows, ventilators etc. glazing specifications**

11.1 **Extent and Intent:** - The work shall be carried out through an approved Special Agency, who shall furnish all material, labour, accessories, equipment, tool and plants and incidentals required for providing and installing anodized aluminium doors, windows, claddings, louvers and other items as called for on the drawings. The drawings and specifications cover the major requirements only. The supplying of additional fastenings, accessories, fixtures and other items not mentioned specifically herein, but which are necessary to make a complete installation shall be a part of this contract.

- 11.2 **General:** - Aluminium doors, windows etc. shall be of sizes, section details as shown on the Architectural drawings. The details shown on the drawings indicate generally the sizes of the component parts and general standards. These may be varied slightly to suit the standard adopted by the manufacturers. Before proceeding with any manufacturing, the contractor shall prepare and submit complete manufacturing and installation drawings for approval of the Engineer-in-Charge and no work shall be performed until the approval of these drawings is obtained.
- 11.3 **Shop Drawings:** - The contractor shall submit the shop drawings of doors, windows, louvers, cladding and other aluminium work, based on the architectural drawings to the Engineer-in-Charge for his approval. The shop drawing shall show full size sections of doors, windows etc. thickness of metal (i.e. wall thickness) details of construction, sub frame/rough ground profile, anchoring details hardware as well as connection of windows, doors and other metal work to adjacent work. Samples of all joints and methods of fastening and joining shall be submitted to the Engineer-in-Charge for approval well in advance of commencing the work.
- 11.4. **Samples:** - Samples of doors, windows louvers etc. shall be fabricated, assembled and submitted to Engineer-in-Charge for his approval. They shall be of sizes, types etc. as decided by Engineer-in-Charge. All samples shall be provided at the cost of the contractor.
- 11.5. **Sections:** - Aluminium doors and windows shall be fabricated from extruded sections of profiles as detailed on drawings. The sections shall be extruded by the manufacturers approved by the Engineer-in-Charge. The aluminium extruded sections shall conform to BIS designation IIE/IIV 9 WP alloy, with chemical composition technical properties, as per IS: 733 and IS: 1285. The permissible tolerance of the extruded sections shall be such as not to impair the proper and smooth function/ operations and appearance of doors and windows.
- 11.6 **Fabrication:** - Doors, windows etc. shall be fabricated to sizes at factory and shall be of section, sizes, combinations and details as shown on the drawings. All doors, windows etc. shall have mechanical joints. The joints shall be designed to withstand a wind load of 150 Kg. Per Sqm. The design shall also incur that the maximum deflection of any member shall not exceed 1/175 of the span of the member. All members shall be accurately machined and fitted to form hairline joints prior to assembly. The joints accessories such as cleats, brackets etc. shall be of such material as not to cause any bimetallic action. The design of the joints and accessories shall be such that the accessories are fully concealed. The fabrication of doors, windows, etc. shall be done in suitable sections to facilitate easy transportation, handling and installation. Adequate provision shall be made in the door and window members for anchoring to support and fixing of hardware and other fixture as approved by the Architect.
- 11.7 **Anodizing:** - All aluminium sections shall be anodized as per IS: 7088 and to required colour as specified in the item as per IS: 1868 grading as specified in item schedule after cutting the member to requisite sizes before the final assembly. Anodizing confirming to specified grade with minimum average thickness of 15 microns when measured as per IS: 612. The anodic coating shall be properly sealed by steams or in boiling water are cold sealing process as per IS:1868/IS: 6057. Polythene tape protection shall be applied on the anodised section before they are brought to site. All care shall be taken to ensure surface protection during transportation, storage at site and installation. The tape protection shall be removed on installation. The sample will be tested in the approved laboratory and cost of samples; cost of testing etc. shall be borne by the contractor.
- 11.8 **Protection of finish:** - All aluminium members shall be wrapped with approved self-adhesive non-staining. PVC tapes.
- 11.9 **Handling and Stacking:** -
- 11.9.1 Fabricated materials shall be carried in an approved manner to protect the material against any damage during transportation. The loading and unloading shall be carried out with utmost care. On receipt of material at site, it shall be carefully examined to detect

any damaged pieces. Arrangements shall be made for expeditious replacement of damaged pieces/ parts. Materials found to be acceptable on inspections shall be repacked in crates and stored safely.

- 11.9.2 In the case of composite windows and doors, the different units are to be assembled first. The assembled composite units should be checked for line, level and plumb before final fixing is done. Units may be serial numbered and identified as out how to be assembled in their final locations if situation so warrants.
- 11.9.3 The contractor shall be responsible for assembling composite, bedding and filling the grove with polysulphide sealant inside and outside, at transoms and mullions placing the doors, windows etc. in their respective openings. After the doors/ windows have been fixed in their correct assigned position, the open hollow sections abutting masonry concrete shall be fitted with approved polysulphide sealant densely packed and finished neat.
- 11.9.4 The contractor shall be responsible for doors, windows, etc. being set straight, plumb, level and for their satisfactory operation after fixing is complete.
- 11.10 **Installation:** -
- 11.10.1 Just prior to installation the doors, windows, etc. shall be uncreated and stacked on edge on level bearers and supported evenly. The frame shall be fixed into position true to line and level using adequate number of expansion machine bolts, anchor fasteners, of approved size and manufacture and in an approved manner. The holes in concrete/masonry members for housing anchor bolts shall be drilled with an electric drill.
- 11.10.2 The door/ windows assembled as shown on drawings shall be placed in correct final position on the opening and marks made on concrete members at jambs, sills and heads against the holes provided in frames for anchoring. The frame shall then be removed from the opening and laid aside. Neat holes with parallel sides of appropriate size shall then be drilled in the concrete members with an electric drill at the marking to house the expansion bolts. The expansion bolts shall then be inserted in the holes, struck with a light hammer till the nut is forced into the anchor shell. The frame shall then be placed in final position in the opening and anchored to the support through cadmium plated machine screws of required size and anchored to the support through cadmium plated machine screws of required size threaded to expansion bolts. The frame shall be set in the opening by using wooden wedges at supports and be plumbed in position. The wedges shall invariably be placed at the meeting at points of glazing bars and frame.
- 11.10 **PVC/ Neoprene gaskets:** - The contractor shall provide and install PVC/ Neoprene gaskets of approved size and profile at all locations as shown and as called for to render the doors, windows etc. absolutely air tight and weather tight. The contractor shall produce samples of the gaskets for approval and shall procure the same after approval only.
- 11.12.1 **Fittings:** - Hinges, stays, handles, tower bolts, locks and other fittings shall be of quality and manufacturer as approved by the Engineer-in-Charge.
- 11.13 **Manufacturer's Attendance:** - The manufacturer immediately prior to the commencement of glazing shall adjust and set all windows and doors and accept responsibility for the satisfactory working of the opening frames.
- 11.14 **Poly-sulphide:** -The gaps between frames and supports and also any gaps in the door and windows sections shall be raked out as directed and filled with poly-sulphide of approved colour and make to ensure complete water tightness. The poly-sulphide shall be of such colour and composition that it would not stain the masonry/concrete work, shall receive paint without bleeding, will not sag or run and shall not set hard or dry out under any conditions of weather. The sample of poly-sulphide to be used for this purpose shall be got approved from the architect before its actual use.

