

**ICAR-NATIONAL DAIRY RESEARCH INSTITUTE, KARNAL
NATIONAL AGRICULTURAL HIGHER EDUCATION PROJECT**

**NATIONAL COMPETITIVE BIDDING
(CIVIL WORKS COSTING UPTO US \$ 30,00,000 AND > 1,00,000)**

NAME OF WORK	Providing one parking shed, one open sitting shed with PUF sheet roofing and SS furniture/railing, Aluminium frame/wire mesh in balconies, Rain water harvesting system, paver block flooring, and other flooring/plastering/RCC repair works etc. of various hostels at ICAR-NDRI, Karnal
PERIOD OF SALE OF BIDDING DOCUMENT	29 th November,2022 to 28 th December,2022
LAST DATE AND TIME FOR RECEIPT OF BIDS	28 th December,2022 by (11:00 AM)
TIME AND DATE OF OPENING OF BIDS	28 th December,2022 by (15:00 PM)
PLACE OF OPENING OF BIDS	Mini-Auditorium, ICAR-NDRI, Karnal
OFFICER INVITING BIDS	Sh. K.L. Meena, Chief Administrative Officer(Sr. Grade),ICAR-NDRI, Karnal-132001 Tel. Mob. No: 0184-2259035 0184-2259431

* Should be the same as for the deadline for receipt of bids or promptly thereafter.

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ICAR-NATIONAL DAIRY RESEARCH INSTITUTE, KARNAL
NATIONAL AGRICULTURAL HIGHER EDUCATION PROJECT
INVITATION FOR BIDS FOR CONSTRUCTION OF
CIVIL WORKS UNDER NATIONAL COMPETITIVE BIDDING

F. No. 3-532/NAHEP/Hostel Work/2020-21/EV

Dated: 28.11.2022

1. The Government of India has received a credit from the International Development Association / loan from the International Bank for Reconstruction & Development towards the cost of National Agricultural Higher Education Project (NAHEP) Project and intends to apply a part of the funds to cover eligible payments under the contracts for construction of works as detailed below. Bidding is open to all bidders from eligible source countries as defined in the *IBRD Guidelines for Procurement*. Bidders from India should, however, be registered with the Government of India or other State Governments/Government of India, or State/Central Government Undertakings. **Bidders are advised to note the minimum qualification criteria specified in Clause 4 of the Instructions to Bidders to qualify for the award of the contract.**
2. The Director, ICAR-NDRI, Karnal invites bids for the construction of works detailed in the table. The bidders may submit bids for all of the following works.
3. Bidding documents (and additional copies) may be downloaded from the website of the Institute(www.ndri.res.in)
4. Bids must be accompanied by security of the amount specified for the work in the table below, drawn in favour of The Director, ICAR-NDRI, Karnal. Bid security will have to be in anyone of the forms as specified in the bidding document and shall have to be valid for 180 days beyond the validity of the bid.
5. Bids must be delivered to Office of Administrative Officer, E-V(Co-ordination) Section, ICAR-NDRI, Karnal on or before 11:00 hours on 28.12.2022 and will be opened on the same day at 15:00 hours, in the presence of the bidders who wish to attend. If the office happens to be closed on the date of receipt of the bids as specified, the bids will be received and opened on the next working day at the same time and venue.
6. Other details can be seen in the bidding documents.

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TABLE

Sl. No.	Brief Description of the works	Approx. value of works (Rs. in Lakhs)	Period of Completion	Bid Security
1.	Providing one parking shed, one open sitting shed with PUF sheet roofing and SS furniture /railing, Aluminium frame/ wire mesh in balconies, Rain water harvesting system, paver block flooring, and other flooring /plastering /RCC repair works etc. of various hostels at ICAR-NDRI, Karnal	6997854/-	90 days	150000/-

Name: Sh. K.L.Meena
Address: Chief Administrative Officer(Sr. Grade)
ICAR-NDRI, Karnal-132001
Tel No: 0184-2259035
0184-2259431

28/11/2022

Section 1: Instructions to Bidders

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A. General

1. Scope of Bid

The Director, ICAR-NDRI, Karnal invites bids for the **“Providing one parking shed, one open sitting shed with PUF sheet roofing and SS furniture/railing, Aluminium frame/wiremesh in balconies, Rain water harvesting system, paver block flooring, and other flooring/plastering / RCC repair works etc. of various hostels at ICAR-NDRI, Karnal”** as detailed in the table given below:-

Sl. No.	Brief Description of the works	Approx. value of works (Rs. in Lakhs)	Period of Completion
1.	Providing one parking shed, one open sitting shed with PUF sheet roofing and SS furniture /railing, Aluminium frame/ wire mesh in balconies, Rain water harvesting system, paver block flooring, and other flooring /plastering /RCC repair works etc. of various hostels at ICAR-NDRI, Karnal	6997854/-	90 days

The successful bidder will be expected to complete the works by the intended completion date specified in the Contract data.

2. Source of Funds

The Government of India has received a loan/credit from the International Bank for Reconstruction and Development/the International Development Association (hereinafter interchangeably called “the Bank”) towards the cost of the National Agricultural Higher Education Project (NAHEP) Project and intends to apply a part of the funds to cover eligible payments under the contract for the Works. Payments by the Bank will be made only at the request of the borrower and upon approval of the Bank in accordance with the *Loan/Credit Agreement*, and will be subject in all respects to the terms and conditions of that Agreement. Except as the Bank may specifically otherwise agree, no party other than the borrower shall derive any rights from the *Loan/Credit Agreement* or have any rights to the loan/credit proceeds.

The loan agreement prohibits a withdrawal from the loan account for the purpose of any payment to persons or entities, or for any import of goods, if such payment or import, to the knowledge of the Bank, is prohibited by a decision of the United Nations Security Council, taken under Chapter VII of the Charter of the United Nations.

3. Eligible Bidders

This *Invitation for Bids* is open to all bidders from the eligible countries as defined under the *IBRD Guidelines for Procurement*. Any materials, equipment, and services to be used in the performance of the Contract shall have their origin in the eligible source countries.

All bidders shall provide in Section 2, Forms of Bid and Qualification Information, a statement that the Bidder is not associated, nor has been associated in the past, directly or indirectly, with the Consultant or any other entity that has prepared the design, specifications, and other documents for the Project or being proposed as Project Manager

for the Contract. A firm that has been engaged by the Borrower to provide consulting services for the preparation or supervision of the works, and any of its affiliates, shall not be eligible to bid.

Government-owned enterprises in the Employer's country may only participate if they are legally and financially autonomous, operate under commercial law and are not a dependent agency of the Borrower or Sub-borrower.

Bidders shall not be under a declaration of ineligibility for corrupt and fraudulent practices issued by the Bank in accordance with sub-clause 37.1.

4. Qualification of the Bidder

All bidders shall provide in Section 2, Forms of Bid and Qualification Information, a preliminary description of the proposed work method and schedule, including drawings and charts, as necessary.

All bidders shall include the following information and documents with their bids in Section 2:

- (a) copies of original documents defining the constitution or legal status, place of registration, and principal place of business; written power of attorney of the signatory of the Bid to commit the Bidder;
- (b) total monetary value of construction work performed for each of the last five years(,2017-18,2018-19,2019-20,2020-21,2021-22);
- (c) experience in works of a similar nature and size for each of the last five years, and details of works under way or contractually committed; and clients who may be contacted for further information on those contracts;
- (d) major items of construction equipment proposed to carry out the Contract;
- (e) qualifications and experience of key site management and technical personnel proposed for the Contract;
- (f) reports on the financial standing of the Bidder, such as profit and loss statements and auditor's reports for the past five years(2017-18,2018-19,2019-20,2020-21,2021-22);
- (g) evidence of adequacy of working capital for this contract (access to line (s) of credit and availability of other financial resources);
- (h) authority to seek references from the Bidder's bankers;
- (i) information regarding any litigation or arbitration resulting from contracts executed by the Bidder in the last five years or currently under execution. The information shall include the names of the parties concerned, the disputed amount, cause of litigation, and matter in dispute; and
- (j) proposals for subcontracting components of the Works which in aggregate add to more than 20 percent of the Contract Price [*for each, the qualifications and*

experience of the identified sub-contractor in therelevant field should be annexed; no vertical splitting of work for sub-contracting is acceptable].

Bids from Joint ventures are not acceptable.