11.15 Details of Test: -

11.15.1 The various tests on aluminium sections shall be conducted in accordance with the relevant IS codes.

11.15.2 The minimum number of tests for anodizing and corrosion resistance shall be as given below: -

S.No.	Details	No. of Tests
1.	Doors, windows and ventilators	One test for every 1000 kg or part thereof.

11.15.3 The samples of major member of each unit of doors/ windows shall be selected at random by Engineer-in-Charge as such that all the aluminium section shall be got tested.

11.16. Rates: -

11.16.1 The rates of the item shall include the cost of materials, labour required in all the above operations.

11.16.2 The rates include the cost of hinges/ pivots and rest of the fittings shall be paid separately.

12.0 SPECIFICATIONS FOR SOLID POLY VINYL CHLORIDE (PVC) DOOR SHUTTERS: -

12.1.0 SCOPE:

12.1.1 This specification lays down requirement regarding types, sizes, material, construction, workmanship, finish, performance evaluation, sampling and testing of solid Poly Vinyl Chloride (PVC) Panelled door shutters for use in residential buildings, non-residential buildings such as offices, schools, hospitals, etc.

12.1.2 This specification does not cover large size door shutters for industrial and special buildings such as workshops, garages, godowns etc.

12.1.3 PVC door shutters shall be used in internal locations only.

12.2.0 REFERENCES:

12.2.1 The Indian Standards and other Standards listed in Annexure-I are necessary adjuncts to this standard. The products bearing BIS certification i.e. ISI Mark with code number shall have precedence over those not bearing ISI Mark.

12.3.0 TERMINOLOGY:

12.3.1 For the purpose of this specification, the definitions given below in addition to those given in IS 707-1976 shall apply:

12.3.1.1

(i) Blistering: Air or solvent entrapped during moulding.

(ii) Colour blots: Colour blots occurring on account of uneven distribution of pigment.

(iii) Crazing: Fine hair cracks on the surface.

(iv) Defective Impregnation: Imperfect impregnation of PVC resin with other additives.

(v) Colour Fading: Fading of colour on exposure to sunlight.

(vi) Impurities: Presence of matter other than those specified.

- (vii) Pin holes: Pores of size less than 1mm appearing on the surface.
- (viii) Small Pores: Pores of size more than 1mm but less than 2mm appearing on the surface.
- (ix) Wrinkling: A slight ridge or furrow on surface.
- (x) Aggregate Defects: Presence of defects such as pin holes, impurities and traces of mending 5 or more in aggregate for defects at localized place.

12.4.0 **HANDLING:**

12.4.1 Handling and direction of closing of shutters shall be designated in accordance with IS: 4043:1969.

12.5.0 **MATERIAL:**

12.5.1 Poly Vinyl Chloride Resin (suspension grade) is the basic raw material of PVC compound. PVC resin is mixed with chemicals like calcium searate, hydrocarbon Wax, Titanium dioxide, calcium carbonate Acrylic base etc. Further additives like UV stabilizers, impact modifiers, pigments, epoxy plasticizer, lubricants, acrylic processing aid etc. are also added. The purpose of adding the chemicals and additives is to impart strength, surface finish, colour and resistance to fading by light rays. These chemicals are mixed in the desired proportion and shall be used in the formulation of PVC material and for free and smooth extrusion of PVC cellular sheets.

12.6.0 **PROCESS:**

12.6.1 MIXING: The PVC material so formulated with the addition of chemicals, fillers & additives shall be mixed dry powder form in a high speed hot mixer at a temperature of 110° C to 125° C. The heated dry blend is then to be cooled at room temperature. However, the temperature has to be determined keeping in view the climatic conditions and the process requirements.

12.6.2 EXTRUSION: The cooled dry blend is off loaded into the hopper of the extruder, and then is fed to the screw & barrel of the extruder, where it is melted and kneaded at varying temperatures upto 205° C by rotating screws. The thick paste of PVC material is then passed through a hot die to make the sheet of required thickness.

12.6.3 POLISHING: The basic shape of the sheet so acquired is then polished with the help of a three-roll calendar. At the same time the sheet is cooled by circulating water in the rolls of the calendar and there after on a roller table by atmospheric air.

12.6.4 CUTTING: The final finished product coming out of the haul-off is cut as per the required size.

13 **ROAD WORK(PARTICULAR SPECIFICATION/CONDITION) :-**

13.1 The Contractor shall engage one of the following approved laboratories / test house for designing the concrete mix/Dense Bituminous macadam/Dense Bituminous concrete in accordance with relevant IS Code and to conduct laboratory tests to ensure the target strength & workability criteria for a given grade of concrete/ Dense Bituminous macadam/Dense Bituminous concrete: -

- i) Technical Teacher Training Institute, Sector 26, Chandigarh.
- ii) Punjab Engineering College, Chandigarh.
- iii) NIT, Jalandhar. (Formerly known as REC, Jalandhar.)
- iv) IIT, New Delhi.

v) Chandigarh Engineering College, Sector 26, Chandigarh. vi) NIT, Kurukshetra.

The various ingredients for mix design / laboratory tests shall be sent to the lab / test houses through the Engineer-in-charge and the samples of such aggregates sent shall be preserved at site by the department.

In the event if all the above laboratories are unable to carry out the requisite design / testing, the contractor may have it done from any other laboratory with prior approval of the Superintending Engineer.

- 13.1.2 The contractor shall submit the report on design mix from any of above approved laboratories for approval of Engineer in Charge within 15 days from the date of issue of letter of acceptance of the tender. No concreting/DBM/DBC shall be done until the design mix is approved. In case of White Portland Cement and the likely use of admixtures in concrete with ordinary Portland/White Portland Cement, the contractor shall design and test the concrete mix by using trial mixes with white cement and / or admixtures also, for which nothing extra shall be payable.
- 13.1.3 In case of change of source or characteristic properties of the ingredients used in the concrete/ DBM/DBC mix during the work, the contractor as per the directions of the Engineer-in-charge shall submit a revised laboratory mix design report conducted at laboratory established at site.
- 13.1.4 All cost of mix designing and testing, connected therewith, including charges payable to the laboratory shall be borne by the Contractor including redesigning of the concrete/DBM/DBC mix whenever required & as directed by Engineer-In-Charge.

13.2 BITUMINOUS WORK

- 13.2.1 The Sub-base layer of granular materials 150mm thick as per MOST specifications (Table-400-1), gradation-1 should be provided with required slope.
- 13.2.2 Dense Bituminous concrete/Dense Bituminous macadam will be laid in such a manner that the average thickness thereof is 40mm/50mm approx. and finished Surface has requisite gradient. However, if extra quantity of DBC is required to be laid to achieve the minimum thickness as decided by the Engineer-in Charge as well as the desired gradient, the contractor shall be entitled to payment for the actual quantity of DBC/DBM as laid.
- 13.2.3 The paver finisher with which the work shall be executed shall have such devices as are necessary to achieve the required levels, slope and profile and surface accuracy of the compacted/ finished work. The Department shall, however, have no objection if the contractor employs any additional equipments or devices at his own cost to ensure that the finished work fulfils all the prescribed parameters including surface accuracy, pitch slope and pitch profile.

13.3 QUALITY ASSURANCE FOR BITUMINOUS WORK

- 13.3.1 The work of Dense Bituminous Macadam & Dense Bituminous Concrete shall be done as per job-mix formula to be got designed from Laboratory as approved by the Engineer-in-charge. All expenditure involved in providing and sending the samples to the laboratory and laboratory charges for job-mix formula shall be borne by the contractor.
- 13.3.2 Various laboratory and field tests shall be carried out as per CPWD specifications.
- 13.3.3 **Intending bidders should have its own HOT Mix Plant or MoU signed with the owner of Hot Mix Plant who will execute the work of bituminous macadam and bituminous concrete. The Hot Mix Plant of 100-120 capacity shall have to be approved from competent authority by the contractor with 10 days of issue of acceptance letter.**
- 13.3.4 **No change of plant except unavoidable conditions and without approval of the Engineer-In-Charge will be allowed.**

13.4 MODE OF MEASUREMENTS

- 13.4.1 The measurements of work done under item Tack coat, Dense Bituminous Concrete and Dense Bituminous Macadam shall be governed by the provisions of CPWD specifications. There will, however, be no separate measurements or computation of quantity in respect of item of DBC/DBM if the same is laid in two layers

On non-judicial stamp paper of minimum Rs. 100

(Guarantee offered by Bank to CPWD in connection with the execution of contracts) Form of Bank Guarantee for Earnest Money Deposit /Performance Guarantee/Additional Performance Guarantee / Security Deposit/Mobilization Advance

1. Whereas the Executive Engineer (name of division), CPWD on behalf of the President of India (hereinafter called "The Government") has invited bids under (NIT number) dated for (name of work) The Government has further agreed to accept irrevocable Bank Guarantee for Rs. (Rupees only) valid upto (date)* as Earnest Money Deposit from (name and address of contractor) (hereinafter called "the contractor") for compliance of his obligations in accordance with the terms and conditions of the said NIT.

OR**

Whereas the Executive Engineer (name of division), CPWD on behalf of the President of India (hereinafter called "The Government") has entered into an agreement bearing number with (name and address of the contractor) (hereinafter called "the Contractor") for execution of work (Name of work) The Government has further agreed to accept an irrevocable Bank Guarantee for Rs. (Rupees only) valid upto (date) as Performance Guarantee/ Additional Performance Guarantee/ Security Deposit/Mobilization Advance from the said Contractor for compliance of his obligations in accordance with the terms and conditions of the agreement.

2. We, (indicate the name of the bank) (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 within 10 days of the demand.
3. We, (indicate the name of the Bank), do here by undertake to pay the amount due and payable under this guarantee without any demur, merely on a demand from the Government stating that the amount claimed is required to meet the recoveries due or likely to be due from the said Contractor. 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)
4. We, (indicate the name of the Bank), further undertake to pay the Government any money so demanded notwithstanding any dispute or disputes raised by the contractor in any suit or proceeding pending before any Court or Tribunal, our liability under this Bank Guarantee being absolute and unequivocal. The payment so made by us under this Bank Guarantee shall be a valid discharge of our liability for payment there under and the Contractor shall have no claim against us for making such payment.
5. We, (indicate the name of the Bank), further agree that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligation here under to vary any of the terms and conditions of the said agreement or to extend time of performance by the said Contractor from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said contractor 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 extension being granted to the said Contractor or for any forbearance, act of omission on the part of the Government or any indulgence by the Government to the said Contractor 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. We, (indicate the name of the Bank), further agree that the Government at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor at the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee the Government may have in relation to the Contractor's liabilities.
7. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor.
8. We, (indicate the name of the Bank), undertake not to revoke this guarantee except with the consent of the Government in writing.
9. This Bank Guarantee shall be valid up to unless 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 the date of expiry or extended date of expiry of this guarantee, all our liabilities under this guarantee shall stand discharged.

Date

Witnesses:

1. Signature.....

Authorized signatory

Name and address

Name

Designation

Staff code no.

2. Signature

Bank seal

Name and address

*Date to be worked out on the basis of validity period of 90 days where only financial bids are invited and 180 days for two/three bid system from the date of submission of tender.

**In paragraph 1, strike out the portion not applicable. Bank Guarantee will be made either for earnest money or for performance guarantee/ Additional Performance Guarantee /security deposit/mobilization advance, as the case may be.

**GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR
FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF
WATER-PROOFING WORKS/OVER HEAD TANK.**

The agreement made this..... day of (Two Thousand _____ only) betweenS/o(hereinafter called the GUARANTOR of the one part) and the PRESIDENT OF INDIA (hereinafter called the Government of the other part)

WHEREAS THIS agreement is supplementary to a contract (Hereinafter called the Contract) dated and made between the GUARANTOR OF THE ONE PART AND the Government of the other part whereby the contractor inter alia undertook to render the building and structures in the said contract recited completely water and leak-proof.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the affect that the said work will remain water and leak proof, for ten years from the date of completion of work.

NOW THE GUARANTOR hereby guarantees that work executed by him will render the structures completely leak proof and the minimum life of such water proofing treatment shall be ten years to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

The decision of the Engineer-in-charge with regard to nature and cause of defect shall be final and binding on Guarantor.

During this period of guarantee, the guarantor shall make good all defects and in case of any defect being found render the building water proof to the satisfaction of the Engineer-In-Charge calling upon him to rectify the defects failing which the work shall be got done by the Department by some other contractor at the Guarantor's cost and risk. The decision of the Engineer-in-charge as to the cost payable by the Guarantor shall be final and binding.

That if the guarantor fails to execute the water proofing or commits breach there under, then the guarantor will indemnify the principal and his successor against all loss, damage, cost expense or otherwise which may be incurred by him by reason of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/or damage and / or cost incurred by the Government, the decision of the Engineer-in-charge will be final and binding on both the parties.

IN WITNESS WHEREOF these presents have been executed by the obligator and by for and on behalf of the PRESIDENT OF INDIA on the day, month and year first above written.

SIGNED, sealed and delivered by OBLIGATOR in the presence of:-

1. 2.

SIGNED FOR AND BEHALF OF THE PRESIDENT OF INDIA BY in the presence of :-

1. 2.

**GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR
FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF
ANTI TERMITE WORKS.**

The agreement made this..... day of (Two Thousand only) betweenS/o(hereinafter called the GUARANTOR of the one part) and the PRESIDENT OF INDIA (hereinafter called the Government of the other part)

WHEREAS THIS agreement is supplementary to a contract (Hereinafter called the Contract) dated and made between the GUARANTOR OF THE ONE PART AND the Government of the other part whereby the contractor inter alia undertook to render the building and structures in the said contract recited completely termite proof.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the affect that the said structure will remain termite proof, for ten years from the date after the maintenance period prescribed in the contract expires.