A. To qualify for award of the contract, each bidder in its name should have in the last five years:i.e(2017-18,2018-19,2019-20,2020-21,2021-22); *

- (a) achieved, in at least two financial years, a minimum annual financial turnover (in all classes of civil engineering construction works only) of Rs.1,40,00,000/- @ (usually not less than two times the estimated annual payments under the contract);
- (b) Satisfactorily completed. (Not less than 90% of contract value as a prime contractor or as subcontractor duly certified by the employer(main contractor) at least one similar work of value not less than Rs 56,00,000/-
- (c) The contractor or his identified sub-contractor should possess required valid license/ Enlistment in appropriate class with any Govt .organization like c.p.w.d./pwd/MES etc. for executing the civil (water supply/sanitary engineering) works and should have executed similar civil (water supply/sanitaryengineering) works totaling Rupees @* Rs 56,00,000/- * in any oneyear(if applicable).
- (d) Certificate of registration with the labour Department of Haryana
- (e) Copy of the PAN No.
- (f) Copy of the GST No.
- (g) The bidder should submit the Certificate of Non-Blacklisting
- (h) Copy of self declaration-No Blood relation with the NDRI official involved in handing the execution of work as mentioned in the bid
- (i) The Bidder must submit all the documents/proofs/testimonials/certificates etc. as mentioned above with self-certification on each page.

@ at _____ price level. Financial turnover and cost of completed works of previous years shall be given weightage of 5% per year based on rupee value to bring them to _____* price level.*

4.5 B. To qualify for a package of contracts made up of this and other contracts for which bids are invited in the IFB, the bidder must demonstrate having experience and resources sufficient to meet the aggregate of the qualifying criteria for the individual contracts.

Sub-contractors' experience and resources shall not be taken into account in determining the bidder's compliance with the qualifying criteria except to the extent stated in para 4.5 (A)(b, d and e) above.

Bidders who meet the minimum qualification criteria will be qualified only if their available bid capacity is more than the total bid value. The available bid capacity will be calculated as under:

$$\text{Assessed Available Bid capacity} = (A * N * 1.5 - B)$$

where

A = Maximum value of civil engineering works executed in any one year during the last five years (updated to _____* price level) taking into account the completed as well as works in progress.

N = Number of years prescribed for completion of the works for which bids are invited.

B = Value, at _____* price level, of existing commitments and on-going works to be completed during the next years (period of completion of the works for which bids are invited)

Note: *The statements showing the value of existing commitments and on-going works as well as the stipulated period of completion remaining for each of the works listed should be countersigned by the Engineer in charge, not below the rank of an Executive Engineer or equivalent.*

Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have:

- made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and/or
- record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures etc.; and/or
- participated in the previous bidding for the same work and had quoted unreasonably high bid prices and could not furnish rational justification to the employer.

5. One Bid per Bidder

Each bidder shall submit only one bid for one contract. A bidder who submits or participates in more than one Bid (other than as a subcontractor or in cases of alternatives that have been permitted or requested) will cause all the proposals with the Bidder's participation to be disqualified.

6. Cost of Bidding

The bidder shall bear all costs associated with the preparation and submission of his Bid, and the Employer will in no case be responsible and liable for those costs.

*

the financial year in which bids are received

7. Site visit

The Bidder, at the Bidder's own responsibility and risk is encouraged to visit and examine the Site of Works and its surroundings and obtain all information that may be necessary for preparing the Bid and entering into a contract for construction of the Works. The costs of

visiting the Site shall be at the Bidder's own expense.

B. Bidding Documents

8. Content of Bidding Documents

The set of bidding documents comprises the documents listed in the table below and addenda issued in accordance with Clause 10:

		Invitation for Bids
Section	1	Instructions to Bidders
	2	Forms of Bid and Qualification Information
	3	Conditions of Contract
	4	Contract Data
	5	Specifications
	6	Drawings
	7	Bill of Quantities
	8	Forms of Securities

9. Clarification of Bidding Documents

- 9.1 A prospective bidder requiring any clarification of the bidding documents may notify the Employer in writing or by cable (hereinafter "cable" includes telex and facsimile) at the Employer's address indicated in the invitation to bid. The Employer will respond to any request for clarification which he received earlier than 15 days prior to the deadline for submission of bids. Copies of the Employer's response will be forwarded to all purchasers of the bidding documents, including a description of the enquiry but without identifying its source.

10. Amendment of Bidding Documents

Before the deadline for submission of bids, the Employer may modify the bidding documents by issuing addenda.

Any addendum thus issued shall be part of the bidding documents and shall be communicated in writing to all the purchasers of the bidding documents. Prospective bidders shall acknowledge receipt of each addendum in writing to the Employer.

To give prospective bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer shall extend as necessary the deadline for submission of bids, in accordance with Sub- Clause 20.2 below.

C. Preparation of Bids

11. Language of the Bid

11.1 All documents relating to the bid shall be in the English language.

12. Documents comprising the Bid

The bid submitted by the bidder shall comprise the following:

- (a) The Bid (in the format indicated in Section 2).
- (b) Bid Security;
- (c) Priced Bill of Quantities;
- (d) Qualification Information Form and Documents;

and any other materials required to be completed and submitted by bidders in accordance with these instructions. The documents listed under Sections 2, 4 and 7 of Sub-Clause 8.1 shall be filled in without exception.

Bidders bidding for this contract together with other contracts stated in the IFB to form a package will so indicate in the bid together with any documents offered for the award of more than one contract.

13. Bid Prices

The contract shall be for the whole works as described in Sub-Clause 1.1, based on % rate basis submitted by the Bidder.

The bidder shall fill in rates and prices and line item total (both in figures and words) for all items of the Works described in the Bill of Quantities alongwith total bid price (both in figures and words). *Items for which no rate or price is entered by the bidder will not be paid for by the Employer when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities.* Corrections, if any, shall be made by crossing out, initialing, dating and rewriting.

All duties, taxes, and other levies payable by the contractor under the contract, or for any other cause, shall be included in the rates, prices and total Bid Price submitted by the Bidder.

The rates and prices quoted by the bidder shall be fixed for the duration of the Contract and shall not be subject to adjustment on any account.

14. Currencies of Bid and Payment

14.1 The unit rates and the prices shall be quoted by the bidder entirely in Indian Rupees.

15. Bid Validity

Bids shall remain valid for a period not less than ninety days after the deadline date for

bid submission specified in Clause 20. A bid valid for a shorter period shall be rejected by the Employer as non-responsive.

In exceptional circumstances, prior to expiry of the original time limit, the Employer may request that the bidders may extend the period of validity for a specified additional period. The request and the bidders' responses shall be made in writing or by cable. A bidder may refuse the request without forfeiting his bid security. A bidder agreeing to the request will not be required or permitted to modify his bid except as provided in 15.3 hereinafter, but will be required to extend the validity of his bid security for a period of the extension, and in compliance with Clause 16 in all respects.

16. Bid Security

The Bidder shall furnish, as part of his Bid, a Bid security in the amount as shown in column 4 of the table of IFB for this particular work. This bid security shall be in favour of **“The Director, ICAR-NDRI, Karnal”** and may be in one of the following forms:

- a bank guarantee issued by a nationalized / Scheduled Bank located in India or a reputable Bank located abroad in the form given in Section 8; or
- Certified cheque/ Bank draft/Letter of credit, in favour of **“The Director, ICAR-NDRI, Kanak” payable at Kanak.**

Bank guarantees issued as surety for the bid shall be valid for 90 days beyond the validity of the bid.

Any bid not accompanied by an acceptable Bid Security and not secured as indicated in Sub-Clauses 16.1 and 16.2 above shall be rejected by the Employer as non-responsive.

The Bid Security of unsuccessful bidders will be returned within 28 days of the end of the bid validity period specified in Sub-Clause 15.1.

The Bid Security of the successful bidder will be discharged when the bidder has signed the Agreement and furnished the required Performance Security.

The Bid Security may be forfeited

- (a) if the Bidder withdraws the Bid after Bid opening during the period of Bid validity;
- (b) if the Bidder does not accept the correction of the Bid Price, pursuant to Clause 27; or
- (c) in the case of a successful Bidder, if the Bidder fails within the specified time limit to
 - (i) sign the Agreement; or
 - (ii) furnish the required Performance Security.

17. Alternative Proposals by Bidders

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

18. Format and Signing of Bid

The Bidder shall prepare one original and a copy of the documents comprising the bid as described in Clause 12 of these *Instructions to Bidders*, bound with the volume containing the Form of Bid, and clearly marked "**ORIGINAL**" and "**COPY**" as appropriate. In the event of discrepancy between them, the original shall prevail.

The original and a copy of the Bid shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the Bidder, pursuant to Sub-Clauses 4.3. All pages of the bid where entries or amendments have been made shall be initialed by the person or persons signing the bid.

The Bid shall contain no alterations or additions, except those to comply with instructions issued by the Employer, or as necessary to correct errors made by the bidder, in which case such corrections shall be initialed by the person or persons signing the bid.

The Bidder shall furnish information as described in the Form of Bid on commissions or gratuities, if any, paid or to be paid to agents relating to this Bid, and to contract execution if the Bidder is awarded the contract

D. Submission of Bids

19. Sealing and Marking of Bids

The Bidder shall seal the original and a copy of the Bid in separate envelopes, duly marking the envelopes as "**ORIGINAL**" and "**COPY**". These envelopes (called as inner envelopes) shall then be put inside one outer envelope.

The **inner and outer** envelopes shall

- (a) be addressed to the Employer at the following address:
**Administrative Officer, E-V(Co-ordination Section),
ICAR-NDRI, Karnal**
and
- (b) bear the following identification:
 - Bid for [name of contract]
 - Bid Reference No.....[insert number]
 - DO NOT OPEN BEFORE[time and date for bid opening, per Clause 23]

In addition to the identification required in Sub-Clause 19.2, the inner envelopes shall indicate the name and address of the bidder to enable the bid to be returned unopened in case it is declared late, pursuant to Clause 21.

If the outer envelope is not sealed and marked as above, the Employer will assume no responsibility for the misplacement or premature opening of the bid.

20. Deadline for Submission of the Bids

Bids must be received by the Employer at the address specified above no later than . In the event of the specified date for the submission of bids being declared a holiday for the Employer, the Bids will be received upto the appointed time on the next working day.

The Employer may extend the deadline for submission of bids by issuing an amendment in accordance with Clause 10, in which case all rights and obligations of the Employer and the bidders previously subject to the original deadline will then be subject to the new deadline.

21. Late Bids

- 21.1 Any Bid received by the Employer after the deadline prescribed in Clause 20 will be returned unopened to the bidder.

22. Modification and Withdrawal of Bids

Bidders may modify or withdraw their bids by giving notice in writing before the deadline prescribed in Clause 20.

Each Bidder's modification or withdrawal notice shall be prepared, sealed, marked, and delivered in accordance with Clause 18 & 19, with the outer and inner envelopes additionally marked "**MODIFICATION**" or "**WITHDRAWAL**", as appropriate.

Withdrawal or modification of a Bid between the deadline for submission of bids and the expiration of the original period of bid validity specified in Clause 15.1 above or as extended pursuant to Clause 15.2 may result in the forfeiture of the Bid security pursuant to Clause 16.

Bidders may offer discounts to, or modify the prices of their Bids only by submitting Bid modifications in accordance with this clause, or included in the original Bid submission.

23. Performance Security

- 23.1 Within 21 days of receipt of the Letter of Acceptance, the successful Bidder shall deliver to the Employer a Performance Security in any of the forms given below for an amount equivalent to 5% of the Contract price plus additional security for unbalanced Bids in accordance with Clause 29.5 of ITB and Clause 52 of Conditions of Contract :

- a bank guarantee in the form given in Section 8; or
- Certified cheque/Bank draft, in favour of "The Director, ICAR-NDRI, Karnal payable at Karnal.-

If the performance security is provided by the successful Bidder in the form of a Bank Guarantee, it shall be issued either (a) at the Bidder's option, by a Nationalized/Scheduled Indian bank or (b) by a foreign bank located in India and acceptable to the Employer .

Failure of the successful bidder to comply with the requirements of sub-clause 23.1 shall constitute a breach of contract, cause for annulment of the award, forfeiture of the bid security,

and any such other remedy the Employer may take under the contract, and the Employer may resort to awarding the contract to the next ranked bidder.

24 Corrupt or Fraudulent Practices

The Bank requires that Borrowers (including beneficiaries of Bank loans), as well as Bidders, Suppliers, Contractors, and Consultants under Bank-financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuit of this policy, the Bank:

- (a) defines, for the purposes of this provision, the terms set forth below as follows:
 - (i) “corrupt practice” means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in contract execution;
 - (ii) “fraudulent practice” means a misrepresentation or omission of facts in order to influence a procurement process or the execution of a contract;
 - (iii) “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of the borrower, designed to establish bid prices at artificial, non competitive levels; and
 - (iv) “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the procurement process or affect the execution of a contract;
- (b) will reject a proposal for award if it determines that the Bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing for the Contract in question;
- (c) will cancel the portion of the loan allocated to a contract if it determines at any time that representatives of the Borrower or of a beneficiary of the loan engaged in corrupt, fraudulent, collusive or coercive practices during the procurement or the execution of that contract, without the Borrower having taken timely and appropriate action satisfactory to the Bank to remedy the situation;
- (d) will sanction a firm or individual, including declaring them ineligible, either indefinitely or for a stated period of time, to be awarded a Bank-financed contract if it at any time determines that they have, directly or through an agent, engaged, in corrupt, fraudulent, collusive or coercive practices in competing for, or in executing, a Bank-financed contract; and
- (e) will have the right to require that a provision be included in Bidding Documents and in contracts financed by a Bank loan, requiring Bidders, Suppliers, Contractors and Consultants to permit the Bank to inspect their accounts and records and other documents relating to the bid submission and contract performance and to have them audited by auditors appointed by the Bank.

SAFETY CODES

1. Suitable scaffolds should be provided for workmen for all works that cannot safely be done from the ground, or from solid construction except such short period work as can be done safely from ladders. When a ladder is used, an extra mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying materials as well suitable footholds and hand-hold shall be provided on the ladder and the ladder shall be given an inclination not steeper than $\frac{1}{4}$ to 1 ($\frac{1}{4}$ horizontal and 1 vertical.)
2. Scaffolding of staging more than 3.6 m (12ft.) above the ground or floor, swung or suspended from an overhead support or erected with stationary support shall have a guard rail properly attached or bolted, braced and otherwise secured at least 90 cm. (3ft.) high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such opening as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.
3. Working platforms, gangways and stairways should be so constructed that they should not sag unduly or unequally, and if the height of the platform or the gangway or the stairway is more than 3.6 m (12ft.) above ground level or floor level, they should be closely boarded, should have adequate width and should be suitably fastened as described in (2) above.
4. Every opening in the floor of a building or in a working platform shall be provided with suitable means to prevent the fall of person or materials by providing suitable fencing or railing whose minimum height shall be 90 cm. (3ft.)
5. Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9m. (30ft.) in length while the width between side rails in rung ladder shall in no case be less than 29 cm. (11½") for ladder up to and including 3 m. (10 ft.) in length. For longer ladders, this width should be increased at least $\frac{1}{4}$ " for each additional 30 cm. (1 foot) of length. Uniform step spacing of not more than 30 cm shall be kept. Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites or work shall be so stacked or placed as to cause danger or inconvenience to any person or the public. The contractor shall provide all necessary fencing and lights to protect the public from accident and shall be bound to bear the expenses of defence of every suit, action or other proceedings at law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and cost which may be awarded in any such suit; action or proceedings to any such person or which may, with the consent of the contractor, be paid to compensate any claim by any such person.
6. All necessary personal safety equipment as considered adequate by the Engineer-in-Charge should be kept available for the use of the person employed on the site and maintained in a condition suitable for immediate use, and the contractor should take adequate steps to ensure proper use of equipment by those concerned.
7. An additional clause (viii)(i) of Central Public Works Department Safety Code (iv) the Bidder shall not employ women and men below the age of 18 on the work of painting with product containing lead in any form, wherever men above the age of 18 are employed on the work of lead painting, the following principles must be observed for such use :
 - i. White lead, sulphate of lead or product containing this pigment, shall not be used in painting operation except in the form of pastes or paint ready for use.
 - ii. Measures shall be taken, wherever required in order to prevent danger arising from the application of paint in the form of spray.
 - iii. Measures shall be taken, wherever practicable, to prevent danger arising out of dust caused by dry rubbing down and scraping.
 - iv. Adequate facilities shall be provided to enable working painters to wash during and on cessation of work.
 - v. Overall shall be worn by working painters during the whole of working period.
 - vi. Suitable arrangement shall be made to prevent clothing put off during working hours being spoiled by painting materials.
 - vii. Cases of lead poisoning and suspected lead poisoning shall be notified and shall be subsequently verified by medical officer appointed by competent authority of NDRI KARNAL

- viii. NDRI KARNAL may require, when necessary medical examination of workers.
- ix. Instructions with regard to special hygienic precautions to be taken in the painting trade shall be distributed to working painters.
- 8. Use of hoisting machines and tackle including their attachments, anchorage and supports shall conform to the standards laid down in the safety codes.
- 9. All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in safe condition and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities should be provided at or near places of work.
- 10. These safety provisions should be brought to the notice of all concerned by display on a notice board at a prominent place at work spot. The person responsible for compliance of the safety code shall be named therein by the contractor.
- 11. To ensure effective enforcement of the rules and regulations relating to safety precautions the arrangements made by the Bidder shall be open to inspection by the Labour Officer or Maintenance Engineer of the NDRI Karnal or their representatives.
- 12. Notwithstanding the above clauses, there is nothing in these to exempt the contractor from the operations of any other Act or Rule in force in the Republic of India.