NOW THE GUARANTOR hereby guarantees that work executed by him will render the structures completely termite proof and the minimum life of such termite proofing treatment shall be ten years to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

The decision of the Engineer-in-charge with regard to nature and cause of defect shall be final and binding on Guarantor.

During this period of guarantee, the guarantor shall make good all defects and for that matter, shall replace at his risk & cost such wooden members as may be damaged by termites and in case of any other defect being found, he shall render the building termite proof at his cost to the satisfaction of the Engineer-In-Charge and shall commence the works of such rectification within seven days from date of issuing notice from Engineer-in-charge calling upon him to rectify the defects failing which the work shall be got done by the Department by some other contractor at the Guarantor's cost and risk and in the latter case the decision of the Engineer-in-charge as to the cost recoverable from the Guarantor shall be final and binding.

That if the guarantor fails to execute the anti termite treatment or commits breach there under, then the guarantor will indemnify the principal and his successor against all loss, damage, cost, expense or otherwise which may be incurred by him by reason of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/or damage and / or cost incurred by the Government, the decision of the Engineer-in-charge will be final and binding on both the parties.

IN WITNESS WHEREOF these presents have been executed by the obligator and by for and on behalf of the PRESIDENT OF INDIA on the day, month and year first above written.

SIGNED, sealed and delivered by OBLIGATOR in the presence of :-

1. 2.

SIGNED FOR AND BEHALF OF THE PRESIDENT OF INDIA BY in the presence of :-

1. 2.

LIST OF FIELD TESTS

- i) Particle size and shape
- ii) Slump test
- iii) Flakiness & Elongation Index tests
- iv) Compressive strength (concrete or bricks) test
- v) Rebound Hammer test
- vi) Bulking of sand
- vii) Silt content of sand
- viii) Temperature measuring with thermometer with brass protected end 0-200° C

FIELD TESTING EQUIPMENT AND INSTRUMENTS

A. Testing Equipment at Field Laboratories

- i) Balances
 - a) 7kg to 10 kg. Capacity, Semi-self indicating type-Accuracy 10 gm
 - b) 500 gm. Capacity, Semi-self indicating type Accuracy 1 gm
 - c) Pan Balance – 5 Kg. Capacity, accuracy 10 gm.
- ii) Sieves: as per IS 460-1962.
 - a) I.S. Sieves – 450 mm internal dia of sizes 100 mm, 80 mm, 63 mm, 50mm, 40 mm, 25 mm, 20 mm, 12.5 mm, 10 mm, 6.3 mm, 4.75 mm complete with lid and pan.
 - b) IS Sieves – 200 mm internal dia(brass frame) consisting of 2.36 mm, 1.18 mm, 600 microns, 425 microns, 300 microns, 212 microns, 150 microns, 90 microns, 75 microns with lid and pan.
 - iii) Sieve shaker capable of 200 mm and 300 mm dia sieves, manually operated with timing switch assembly.
 - iv) Equipment for slump test – Slump Cone, Steel Plate, tamping rod, steel scale, scoop
 - v) Graduated measuring cylinders 200 ml capacity
 - vi) Enamel trays (for efflorescence test for bricks and other tests)
 - a. 300 mm X 250 mm X 40 mm
 - b. Circular plates of 250 mm dia
 - c. 600 mm X 450 mm X 500 mm
 - d. 450 mm X 300 mm X 40 mm.
 - vii) ISI marked 150 X 150 X 150 mm concrete cube moulds as per site requirement.
 - viii) Graduated cylinder 1000 ml. Capacity.

B. Field Testing Instruments

- i) Steel tapes – 3 m
- ii) Vernier Calipers
- iii) Micrometer Screw 25 mm gauge
- iv) A good quality plumb bob
- v) Spirit level minimum 30 cms long with 3 bubbles for horizontal vertical
- vi) Wire gauge (circular type) disc.
- vii) Foot rule
- viii) Long nylon thread
- ix) Magnifying glass
- x) Screw driver 30 cms long
- xi) Ball pin hammer, 100 gms
- xii) Plastic bags for taking samples
- xiii) Levelling machine
- xiv) Theodolite

Note : The above equipments and instruments shall be made available at site by the agency as and when required.

PROFORMA FOR TESTS CARRIED OUT

NAME OF THE WORK :

DIVISION/

AGREEMENT NO. & DATE :

SUB-DIVISION

Sl. No.	Item	Quantities as per agreement	Frequency as per specification	No. of tests required	R.A. bill No.	Uptodate quantity	No. of tests required	No. of tests actually done	Remarks
1	2	3	4	5	6	7	8	9	10

Signature of Contractor

CEMENT/PAINT REGISTER

NAME OF WORK:
AGREEMENT NO.

DIVISION
SUB-DIVISION

Particulars of Receipt

Date of Receipt	Source of receipt with details if any	Batch No.	Date of manufacture	Date of expiry	Qty. received	Progressive Total	Date of Issue	Qty Issued	Items of work for which Issued	Qty. Returned at the end of day's work
1	2	3	4	5	6	7	8	9	10	11

Particulars of Issue

Net Qty. Issued	Progressive Total	Daily Balance in Hand	Contractor's Initial	J.E.'s Initial		Periodical Check	
						By AE	By EE
12	13	14	15	16		17	18