LABOUR LAWS TO BE COMPLIED BY THE CONTRACTOR

The following Labour Laws to be complied by the Contractor

(Any failure to fulfil these requirements shall attract the penal provisions of this contract arising out of the resultant non-execution of the work.)

- The contractor shall obtain a valid licence under the Contract Labour (R&A) Act, 1970, and the Contract Labour (Regulation and Abolition) Central Rules, 1971, before the commencement of the work, and continue to have a valid license until the completion of the work. The contractor shall also abide by the provisions of the Child Labour (Prohibition and Regulation) Act, 1986.
- The contractor shall pay to labour employed by him either directly or through subcontractors, wages not less than fair wages as defined as per the provisions of the Contract Labour (Regulation and Abolition) Act, 1970 and the contract Labour (Regulation and Abolition) Central Rules, 1971, wherever applicable.
- The contractor shall comply with all the provisions of the Minimum Wages Act, 1948, and Contract Labour (Regulation and Abolition) Act, 1970, amended from time to time and rules framed there under and other labour laws affecting contract labour that may be brought into force from time to time.
- The contractor shall indemnify and keep indemnified Government against payments to be made under and for the observance of the laws aforesaid without prejudice to his right to claim indemnity from his subcontractors.

LAWS RELATED TO HEALTH & SAFETY

The Labor Management Plan outlines Environmental, Occupational Health & Safety and Social (OHSS) guideline, management system and governance controls on these issue for the implementation of NAHEP. Through this guideline and associated standard operating procedures, it has been intended to integrate the social, occupational health and safety principles of the National, and World Banks Social Standards guidelines with the working strategy of the project.

The contractor shall ensure safety and health of the workers, compliance to the existing labor laws with respect to daily working hours, payment of wages, welfare and compensation etc. during construction of the infrastructure proposed under the project. The AUs with the guidance of PIU, NAHEP shall monitor the compliance by the contractor. The guidelines will broadly cover the following:

- Compliance with the provisions of the labor laws applicable to construction industry;
- Ensuring prohibition of the engagement of child labor;

- Location of labor camp, provision of sanitary facilities, drinking water etc.;
- Health and safety programs for the workers;
- Awareness on HIV/AIDS/ sexual health;
- Prevent the use of all forms of forced labor and child labor (no child below the age of 18 will be allowed to work in hazardous circumstances).
- Avoid discrepancy in wages to male and female workers for similar nature of works and
- Preference to the local laborers, women in construction works.

The health and safety related Acts and Rules applicable in the project activities have been summarized in the **Annexure 2 below.**

The purpose of this LMP is to offer NAHEP's AUs the general and specific guidance for ensuring that all contractors / sub-contractors² will be able to protect the workers' rights, health, safety, and security during the project implementation period. LMP sets the norms and regulations that will have to be respected by all contractors, which will work for NAHEP project. In, all the contractor(s) / sub-contractor(s) shall meet national legislation (as stated above), but not restricted to the following:

- Ensure that all workers on site are provided with information on their terms and conditions, including hours, wages, breaks and holidays, discipline, and termination procedures in a language they understand.
- The construction workforce has minimal impacts / no interface on the students and faculty by putting adequate barricading, signage boards, and other safety measures.
- Provide guidance / training on the detrimental effects of the abuse of alcohol and drugs and other potentially harmful substances and the risk and concerns relating to HIV/AIDS and of other health risk-related activities to workers.
- Provide training on gender-based violence to avoid sexual harassment of female students and faculty and other exploitative sexual relations.
- Ensure that all workers on site understand how to access an easily accessible, confidential process for making complaints/ grievances³ about their employment:

This will require establishing a coherent and integrated grievance mechanism for all workers engaged in the NAHEP project

In addition, there should be adequate provision/mechanisms for reporting cases of sexual harassment and abuse, with a time frame within these are addressed and resolved. This can be tied the internal complaints committee set up within the project

- Provision of facilities to workers such as provision of sanitary (separate toilets for men and women), portable water, first aid and medical facilities. – rest shed
- Development of workers accommodation plan that should consider aspects such as: i) the provision of minimum amounts of space required for each worker; ii) provision of sanitary (separate toilets for men and women), laundry and cooking facilities and potable water; iii) creche facility for small children of working women; iv) the location of accommodation in relation to the workplace; v) the provision of first aid and medical facilities.- Labor camp
- Maintaining discipline in the Camp. The contractor / sub-contractor will be responsible to ensure:
- workers shall abide by camp rules which includes a disciplinary process. Contractor/sub-contractor shall ensure adherence to the code of conduct by the workers in the camp.
- provide briefing to all migrated workers on camp rules, behavior between fellow workers and the students and faculty. The objective of this orientation will be to increase awareness about the institution, and cultural sensitivities.
- Emergency plans on health and fire safety are prepared for minimizing the accidental and intended critical situations, including a plan for fire safety, including training of workers, periodic testing and monitoring of

fire safety equipment and periodic drills. Depending on the local context, additional emergency plans are prepared as needed to handle specific occurrences (earthquakes, floods, cyclones, etc.).

- Maintain a register on accidental incidents and actions taken to avoid similar situations.
- Each contractor/sub-contractor should develop a register for all their workers. This register should contain data such as: name, age, sex, hours worked, wages, payments (including overtime payments) made and any deductions made from their wages. The register should be in line with national requirements on registration of workers.
- Each contractor/sub-contractor should specify the minimum age for employment or engagement in connection with the project, which will be the age of 14.

A child over the minimum age (14) and under the age of 18 will not be employed or engaged in connection with the project in a manner that is likely to be hazardous or interfere with the child's education or be harmful to the child's health or physical, mental, spiritual, moral or social development.

Annexure 2: Acts/ Laws related to health and safety

Labour Laws to be complied by the Contractor

S. No.	Acts/ Laws related to health and safety	Objectives	Applicability
1.	Minimum wages Act, 1948	The Minimum Wages Act, 1948 safeguards the interests of workers by providing fixation of minimum wages mainly focusing, e.g., The employer is supposed to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act	In compliance with the Act, the wage to be paid to the laborers engaged in any civil work, supported under NAHEP shall not be less than the latest minimum wage fixed by the state.
2.	The Child Labor (Prohibition and Regulation Amendment Act, 2016	Ban of employment of children below 14 years in specific occupation and processes. • Lay down the procedure to decide modifications to the schedule of banned occupation and processes. • Regulate the conditions of work of children in employments where they are not prohibited for working.	Children below the age of 14 shall not be engaged in construction works as laborers, in hazardous works like handling pesticides, fertilizers etc. at participating institutions
3.	The Contract Labor (Regulation and Abolition) Act, 1970	To regulate the employment of contract laborers in certain establishments and to provide for its abolition in certain circumstances and for matters connected therewith.	The laborers hired by contractors for engaging in construction/up-gradation at institutions shall be provided with facilities like rest rooms, drinking water sanitary provisions, first aid box etc.
4.	Equal Remuneration Act, 1976	To provide for the payment of equal remuneration to men and women workers and for the	Women engaged in the activities supported by the project should be paid at par

		prevention of discrimination, on the ground of sex, against women in the matter of employment and for matters connected therewith or incidental thereto.	with their male counterparts
5.	The Building and Other Construction Workers Related Laws(Amendment) Bill, 2013:	To regulate the employment and conditions of services of building and other construction workers and to provide their safety, health and welfare measures and for other matters connected therewith or incidental thereto.	The Act shall be applicable to the contractors to be engaged for the construction/ expansion of buildings and other infrastructure
6.	Workmen's Compensation Act, 1923 (Amended 2009)	Provides for compensation in case of injury by accident arising out of and during the course of employment	The Act shall be applicable to the contractors to be engaged for the construction/ expansion of buildings and other infrastructure
7	The Bonded Labor (Abolition) Act 1976	An Act to provide for the abolition of bonded labor system with a view to preventing the economic and physical exploitation of the weaker sections of the people and for matters connected therewith or incidental thereto	Applicable to the contractors to be engaged under the project

The laws aforesaid shall be deemed to be a part of this contract and any breach thereof shall be deemed to be a breach of this contract.