LIST OF APPROVED MAKES OF MATERIALS FOR CIVIL WORKS

Sr.No.	Name of Product/ Material	Preferred Brand Names
1	ORDINARY PORTLAND CEMENT (GREY) (43 GRADE)	ACC, ULTRATECH, VIKRAM, SHREE CEMENT, AMBUJA, JAYPEE CEMENT, CENTURY CEMENT & J.K. CEMENT.
2	PORTLAND POZZOLONA CEMENT (GREY)	ACC, ULTRATECH, VIKRAM, SHREE CEMENT, AMBUJA, JAYPEE CEMENT, CENTURY CEMENT & J.K. CEMENT.
3	WHITE CEMENT	J.K.WHITE, JAIPUR SUPREME PACKAGING PVT. LTD., ULTRATECH CEMENT LIMITED, AMBUJA, BIRLA
4	REINFORCEMENT STEEL	SAIL, TATA STEEL LTD., RINL, JINDAL STEEL & POWER LTD. AND JSW STEEL LTD.
5	ADMIXTURES	CICO, FAIRMATE, HIND PLAST SUPER, SUPAPLAST, SIKA, ANEEB, BASF, FOSROC, RHEOPLAST
6	WATER PROOFING COMPOUND	FOSROC, CICO, KRYTON, BUILDMATE, PIDLITE, PRIYA ENTERPRISES, FAIRMATE, SIKA, ANEEB, BASF, RHEOPLAST
7	AUTOCLAVED AERATED BLOCKS	BILTECH, ECO GREEN, FINECRETE, J.K. LAKSHMI CEMENT LTD.
8	POLYMER MODIFIED ADHESIVE FOR AAC BLOCKS	MYK LATICRETE, FERROUS CRETE, ARDEX ENDURA, ULTRATECH, SIKA, RHEOPLAST
9	FACTORY MADE PANELLED & WIRE GAUGE WOODEN DOOR/ WINDOW SHUTTERS.	M/S JAIN WOOD INDUSTRIES, KUTTY DOORS, SAMRAT PLYWOOD, NEW JAGDAMBA DOORS, MERINO, KITPLY, AS TIMBER, A-1 TEAK PRODUCTS
10	FLUSH DOOR SHUTTERS	KUTTY FLUSH DOOR, SAMRAT LAMINATE, NATIONAL PLYWOODS, JAIN WOOD INDUSTRIES, MERINO, MINIMAX, CENTURY, AS TIMBER.
11	BLOCK BOARD	MERINO, MINIMAX, NATIONAL, ARCHIDPLY, CENT PLY, JAYNA, CENTURY.
12	LAMINATES	SAMRAT, VIRGO, MERINO, ARCHIDPLY, CENTURY LAMINATES, GREENLAM
13	PRE-LAMINATED PARTICLE BOARD	ARCHIDPLY, CENTURY PLY BOARDS, BALAJI ACTION BUILDWELL, ECOBOARD
14	PARTICLE BOARD (MEDIUM DENSITY)/ VENEERED PARTICLE BOARD	CENTURY PLYBOARDS (INDIAN) LTD., BALAJI ACTION BUILDWELL, EVERGREEN BOARDLAM, ECOBOARD INDUSTRIES LTD.
15	PRE-LAMINATED MEDIUM DENSITY FIBRE BOARD	CENTURY PLYBOARDS, GREEN PLY, BALAJI ACTION BUILDWELL
16	OMS/ MS DOOR FITTINGS	ASHISH, AGGARWAL STEELS, DOOR DEVICES MANUFACTURING COMPANY, MANU ENGINEERING COMPANY, M.C. MOWJEE & CO., SHRI GANPATI DOORS
17	ANODISED/ ZINC ALLOY/ ALUMINIUM HARDWARE DOOR/ WINDOW FITTINGS	PULSE, SAVIO, HOPPE, ALUTECH
18	FRP DOOR FRAMES & SHUTTERS	ASHISH INDUSTRIES, JAYNA, SAINIK (CENTURY PLYWOOD), SELECTED PRODUCTS CO.
19	WIDOWS BLINDS	VISTA, MAC, HUNTER, DOUGLAS, DE-DÉCOR
20	STRUCTURAL STEEL SUCH AS MS FLATS, SQ.BARS ANGLES ETC.	SAIL, TATA STEEL, RINL, JINDAL STEEL &POWER LTD. AND JSW STEEL LTD.
21	MILD STEEL DOOR, WINDOWS & VENTILATORS MANUFACTURERS	FRIENDS MANUFACTURING COMPANY, KOTKAPURA, PD INDUSTRIES, SHAKTI INDUSTRIES, STEELMAN INDUSTRIES, SKS STEEL INDUSTRIES, SHIVAM
22	PRESSED STEEL DOOR FRAMES MANUFACTURERS	KRISHNA STEEL FABRICATOR SIRSA, LAXMI STEEL WORKS BAHADURGARH, ASHISH INDUSTRIES GHAZIABAD, ASHWANI & SONS.
23	HOLLOW STEEL SECTIONS	JINDAL INDUSTRIES HISAR, TATA STEEL, STEEL & METAL TUBES (INDIA) PVT. LTD.
24	STEEL TUBES FOR STRUCTURAL STEEL	JINDAL INDUSTRIES HISAR, TATA STEEL, STEEL & METAL TUBES (INDIA) PVT. LTD.
25	DASH/ ANCHORING FASTENERS, BOLTS, SCREWS AND NUTS.	HILTI, FISCHER, CKW, ATUL, PRIYA, CANON
26	STAINLESS STEEL RAILING	DORMA, KICH, OM STEEL, D-LINE, OZONE, Q-RAILING, SUN RAILING
27	CHEQUERRED PRE-CAST CC TILES	NTC, SWASTIK TILE, POOJA CONCRETE FABRICATORS, GTC.
28	CERAMIC TILES	SOMANY, KAJARIA, ORIENTBELL, RAK, ASIAN GRANITO INDIA LTD.
29	VITRIFIED TILES	SOMANY, KAJARIA,ORIENTBELL, RAK, ASIAN GRANITO INDIA LTD.
30	ADHESIVE/ GROUTING FOR USE WITH TILES	FERROUS CRETE, MYK LATICRETE, ARDEX EDURA, FAIRMATE, DURA BUILD CARE, SIKKA, BASEX, PIDELITE, ROFF, BASF, FOSROC
31	UNPLASTICISED RIGID PVC PIPE & FITTINGS	SUPREME, FINOLEX, PRINCE, KISAN, DIPLAST, SENTINI,
32	FALSE CEILING- GYPSUM	SAINT GOBAIN, VANS GYPSUM, USG BORAL, LLYOD, DIAMOND, BSR CALSI CEILINGS
33	FALSE CEILING- METAL	ARMSTRONG, DEXUNE, SAINT GOBAIN, HUNTER DOUGLAS, GYPTECH, DIAMOND, BSR CALSI CEILINGS
34	FALSE CEILING- CALCIUM SILICATE/ CEMENT	HILUX, AEROLITE, ARMSTRONG, DIAMOND, VISAKA, BSR CALSI

	FIBRE BOARDS	CEILINGS
35	FALSE CEILING-MINERAL FIBRE	ARMSTRONG, DEIKEN, DEXUNE, SAINT GOBAIN.
36	ACCOUSTIC: GLASS / WOODEN FIBRE FALSE CEILING AND WOODEN/ FABRIC WALL LINING / CEMENT FIBRE BOARDS	ARMSTRONG, DEXUNE, ACCOUSTIBLOK, HIMALYAN ACOUSTICS, ANUTONE, GYPTECH, VISAKA, BSR CALSI CEILINGS
37	FALSE CEILING-ALUMINIUM POWDER COATED	ARMSTRONG, DEXUNE, SAINT GOBAIN, HUNTER DOUGLAS, BSR CALSI CEILINGS
38	OIL BOUND DISTEMPER/ ACRYLIC DISTEMPER	NEROLAC ACRYLIC DISTEMPER, TRACTOR ACRYLIC DISTEMPER (ASIAN PAINTS) , MAXILITE ACRYLIC DISTEMPER (ICI), BISON ACRYLIC DISTEMPER (BERGER).
39	INTERIOR EMULSION/ PLASTIC EMULSION	DULUX ACRYLIC EMULSION/ SOLITAIRE A-1000 (ICI), APCOLITE PREMIUM EMULSION (ASIAN), BEAUTY GOLD (NEROLAC), SILK (BERGER)
40	ACRYLIC SMOOTH EXTERIOR PAINT	APEX ULTIMA (ASIAN), DULUX WEATHERSHEILD (ICI), EXCEL (NEROLAC), WEATHERCOAT ALL GUARD (BERGER)
41	SYNTHETIC ENAMEL PAINTS	DULUX HI-GLOSS (ICI), APCOLITE PREMIUM GLOSS (ASIAN), NEROLAC HIGH GLOSS (NEROLAC), LUXOL HI-GLOSS (BERGER)
42	WOOD PRIMER	NEROLAC, BERGER, ASIAN PAINTS, ICI
43	STEEL PRIMER	NEROLAC, BERGER, ASIAN PAINTS, ICI
44	EXTERIOR WALL PRIMER	EXTERIOR NEROLAC PRIMER, EXTERIOR BERGER PRIMER, EXTERIOR ASIAN PAINTS PRIMER, EXTERIOR ICI PRIMER
45	WALL PUTTY (WHITE CEMENT BASED)	BIRLA WALL CARE, JK WHITE, BASEX, SARA WALL PUTY
46	POLYMER MODIFIED SELF CURING PLASTER	MYK LATICRETE, FERROUS CRETE, ARDEX ENDURA, ULTRATECH, RHEOPLAST
47	PAVER/ GRASS PAVER BLOCKS & KERB STONES/RCC MANHOLE COVER/DRAIN COVER	NATIONAL TILES CORPORATION, SARAL IMPEX, BALAJI TILES, METRO PAVERS, MGM INFRA, KRISHNA TILES, POOJA CONCRETE FABRICATORS, A-1 TILES, DALAL TILES, Bharat Tiles (BT)
48	VITREOUS CHINA SANITARY WARE	HINDWARE, CERA, PARRYWARE, JOHNSON PEDDER, SOMANY, KOHLER, GROHE, ROCA, JAGUAR
49	PLASTIC FLUSHING CISTERN FOR WC AND URINALS	JINDAL, STEEL BIRD, SEEMLINE, VIKRAM PLASTIC, PRAYAG POLYMERS (P) LTD.
50	PLASTIC SEAT COVER OF W.C.	AJANTA POLYMERS, JINDAL MALPINE, JAIN POLYMERS, CERA, HINDWARE, PARRYWARE
51	STAINLESS STEEL SINK	ALLEX, JAYNA, JMD INTERNATIONAL, STEEL CRAFT, KINGSTON, SILVER SHINE (BLUE STAR)
52	MIRROR GLASS	ATUL, MODIGUARD, GOLDEN FISH
53	CENTRIFUGALLY CAST (SPUN) IRON PIPES	NECO, RAJ PATTERN MAKERS & FOUNDERS, BENGAL IRON, DURGAPUR ISPAT UDYOG, SINGHAL IRON FOUNDRY (SKF), KAPILANSH DHATU UDYOG PVT. LTD., RPF, HIF.
54	HUBLESS CENTRIFUGALLY CAST (SPUN) IRON PIPES	NECO, RAJ PATTERN MAKERS & FOUNDERS, SINGHAL IRON FOUNDRY (SKF).
55	CP FITTINGS & ACCESSORIES	JAQUAR, HINDWARE, PRIMA, JAINKO, CERA, KINGSTON, KOHLER, GROHE, ROCA
56	BRASS STOP & BIB COCK	DHAWAN SANITARY UDYOG, JAINKO, SHAKTI, VARDHMAN INDIA PRODUCTS,
57	FERRULES FOR WATER SUPPLY	HIND METAL WORKS, KRITIKA, DRP, SHAKTI
58	BALL COCK WITH ROD	RESP FAUCET INDUSTRIES, DHAWAN SANITARY UDYOG, NEW METAL WORKS, KPR, PRAYAG.
59	POLYETHYLENE WATER STORAGE TANK	SINTEX, VECTUS, KAVERI
60	STONEWARE PIPES & GULLY TRAPS	SORKHI INDUSTRIES, RK INDUSTRIES, NAVNEET, MOLI CERAMICS, OCR, ANAND, SENTINI
61	PRE-CAST CONCRETE PIPES (NON-PRESSURE)	RAMNIK, BFSP, JAGDAMBEY SPUN PIPE, GURKIRPA SPUN PIPES
62	GI PIPE	JINDAL (HISSAR), TATA, BST, BHUSHAN POWER STEEL
63	GI FITTINGS	UNIK, AVR, ZOLOTO, SANT, HBI, C-BRAND, NVR
64	C-PVC PIPE/PVC PIPE	PRINCE, JINDAL (FLOWKEM), ASTRAL, AJAY POLYMERS, SUPREME, FINOLEX, SENTINI, SFMC
65	GUN METAL GATE, GLOBE, CHECK VALVES & NON-RETURN VALVES	LEADER, ZOLOTO, SANT, RAJAN METAL INDUSTRIES, H.B. METALS, HVI, NVR.
66	CENTRIFUGALLY CAST (SPUN) IRON PIPES (CLASS LA).	TRU FORM ENGINEERS, KAPILANSH, ELECTROSTEEL, HITECH METAL CASTINGS.
67	C.I. SLUICE VALVES & REFLEX VALVES	ZOLOTO INDUSTRIES, SANT VALVES, AMCO INDUSTRIES, KIRLOSKAR, RATAN INDUSTRIAL CORPORATION, HVI, NVR.
68	STAINLESS STEEL PIPES & FITTINGS	JINDAL STAINLESS STEEL, OM STEEL GROUP, V STEEL, VIEGA, RAMPART INDIA PVT. LTD.,
69	DUCTILE IRON PIPES & FITTINGS	JINDAL SAW LTD, ELECTRO STEEL, CHANDRANCHAL INFRA, ELECTROTHERAM, TATA
70	C.I./ D.I. MANHOLE COVERS & FRAMES	SWASTIKA ENTERPRISES, BENGAL IRON CORPORATION, NECO, BINAY UDYOG, CHANDERANCHAL, RAJ PATTERN MAKERS & FOUNDERS
71	WATER REPELLANT SILANE CHEMICAL	PIDILITE, FERROUS CRETE, ARDEX ENDURA
72	ALUMINIUM SECTIONS	HINDALCO, JINDAL, INDIAN ALUMINIUM CO., JSW