SECTION 2:

**FORMS OF BID, QUALIFICATION INFORMATION
AND LETTER OF ACCEPTANCE**

TABLE OF FORMS:

- **CONTRACTOR'S BID**
- **QUALIFICATION INFORMATION**
- **LETTER OF ACCEPTANCE**
- **NOTICE TO PROCEED WITH THE WORK**
- **AGREEMENT FORM**
- **SELF-DECLARATION – NO BLACKLISTING**
- **SELF-DECLARATION – NO BLOOD RELATION**

Contractor's Bid

Description of the Works: _____

_____1

BID

To : _____[the
Employer]Address : _____2

GENTLEMEN,

Having examined the bidding documents including addendum, we offer to execute the Works described above in accordance with the Conditions of Contract, Specifications, Drawings and Bill of Quantities accompanying this Bid for the Contract Price of _____[in figures] (_____) [in letters].³

This Bid and your written acceptance of it shall constitute a binding contract between us. We understand that you are not bound to accept the lowest or any Bid you receive.

We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery.

We also undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1988".

Commissions or gratuities, if any, paid or to be paid by us to agents relating to this Bid, and to contract execution if we are awarded the contract, are listed below :

<u>Name and address of agent</u>	<u>Amount</u>	<u>Purpose of Commission or gratuity</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

(if none, state "none")

We hereby confirm that this Bid complies with the Eligibility, Bid Validity and Bid Security required by the Bidding documents.

Yours faithfully,

Authorized

Signature:

Name & Title of Signatory: _____

Name of Bidder : _____

Address : _____

1. *To be filled in by the Employer before issue of the Bidding Documents.*
2. *To be filled in by the Employer before issue of the Bidding Documents.*
3. *To be filled in by the Bidder, together with his particulars and date of submission at the bottom of the Form of Bid.*

Qualification Information

The information to be filled in by the Bidder in the following pages will be used for purposes of postqualification as provided for in Clause 4 of the Instructions to Bidders. This information will not be incorporated in the Contract.

1. For Individual Bidders

Constitution or legal status of Bidder

[Attach copy]

Place of registration:

Principal place of business:

Power of attorney of signatory of Bid

[Attach copy]

Total value of Civil Engineering construction work executed and payments received in the last five years** (in Rs. Million)

2017-18 _____

2018-19 _____

2019-20 _____

2020-21 _____

2021-22 _____

Work performed as prime contractor (in the same name) on works of a similar nature over the last five years. (2017-18, 2018-19, 2019-20, 2020-21, 2021-22)

<u>Project Name</u>	<u>Name of Employer *</u>	<u>Description of work</u>	<u>Contract No.</u>	<u>Value of contract (Rs. Million)</u>	<u>Date of issue of work order</u>	<u>Stipulated period of completion</u>	<u>Actual date of completion *</u>	<u>Remarks explaining reasons for delay and work completed</u>
---------------------	---------------------------	----------------------------	---------------------	--	------------------------------------	--	------------------------------------	--

Information on Bid Capacity (works for which bids have been submitted and works which are yet to be completed) as on the date of this bid.

- * *Attach certificate(s) from Engineer(s)-in-charge*
 ** *Immediately preceeding the financial year in which bids are received.*
☐ *Attach certificate from Chartered Accountant*

(A) Existing commitments and on-going works:

Description of Work	Place & State	Contract No. & Date	Name and Address of Employer	Value of Contract (Rs. million)	Stipulated period of completion	Value of works* remaining to be completed (Rs. million)	Anticipated date of completion
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

(B) Works for which bids already submitted:

Description of Work	Place & State	Name and Address of Employer	Estimated value of works (Rs. million)	Stipulated period of completion	Date when decision is expected	Remarks if any
(1)	(2)	(3)	(4)	(5)	(6)	(7)

- * *Attach certificate(s) from the Engineer(s)-in-Charge.*

Proposed subcontracts and firms involved. [Refer ITB Clause 4.3 (j)]

Sections of the works	Value of Sub-contract	Sub-contractor (name and address)	Experience in similar work
*	*	*	*
	*	*	
*	*	*	*
	*	*	

*

*

*

*

*

*

Financial reports for the last five years: balance sheets, profit and loss statements, auditors' reports (in case of companies/corporation), etc. List them below and attach copies.

- 1.7. Name, address, and telephone, telex, and fax numbers of the Bidders' bankers who may provide references if contacted by the Employer.

Information on litigation history in which the Bidder is involved.

<u>Other party(ies)</u>	<u>Employer</u>	<u>Cause of dispute</u>	<u>Amount involved</u>	<u>Remarks showing present status</u>
-------------------------	-----------------	-------------------------	------------------------	---------------------------------------

Statement of compliance under the requirements of Sub Clause 3.2 of the instructions to Bidders.

Letter of Acceptance
(letterhead paper of the Employer)

_____ [date]

To: _____ [name
and address of
the Contractor]

Dear Sirs,

This is to notify you that your Bid dated _____ for execution of the
[name of the contract and identification number, as given in the Instructions to Bidders] for the Contract
Price of Rupees —
_____ (_____) [amount in words
and figures], as corrected and modified in accordance with the Instructions to Bidders¹ is hereby accepted
by our Agency.

We note that as per bid, you do not intend to subcontract any component of work

[OR]

We note that as per bid, you propose to employ M/s. as sub-contractor for
executing

[Delete whichever is not applicable].

You are hereby requested to furnish Performance Security, plus additional security for unbalanced
bids in terms of ITB Clause 29.5, in the form detailed in Para 34.1 of ITB for an amount of Rs. _____
— within 21 days of the receipt of this letter of acceptance valid upto 28 days from the date of expiry of
Defects Liability Period i.e. upto _____ and sign the contract, failing which action as stated in Para 34.3 of
ITB will be taken.

Yours faithfully,

Authorized Signature

Name and Title of

Signatory Name of

Agency

Issue of Notice to proceed with the work
(letterhead of the Employer)

To _____ (date)

_____ (name and address of the Contractor)

Dear Sirs:

Pursuant to your furnishing the requisite security as stipulated in ITB Clause 34.1 and signing of the contract agreement for the construction of _____ @ a Bid Price of Rs. _____, you are hereby instructed to proceed with the execution of the said works in accordance with the contract documents.

Yours faithfully,

(Signature, name and title
of signatory authorized to
sign on behalf of
Employer)

SELF-DECLARATION – NO BLACKLISTING

The Director,
ICAR-NDRI,
Karnal.

Dear Sir/Madam,

Ref: Tender for _____ at ICAR-NDRI, Karnal.

In _____ response to the _____ Tender Document
for _____, I/ We hereby declare that
presently our Company/ firm _____ is having unblemished record and is not declared ineligible
for corrupt & fraudulent practices either indefinitely or for a particular period of time by any State/ Central
Government/ PSU/Autonomous Body. We further declare that presently our Company/ firm
_____ is not blacklisted/debarred and not declared ineligible for reasons other than corrupt &
fraudulent practices by any State/ Central Government/ PSU/ Autonomous Body on the date of Bid Submission. If
this declaration is found to be incorrect then without prejudice to any other action that may be taken, my/ our
security may be forfeited in full and the tender if any to the extent accepted may be cancelled.

Thanking you,

Yours faithfully,

Date.....

Place.....

Signature.....

Name.....

Seal of the organization

SELF-DECLARATION – NO BLOOD RELATION

The Director,
ICAR-NDRI,
Karnal.