73	BASIC/ TOUGHENED ETC. GLASS	SAINT GOBAIN, ASAHI, MODI, GOLD PLUS GLASS, PILINGTON.
74	APPROVED PROCESSORS FOR PERFORMANCE GLASS/ TOUGHENED GLASS/ HERMETICALLY SEALED/ LACQUERED GLASS etc.	ART & GLASS, MIRAGE TOUGHENED GLASSES (P) LTD., AAR PAR GLASS, VERMA GLASS.
75	Plywood/ Veneer	Green Ply, Century, Merino, Duro, Durian.
76	Melamine Polish	Asian Paints Melamine Gold, Wudfin of Pidilite, Timbertone of ICI Dulux.
77	Floor Spring	Godrej, Dorma, Dorset, Kich.
	(a) Aluminium section	Hindalco, Jindal, Indian Aluminium Co.
	(b) Anodised Aluminium Hardware (Heavy Duty)	Kilong, Alualpha, Ebco, Classic.
78	Ployster Powder Coating Shades	NEROLAC, BERGER, J&N
79	Clear/ Float/ Frosted/ Refractive/ Coated Glass	Saint Gobain, Modiguard, Ashai Float.
80	Aluminium composite Panels	Reynobond, Alpolica, Aluco Bond
81	Friction Stay Hinges	Earl-Bihari, Ebco, Roto or approved equivalent
82	EPDM Gasket	Hanu/ Anand ,Raven,Zero.
83	Silicon Based water repellant/ weather sealant	G.E. Plastics, Dow Corning, Wacker, BASF, Pidilite (Dr. Fixit/Roff), Rheoplast
84	EPS	Snow pack Polymers, Reliable Insupacks , Fairmate
85	Cement Based wall putty	Birla Wall care, JK white
86	1 st Quality Acrylic Distemper (washable/Ready mix/Low VOC)	Asian Paints (Tractor Aqua Lock Paint) Berger: Commando Or Equivalent paints of Nerolac or ICI-Dulux.
87	Premium Acrylic Emulsion Paints (Interior)	Asian Paints (Royale Luxury Emulsion) Nerolac: Impression Berger: Silk ICI-Dulux: Velvet touch.
88	Premium Acrylic Smooth Exterior Paints with Silicon Additive.	ASIAN PAINTS-APEX ULTIMA WEATHER PROOF-7, DULUX-WEATHER SHILD PROTECT RAINROOF ALL WEATHER PROTECTION-7 (AKZONOBEL), BERGER-WEATHER COAT LONG LIFE-7,
89	Cement Primer	Nerolac, Berger, BP White (Beger), Decoprime WT (Asian), White primer (ICI).
90	Epoxy Paint	Asian, Nerolac, Berger, ICI, Kansai Akzo Nobel.
91	G.I. Fittings	Unik, AVR, Zoloto, KS, AMCO
92	Float Valve	IVC, Leader, Prayag, Kalsi Pump Pvt. Ltd., Dhawan Sanitary Udyog (Prima)
93	Gun metal Valves, globes	Leader, Zoloto, Kilburn, CIM Valves, Sant,ANNAPURANA
94	Brass stop & Bib Cock	Zoloto, Sant, L&K, Leader, JAINKO, Kalsi Pump Pvt. Ltd., Dhawan Sanitary (PRIMA)
95	Non Return valve (Check valve)½” to 1¼”	Kalsi Pumps Pvt. Ltd. Zoloto,Annapurna
96	Stainless steel sliding door bolts	Dorma or Geze or Hafele, Bhawani Fire
97	White vitreous china flat back half stall urinal (European Type W C. pan)	Jaquar , Hindware, Cera
98	3/6 litre slim wall mounted concealed cistern with dual flushing cistern	Jaquar , Hindware, Cera
99	Flushing plate of with flush pipe	Jaquar , Hindware, Cera
100	White vitreous china flat back half stall urinal.	Jaquar , Hindware, Cera
101	GALVANISED STEEL SHEETS (UNCOATED & PRE-COATED)	SAIL, TATA, BHUSHAN POWER STEELS, JINDAL, JSW
102	TOILET CUBICALS	GREENLAM, MERINO, DORMA
103	FIRE RATEDBALL BEARING HINGES OF STEEL GRADE SS304	DORMA, ASSA ABLOY, GEZE, D-LINE, HAFELE, SHAKTI HORMAN
104	FIRE RATED DEAD LOCK BOTH SIDE KEY OPERATION	DORMA, ASSA ABLOY, GEZE, D-LINE, HAFELE, SHAKTI HORMAN
105	PANIC BAR1&2 POINT LOCKING PANIC BOLT (DOOR Ht. UPTO 2400MM	DORMA, ASSA ABLOY, GEZE, D-LINE, HAFELE, SHAKTI HORMAN
106	EXTERNAL TRIM WITH LEVER HANDLE	DORMA, ASSA ABLOY, GEZE, D-LINE, HAFELE, SHAKTI HORMAN
107	AUTOMATIC DOOR METAL SEAL	DORMA, ASSA ABLOY, GEZE, D-LINE, HAFELE, SHAKTI HORMAN

108	FIRE SEAL	GEZE, DORMA, ASSA ABLOY, D-LINE, GODREJ
109	FLOOR SPRINGS SATIN STAINLESS STEEL	DORMA, ASSA ABLOY, GEZE, D-LINE, HAFELE, SHAKTI HORMAN
110	UPVC WINDOWS/ DOORS	FENESTA, REHAU, PROMINANCE WINDOW SYSTEM, ALUPLAST
111	UPVC WINDOW/ DOOR HARDWARE FITTINGS (ZINC ALLOY)	PULSE, HOPPE, GU, ROTO, GODREJ, KINLONG
112	FIRE RATED DOORS (METTALIC/ NON METTALIC)	KUTTY DOORS, NAVAIR, PROMAT, SHAKTI HORMAN, I-CLEAN
113	PUF Sandwich Panels	LLOYDS, JINDAL, TATA or Equivalent
114	LIGHT WEIGHT GYPSUM PLASTER	SAINT GOBAIN, ULTRATECH, FERROUS CRETE, USG BORAL.
115	TEXTURED EXTERIOR PAINT*	NEROLAC, BERGER, ASIAN PAINTS, ICI
116	FAÇADE GLASS OPENABLE FITTINGS	ALUALPHA, SAVIO, HOPPE, ALUTECH
117	GLASS FAÇADE/ GLASS CANOPY WITH SS SPIDER FITTINGS	ALCOB, ALUPRO, ALUPLAX, SP FABRICATORS, SAINT GOBAIN, GLAVERBEL.
118	FRAMELESS GLAZING WITH SS PATCH FITTINGS	DORMA, ASSA ABLOY, GEZE, D-LINE

* Batch test certificate of Paints and Primer shall be supplied along with each lot.

Note: (i) The Superintending Engineer-Karnal reserves the right to add or delete any materials and brands in the list of preferred materials/ brands.
(ii) Any materials/ brands bearing ISI mark can be used in the work with the prior approval of the Executive Engineer-Karnal.

The contractor gives an authority letter addressed to the Engineer-in-charge on a non-judicial stamp paper of Rs. 100 in the format given below :-

Authority Letter for Payment to Third Party

To,

The Executive Engineer

C.P.W.D., Karnal

Sub:- **Authority for payment to third party.**

I/We authorize the **Executive Engineer, CPWD, Karnal** to pay directly on my /
our
behalf to(name of third party) an amount of
Rs.

..... (Rupees in words)

for

the work done or supplies made by(name of third
party).

I/We shall be responsible for the quality and quantity of the same under the
provisions of
agreement No.