Dear Sir/Madam,

Ref: Tender for at ICAR-NDRI, Karnal.

In response to the Tender Document for _____, I/ We hereby declare that no near relative is posted as Accountant or as an officer in any capacity as Engineer. If this declaration is found to be incorrect then without prejudice to any other action that may be taken, I may be debarred from tendering for any breach of this condition.

Thanking you,

Yours faithfully,

Date.....

Place.....

Signature.....

Name.....

Seal of the organization

Agreement Form

Agreement

This agreement, made the _____ day of _____ 19_____, between _____

_____[name and address of Employer]

(hereinafter called “the Employer”) of the one part and _____

_____[name and address of contractor] (hereinafter called “the Contractor”) of the other part.

Whereas the Employer is desirous that the Contractor execute _____

_____[name and identification number of Contract] (hereinafter called “the Works”) and the Employer has accepted the Bid by the Contractor for the execution and completion of such Works and the remedying of any defects therein at a contract price of Rupees.....

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this Agreement, words and expression shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to, and they shall be deemed to form and be read and construed as part of this Agreement.
2. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all aspects with the provisions of the Contract.
3. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying the defects wherein the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.
4. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz:
 - i) Letter of Acceptance;
 - ii) Notice to proceed with the works;
 - iii) Contractor’s Bid;
 - iv) Contract Data;
 - v) Conditions of contract (including Special Conditions of Contract);
 - vi) Specifications;
 - vii) Drawings;
 - viii) Bill of Quantities; and
 - ix) Any other document listed in the Contract Data as forming part of the contract.

In witness whereof the parties thereto have caused this Agreement to be executed the day and year first beforewritten.

The Common Seal of _____

was hereunto affixed in the presence of:

Signed, Sealed and Delivered by the said _____

in the presence of:

Binding Signature of Employer _____

Binding Signature of Contractor _____

SECTION 3: CONDITIONS OF CONTRACT

Conditions of Contract

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Conditions of Contract

A. General

1. Definitions

Terms which are defined in the Contract Data are not also defined in the Conditions of Contract but keep their defined meanings. Capital initials are used to identify defined terms.

Bill of Quantities means the priced and completed Bill of Quantities forming part of the Bid.

Compensation Events are those defined in Clause 44 hereunder.

The **Completion Date** is the date of completion of the Works as certified by the Engineer in accordance with Sub Clause 55.1.

The **Contract** is the contract between the Employer and the Contractor to execute, complete and maintain the Works. It consists of the documents listed in Clause 2.3 below.

The **Contract Data** defines the documents and other information which comprise the Contract.

The **Contractor** is a person or corporate body whose Bid to carry out the Works has been accepted by the Employer.

The **Contractor's Bid** is the completed Bidding document submitted by the Contractor to the Employer.

The **Contract Price** is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

Days are calendar days; **months** are calendar months.

A **Defect** is any part of the Works not completed in accordance with the Contract.

The **Defects Liability Period** is the period named in the Contract Data and calculated from the Completion Date.

The **Employer** is the party who will employ the Contractor to carry out the Works.

The **Engineer** is the person named in the Contract Data (or any other competent person appointed and notified to the contractor to act in replacement of the Engineer) who is responsible for supervising the execution of the works and administering the Contract.

Equipment is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works.

The **Initial Contract Price** is the Contract Price listed in the Employer's Letter of Acceptance.

The **Intended Completion Date** is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is specified in the Contract Data. The Intended Completion Date may be revised only by the Engineer by issuing an extension of time.

Materials are all supplies, including consumables, used by the contractor for incorporation in the Works.

Plant is any integral part of the Works which is to have a mechanical, electrical, electronic or chemical or biological function.

The **Site** is the area defined as such in the Contract Data.

Site Investigation Reports are those which were included in the Bidding documents and are factual interpretative reports about the surface and sub-surface conditions at the site.

Specification means the Specification of the Works included in the Contract and any modification or addition made or approved by the Engineer.

The **Start Date** is given in the Contract Data. It is the date when the Contractor shall commence execution of the works. It does not necessarily coincide with any of the Site Possession Dates.

A **Subcontractor** is a person or corporate body who has a Contract with the Contractor to carry out a part of the work in the Contract which includes work on the Site.

Temporary Works are works designed, constructed, installed, and removed by the Contractor which are needed for construction or installation of the Works.

A **Variation** is an instruction given by the Engineer which varies the Works.

The **Works** are what the Contract requires the Contractor to construct, install, and turn over to the Employer, as defined in the Contract Data.

2. Interpretation

In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Engineer will provide instructions clarifying queries about the Conditions of Contract.

If sectional completion is specified in the Contract Data, references in the Conditions of Contract to the Works, the Completion Date, and the Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion date for the whole of the Works).

The documents forming the Contract shall be interpreted in the following order of priority:

Agreement

Letter of Acceptance, notice to proceed with the works

Contractor's Bid

Contract Data

Conditions of Contract

Specifications

Drawings

Bill of quantities and

any other document listed in the Contract Data as forming part of the Contract.

3 Language and Law

The language of the Contract and the law governing the Contract are stated in the Contract Data.

4 Engineer's Decisions

Except where otherwise specifically stated, the Engineer will decide contractual matters between the Employer and the Contractor in the role representing the Employer.

5 Delegation

The Engineer may delegate any of his duties and responsibilities to other people except to the Adjudicator after notifying the Contractor and may cancel any delegation after notifying the Contractor.

6 Communications

Communications between parties which are referred to in the conditions are effective only when in writing. A notice shall be effective only when it is delivered (in terms of Indian Contract Act).

7 Subcontracting

The Contractor may subcontract with the approval of the Engineer but may not assign the Contract without the approval of the Employer in writing. Subcontracting does not alter the Contractor's obligations.

8 Other Contractors

The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities, and the Employer between the dates given in the Schedule of Other Contractors. The Contractor shall as referred to in the Contract Data, also provide

facilities and services for them as described in the Schedule. The employer may modify the schedule of other contractors and shall notify the contractor of any such modification.

9 Personnel

The Contractor shall employ the key personnel named in the Schedule of Key Personnel as referred to in the Contract Data to carry out the functions stated in the Schedule or other personnel approved by the Engineer. The Engineer will approve any proposed replacement of key personnel only if their qualifications, abilities, and relevant experience are substantially equal to or better than those of the personnel listed in the Schedule.

If the Engineer asks the Contractor to remove a person who is a member of the Contractor's staff or his work force stating the reasons the Contractor shall ensure that the person leaves the Site within seven days and has no further connection with the work in the Contract.

10 Employer's and Contractor's Risks

The Employer carries the risks which this Contract states are Employer's risks, and the Contractor carries the risks which this Contract states are Contractor's risks.

11 Employer's Risks

The Employer is responsible for the excepted risks which are (a) in so far as they directly affect the execution of the Works in the Employer's country, the risks of war, hostilities, invasion, act of foreign enemies, rebellion, revolution, insurrection or military or usurped power, civil war, riot commotion or disorder (unless restricted to the Contractor's employees), and contamination from any nuclear fuel or nuclear waste or radioactive toxic explosive, or (b) a cause due solely to the design of the Works, other than the Contractor's design.

12 Contractor's Risks

All risks of loss of or damage to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract other than the excepted risks are the responsibility of the Contractor.

13 Insurance

The Contractor shall provide, in the joint names of the Employer and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles stated in the Contract Data for the following events which are due to the Contractor's risks:

- (a) loss of or damage to the Works, Plant and Materials;
- (b) loss of or damage to Equipment;
- (c) loss of or damage of property (except the Works, Plant, Materials and

Equipment) inconnection with the Contract; and

- (d) personal injury or death.

Policies and certificates for insurance shall be delivered by the Contractor to the Engineer for the Engineer's approval before the Start Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.

If the Contractor does not provide any of the policies and certificates required, the Employer may effect the insurance which the Contractor should have provided and recover the premiums the Employer has paid from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.

Alterations to the terms of an insurance shall not be made without the approval of the Engineer.

Both parties shall comply with any conditions of the insurance policies.

14 Site Investigation Reports

The Contractor, in preparing the Bid, shall rely on any site Investigation Reports referred to in the Contract Data, supplemented by any information available to the Bidder.

15 Queries about the Contract Data

The Engineer will clarify queries on the Contract Data.

16 Contractor to Construct the Works

The Contractor shall construct and install the Works in accordance with the Specification and Drawings, and as per instructions of Engineer.

17 The Works to Be Completed by the Intended Completion Date

The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the program submitted by the Contractor, as updated with the approval of the Engineer, and complete them by the Intended Completion Date.

18 Approval by the Engineer

The Contractor shall submit Specifications and Drawings showing the proposed Temporary Works to the Engineer, who is to approve them if they comply with the Specifications and Drawings.

The Contractor shall be responsible for design of Temporary Works.

The Engineer's approval shall not alter the Contractor's responsibility for design of the Temporary Works.

The Contractor shall obtain approval of third parties to the design of the Temporary Works where required.

All Drawings prepared by the Contractor for the execution of the temporary or permanent Works, are subject to prior approval by the Engineer before their use.

19 Safety

The Contractor shall be responsible for the safety of all activities on the Site.

20 Discoveries

Anything of historical or other interest or of significant value unexpectedly discovered on the Site is the property of the Employer. The Contractor is to notify the Engineer of such discoveries and carry out the Engineer's instructions for dealing with them.

21 Possession of the Site

The Employer shall give possession of all parts of the Site to the Contractor. If possession of a part is not given by the date stated in the Contract Data the Employer is deemed to have delayed the start of the relevant activities and this will be CompensationEvent.

22 Access to the Site

The Contractor shall allow the Engineer and any person authorized by the Engineer access to the Site, to any place where work in connection with the Contract is being carried out or is intended to be carried out and to any place where materials or plant are being manufactured / fabricated / assembled for the works.

23 Instructions

The Contractor shall carry out all instructions of the Engineer which comply with the applicable laws where the Site is located.

The Contractor shall permit the bank to inspect the Contractor's accounts and records relating to the performance of the Contractor and to have them audited by auditors appointed by the Bank, if so required by the Bank.

24 Disputes

If the Contractor believes that a decision taken by the Engineer was either outside the authority given to the Engineer by the Contract or that the decision was wrongly taken, the decision shall be referred to the Arbitrator within 28 days of the notification of the Engineer's decision.

25 Procedure for Disputes

26. The arbitration shall be conducted in accordance with the arbitration procedure stated in the SpecialConditions of Contract.

B. Time Control

27. Program

Within the time stated in the Contract Data the Contractor shall submit to the Engineer for approval a Program showing the general methods, arrangements, order, and timing for all the activities in the Works, along with monthly cash flow forecast.

An update of the Program shall be a program showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work including any changes to the sequence of the activities.

The Contractor shall submit to the Engineer, for approval, an updated Program at intervals no longer than the period stated in the Contract Data. If the Contractor does not submit an updated Program within this period, the Engineer may withhold the amount stated in the Contract Data from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Program has been submitted.

The Engineer's approval of the Program shall not alter the Contractor's obligations. The Contractor may revise the Program and submit it to the Engineer again at any time. A revised Program is to show the effect of Variations and Compensation Events.

28. Extension of the Intended Completion Date

The Engineer shall extend the Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work and which would cause the Contractor to incur additional cost.

The Engineer shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Contractor asking the Engineer for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended

Completion Date.

29 Delays Ordered by the Engineer

The Engineer may instruct the Contractor to delay the start or progress of any activity within the Works.

30 Management Meetings

Either the Engineer or the Contractor may require the other to attend a management meeting. The business of a management meeting shall be to review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.

The Engineer shall record the business of management meetings and is to provide copies of his record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken is to be decided by the Engineer either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.

31 Early Warning

The Contractor is to warn the Engineer at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract Price or delay the execution of works. The Engineer may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate is to be provided by the Contractor as soon as reasonably possible.

The Contractor shall cooperate with the Engineer in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the Engineer.

C. Quality Control

32 Identifying Defects

The Engineer shall check the Contractor's work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Engineer may instruct the Contractor to search for a Defect and to uncover and test any work that the Engineer considers may have a Defect.

The contractor shall permit the Employer's Technical auditor to check the Contractor's work and notify the Engineer and Contractor of any defects that are found. Such a check shall not affect the Contractor's or the Engineer's responsibility as defined in the Contract Agreement.

33 Tests

If the Engineer instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall

pay for the test and any samples. If there is no Defect the test shall be a Compensation Event.

34 Correction of Defects

The Engineer shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion and is defined in the Contract Data. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.

Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the length of time specified by the Engineer's notice.

35 Uncorrected Defects

If the Contractor has not corrected a Defect within the time specified in the Engineer's notice, the Engineer will assess the cost of having the Defect corrected, and the Contractor will pay this amount.

Note: Where in certain cases, the technical specifications provide for acceptance of works within specified tolerance limits at reduced rates, Engineer will certify payments to Contractor accordingly.

D. Cost Control

36 Bill of Quantities

The Bill of Quantities shall contain items for the construction, installation, testing, and commissioning work to be done by the Contractor.

The Bill of Quantities is used to calculate the Contract Price. The Contractor is paid for the quantity of the work done at the rate in the Bill of Quantities for each item.

37 Changes in the Quantities

If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 25 percent provided the change exceeds 1% of Initial Contract Price, the Engineer shall adjust the rate to allow for the change.

The Engineer shall not adjust rates from changes in quantities if thereby the Initial Contract Price is exceeded by more than 15 percent, except with the Prior approval of the Employer.

If requested by the Engineer, the Contractor shall provide the Engineer with a detailed cost breakdown of any rate in the Bill of Quantities.

38 Variations

All Variations shall be included in updated Programs produced by the Contractor.

39 Payments for Variations

The Contractor shall provide the Engineer with a quotation (with breakdown of unit rates) for carrying out the Variation when requested to do so by the Engineer. The Engineer shall assess the quotation, which shall be given within seven days of the request or within any

longer period stated by the Engineer and before the Variation is ordered.

If the work in the Variation corresponds with an item description in the Bill of Quantities and if, in the opinion of the Engineer, the quantity of work above the limit stated in Sub Clause 38.1 or the timing of its execution do not cause the cost per unit of quantity to change, the rate in the Bill of Quantities shall be used to calculate the value of the Variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the Variation does not correspond with items in the Bill of Quantities, the quotation by the Contractor shall be in the form of new rates for the relevant items of work.

If the Contractor's quotation is unreasonable (or if the contractor fails to provide the Engineer with a quotation within a reasonable time specified by the Engineer in accordance with Clause 40.1), the Engineer may order the Variation and make a change to the Contract Price which shall be based on Engineer's own forecast of the effects of the Variation on the Contractor's costs.

If the Engineer decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the Variation shall be treated as a Compensation Event.

The Contractor shall not be entitled to additional payment for costs which could have been avoided by giving early warning.

40 Cash flow forecasts

When the Program is updated, the contractor is to provide the Engineer with an updated cash flow forecast.

41 Payment Certificates

The Contractor shall submit to the Engineer monthly statements of the estimated value of the work completed less the cumulative amount certified previously along with details of measurement of the quantity of works executed in a tabulated form as approved by the Engineer.

The Engineer shall check the Contractor's monthly statement and within 14 days certify the amount to be paid to the Contractor.

The value of work executed shall be determined by the Engineer after due check measurement of the quantities claimed as executed by the contractor.

The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantities completed.

The value of work executed shall include the valuation of Variations and Compensation Events.

41.6 The Engineer may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.

42 Payments

Payments shall be adjusted for deductions for advance payments, retention, other recoveries in terms of the contract and taxes, at source, as applicable under the law. The Employer shall pay the Contractor the amounts certified by the Engineer within 28 days of the date of each certificate. If the Employer makes a late payment, the Contractor shall be paid interest on the late payment in the next payment. Interest shall be calculated from the date by which the payment should have been made upto the date when the late payment is made at 8% per annum.

If an amount certified is increased in a later certificate or as a result of an award by an Arbitrator, the Contractor shall be paid interest upon the delayed payment as set out in this clause. Interest shall be calculated from the date upon which the increased amount would have been certified in the absence of dispute.

Items of the Works for which no rate or price has been entered in will not be paid for by the Employer and shall be deemed covered by other rates and prices in the Contract.

43 Compensation Events

The following are Compensation Events unless they are caused by the Contractor:

The Employer does not give access to a part of the Site by the Site Possession Date stated in the Contract Data.

The Employer modifies the schedule of other contractors in a way which affects the work of the contractor under the contract.

The Engineer orders a delay or does not issue drawings, specifications or instructions required for execution of works on time.