Signature of Contractor

Note :-

1. The total payment to third party (or parties) shall not exceed 10% of the agreement cost of the work.
2. Full reasons for proposing such third party payment shall be recorded and prior written approval of the next higher authority shall be obtained before

SCHEDULE OF QUANTITY					
Name of work:- Repair & renovation of E-Type Quarters at ICAR-NDRI, Karnal, Haryana.					
SLNo	Description	Qty	Unit	Rate	Amount
1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :				
1.1	1:1.5:3 (1 Cement: 1.5 coarse sand (zone-III) derived from natural sources : 3 graded stone aggregate 20 mm nominal size derived from natural sources)	18	cum	8340.85	150135.00
1.2	1:5:10 (1 cement : 5 coarse sand (zone-III) derived from natural sources : 10 graded stone aggregate 40 mm nominal size derived from natural sources)	27	cum	6518.60	176002.00
2	Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15 degree landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases above plinth level up to floor five level, excluding the cost of centering, shuttering, finishing and reinforcement with 1:1.5:3 (1 cement : 1.5 coarse sand (zone-III) derived from natural sources : 3 graded stone aggregate 20 mm nominal size derived from natural sources).	15	cum	11505.50	172583.00
3	Centering and shuttering including strutting, propping etc. and removal of form for				
3.1	Weather shed, Chajjas, corbels etc., including edges	133	sqm	951.10	126496.00
4	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete above plinth level.				
4.1	Thermo-Mechanically Treated bars of grade Fe-500D or more.	1650	kg	107.85	177953.00
5	Smooth finishing of the exposed surface of R.C.C. work with 6 mm thick cement mortar 1:3 (1 Cement: 3 fine sand).	270	sqm	300.45	81122.00
6	Providing and fixing 18 mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills, facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing of edges to give high gloss finish etc. complete at all levels.				
6.1	Granite stone slab of colour black, Cherry/Ruby red				

6.1.1	Area of slab over 0.50 sqm	140	sqm	5136.30	719082.00
7	Providing and laying Vitrified tiles in floor in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS:15622, of approved brand & manufacturer, in all colours and shade, laid on 20 mm thick cement mortar 1:4 (1 cement: 4 coarse sand) jointing with grey cement slurry @3.3 kg/sqm including grouting the joints with white cement and matching pigments etc. The tiles must be cut with the zero chipping diamond cutter only . Laying of tiles will be done with the notch trowel, plier, wedge, clips of required thickness, leveling system and rubber mallet for placing the tiles gently and easily.				
7.1	Glazed vitrified floor tiles polished finish of size				
7.1.1	Size of Tile 600 x 600 mm	2425	sqm	1502.75	3644169.00
8	Deduct for not using 20 mm thick cement mortar 1:4 (1 cement: 4 coarse sand) bedding in laying of floor tiles and jointing with grey cement slurry @ 3.3 kg/ sqm.	-2425	sqm	850.10	-2061493.00
9	Fixing glazed/ Ceramic/ Vitrified floor tiles with cement based high polymer modified quick-set tile adhesive (Water based) conforming to IS: 15477, in average 3 mm thickness.	2425	sqm	753.25	1826631.00
10	Grouting the joints of flooring tiles having joints of 3 mm width, using epoxy grout mix of 0.70 kg of organic coated filler of desired shade (0.10 kg of hardener and 0.20 kg of resin per kg), including filling / grouting and finishing complete as per direction of Engineer-in-charge.				
10.1	Size of Tile 600x600 mm	2425	sqm	309.05	749446.00
11	12 mm cement plaster of mix:				
11.1	1:6 (1 cement: 6 coarse sand)	840	sqm	343.65	288666.00
12	15 mm cement plaster on rough side of single or half brick wall of mix:				
12.1	1:6(1 cement: 6 coarse sand)	840	sqm	395.35	332094.00
13	Removing dry or oil bound distemper, water proofing cement paint and the like by scrapping, sand papering and preparing the surface smooth including necessary repairs to scratches etc. complete.	9420	sqm	25.15	236913.00
14	Repairs to plaster of thickness 12 mm to 20 mm in patches of area 2.5 sq.meters and under, including cutting the patch in proper shape, raking out joints and preparing and plastering the surface of the walls complete, including disposal of rubbish to the dumping ground, all complete as per direction of				

	Engineer-in-Charge.				
14.1	With cement mortar 1:4 (1cement: 4 coarse sand)	1120	sqm	560.50	627760.00
15	Hacking of CC flooring including cleaning for surface etc. complete as per direction of the Engineer-in-Charge.	2332	sqm	3.45	8045.00
16	Taking out existing wooden door shutter, repair by cutting, painting etc. and refixing of repaired door shutters to existing door frames, including replacement of hinges with screws, etc. as required, all complete as per the direction of the Engineer-in-charge.	266	each	429.10	114141.00
17	Dismantling old plaster or skirting raking out joints and cleaning the surface for plaster including disposal of rubbish to the dumping ground within 50 metres lead.	1680	sqm	54.65	91812.00
18	Disposal of building rubbish / malba / similar unserviceable, dismantled or waste materials by mechanical means, including loading, transporting, unloading to approved municipal dumping ground or as approved by Engineer-in-charge, beyond 50 m initial lead, for all leads including all lifts involved.	25	cum	263.95	6599.00
	TOTAL				7468156.00
	Modified estimated cost after using Correction factor on DSR 2023 on account of GST @ 0.973				7266516.00
19	Supplying material of premium acrylic emulsion paint of interior grade (warranty not less than 6 year), having VOC (Volatile Organic Compound) content less than 50 grams/ litre of approved brand and manufacturer as per complete direction of Engineer in charge	218.00	ltr	271.75	59242.00
20	Applying wall painting with premium acrylic emulsion paint of interior grade, having VOC (Volatile Organic Compound) content less than 50 grams/ litre of approved brand and manufacturer as per complete direction of Engineer in charge . Two coats (Material shall be supplied by the deptt. Free of cost)	3640.00	sqm	121.10	440804.00
21	Supplying material of Premium Acrylic Smooth exterior paint (warranty not less than 6 year) with Silicone additives of required shade:as per complete direction of Engineer in charge	1266.00	Litre	323.50	409551.00
22	Applying Premium Acrylic Smooth exterior paint with Silicone additives of required shade as per complete direction of Engineer in charge. New work (Two or more coats applied @ 1.43 ltr/10 sqm(Material shall be supplied by the deptt. Free of cost)	8850.00	sqm	80.50	712425.00

23	Supplying material of Acrylic Exterior Primer (warranty not less than 6 year) as per complete direction of Engineer in charge	797.00	sqm	103.50	82490.00
24	Applying Acrylic Exterior Primer as per complete direction of Engineer in charge. Priming coat of exterior primer applied @ 0.90 litre/10 sqm(Material shall be supplied by the depts. Free of cost)	8850.00	Litre	26.00	230100.00
25	Supplying material of synthetic enamel paint (warranty not less than 6 year) of approved brand and manufacture as per complete direction of Engineer in charge	347.00	Litre	232.90	80816.00
26	Applying painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade with Airless spray machine: One or more coats on old work @ 0.70 litre per 10 sqm(Material shall be supplied by the depts. Free of cost)	4950.00	sqm	41.75	206663.00
TOTAL					9488607.00
Contractors BID		Estimated cost	Percentage above or below the estimated cost	% in Figures	Total Cost
		9488607.00			-
Grand Total					-

Assistant Engineer-(P)
CPWD, Karnal

Executive Engineer-Karnal
CPWD, Karnal