The Engineer instructs the Contractor to uncover or to carry out additional tests upon work which is then found to have no Defects.

The Engineer unreasonably does not approve for a subcontract to be let.

Ground conditions are substantially more adverse than could reasonably have been assumed before issuance of Letter of Acceptance from the information issued to Bidders (including the Site Investigation Reports), from information available publicly and from a visual inspection of the Site.

The Engineer gives an instruction for dealing with an unforeseen condition, caused by the Employer, or additional work required for safety or other reasons.

Other contractors, public authorities, utilities or the Employer does not work within the dates and other constraints stated in the Contract, and they cause delay or extra cost to the Contractor.

The effect on the Contractor of any of the Employer's Risks.

The Engineer unreasonably delays issuing a Certificate of Completion.

Other Compensation Events listed in the Contract Data or mentioned in the Contract.

If a Compensation Event would cause additional cost or would prevent the work being completed before the Intended Completion Date, the Contract Price shall be increased and/or the Intended Completion Date is extended. The Engineer shall decide whether and by how much the Contract Price shall be increased and whether and by how much the Intended Completion Date shall be extended.

As soon as information demonstrating the effect of each Compensation Event upon the Contractor's forecast cost has been provided by the Contractor, it is to be assessed by the Engineer and the Contract Price shall be adjusted accordingly. If the Contractor's forecast is deemed unreasonable, the Engineer shall adjust the Contract Price based on Engineer's own forecast. The Engineer will assume that the Contractor will react competently and promptly to the event.

The Contractor shall not be entitled to compensation to the extent that the Employer's interests are adversely affected by the Contractor not having given early warning or not having cooperated with the Engineer.

44 Tax

The rates quoted by the Contractor shall be deemed to be inclusive of the sales and other taxes that the Contractor will have to pay for the performance of this Contract. The Employer will perform such duties in regard to the deduction of such taxes at source as per applicable law.

45 Currencies

All payments shall be made in Indian Rupees.

46 Retention

The Employer shall retain from each payment due to the Contractor the proportion stated in the Contract Data until Completion of the whole of the Works.

On Completion of the whole of the Works half the total amount retained is repaid to the Contractor and half when the Defects Liability Period has passed and the Engineer has certified that all Defects notified by the Engineer to the Contractor before the end of this period have been corrected.

On completion of the whole works, the Contractor may substitute retention money (*balance half*) withan "on demand" Bank guarantee.

47 Liquidated Damages

The Contractor shall pay liquidated damages to the Employer at the rate per day stated in the Contract Data for each day that the Completion Date is later than the Intended Completion Date (for the whole of the works or the milestones as stated in the Contract Data). The total amount of liquidated damages shall not exceed the amount defined in the Contract Data. The Employer may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages does not affect the Contractor's liabilities.

If the Intended Completion Date is extended after liquidated damages have been paid, the Engineer shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall be paid interest on the over payment calculated from the date of payment to the date of repayment at the rates specified in Sub Clause 43.1.

48 Securities

The Performance Security shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in an amount and form and by a bank or surety acceptable to the Employer, and denominated in Indian Rupees. The Performance Security shall be valid until a date 28 days from the date of expiry of Defects Liability Period and the additional security for unbalanced bids shall be valid until a date 28 days from the date of issue of the certificate of completion.

49 Cost of Repairs

Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Correction periods shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.

E. Finishing the Contract

50 Completion

The Contractor shall request the Engineer to issue a Certificate of Completion of the Works and the Engineer will do so upon deciding that the Work is completed.

51 Taking Over

The Employer shall take over the Site and the Works within seven days of the Engineer issuing a certificate of Completion

52 Final Account

The Contractor shall supply to the Engineer a detailed account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Engineer shall issue a Defect Liability Certificate and certify any final payment that is due to the Contractor within 56 days of receiving the Contractor's account if it is correct and complete. If it is not, the Engineer shall issue within 56 days a schedule that

states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Engineer shall decide on the amount payable to the Contractor and issue a payment certificate within 56 days of receiving the Contractor's revised account.

53 Operating and Maintenance Manuals

If "as built" Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the Contract Data.

If the Contractor does not supply the Drawings and/or manuals by the dates stated in the Contract Data, or they do not receive the Engineer's approval, the Engineer shall withhold the amount stated in the Contract Data from payments due to the Contractor.

54 Termination

The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.

Fundamental breaches of Contract include, but shall not be limited to the following:

the Contractor stops work for 28 days when no stoppage of work is shown on the currentProgram and the stoppage has not been authorized by the Engineer;

the Engineer instructs the Contractor to delay the progress of the Works and the instruction is not withdrawn within 28 days;

the Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation;

a payment certified by the Engineer is not paid by the Employer to the Contractor within 56 days of the date of the Engineer's certificate;

the Engineer gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Engineer;

the Contractor does not maintain a security which is required;

the Contractor has delayed the completion of works by the number of days for which the maximum amount of liquidated damages can be paid as defined in the Contract data; and

if the Contractor, in judgment of the Purchaser engaged in fraud and corruption, a defined in GCC Clause 64, in competing for or in executing the Contract.

When either party to the Contract gives notice of a breach of contract to the Engineer for a cause other than those listed under Sub Clause 59.2 above, the Engineer shall decide whether the breach is fundamental or not.

Notwithstanding the above, the Employer may terminate the Contract for convenience.

If the Contract is terminated the Contractor shall stop work immediately, make the Site safe and secure and leave the Site as soon as reasonably possible.

55 Payment upon Termination

If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Engineer shall issue a certificate for the value of the work done less advance payments received up to the date of the issue of the certificate, less other recoveries due in terms of the contract, less taxes due to be deducted at source as per applicable law and less the percentage to apply to the work not completed as indicated in the Contract Data. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor the difference shall be a debt payable to the Employer.

If the Contract is terminated at the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Engineer shall issue a certificate for the value of the work done, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works and less advance payments received up to the date of the certificate, less other recoveries due in terms of the contract, and less taxes due to be deducted at source as per applicable law.

56 Property

All materials on the Site, Plant, Equipment, Temporary Works and Works are deemed to be the property of the Employer, if the Contract is terminated because of a Contractor's default.

57 Release from Performance

If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Employer or the Contractor the Engineer shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which commitment was made.

58 Suspension of World Bank Loan or Credit

In the event that the World Bank suspends the Loan or Credit to the Employer, from which part of the payments to the Contractor are being made:

The Employer is obligated to notify the Contractor of such suspension within 7 days of having received the World Bank's suspension notice.

If the Contractor has not received sums due to it upon the expiration of the 28 days for payment provided for in Sub-Clause 43.1, the Contractor may immediately issue a 14-day termination notice.

59 **Fraud and Corruption**

The Bank requires that Borrowers (including beneficiaries of Bank loans), as well as Bidders, Suppliers, Contractors, and Consultants under Bank-financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuit of this policy, the Bank:

defines, for the purposes of this provision, the terms set forth below as follows:

“corrupt practice” means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in contract execution;

“fraudulent practice” means a misrepresentation or omission of facts in order to influence a procurement process or the execution of a contract;

“collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of the borrower, designed to establish bid prices at artificial, non competitive levels; and

“coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the procurement process or affect the execution of a contract;

will cancel the portion of the loan allocated to a contract if it determines at any time that representatives of the Borrower or of a beneficiary of the loan engaged in corrupt, fraudulent, collusive or coercive practices during the procurement or the execution of that contract, without the Borrower having taken timely and appropriate action satisfactory to the Bank to remedy the situation;

will sanction a firm or individual, including declaring them ineligible, either indefinitely or for a stated period of time, to be awarded a Bank-financed contract if it at any time determines that they have, directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing for, or in executing, a Bank-financed contract; and

will have the right to require that Contractors to permit the Bank to inspect their accounts and records and other documents relating to the bid submission and contract performance and to have them audited by auditors appointed by the Bank.

F. Special Conditions of Contract

1. LABOUR :

The Contractor shall, unless otherwise provided in the Contract, make his own arrangements for the engagement of all staff and labour, local or other, and for their payment, housing, feeding and transport.

The Contractor shall, if required by the Engineer, deliver to the Engineer a return in detail, in such form and at such intervals as the Engineer may prescribe, showing the staff and the numbers of the several classes of labour from time to time employed by the Contractor on the Site and such other information as the Engineer may require.

2. COMPLIANCE WITH LABOUR REGULATIONS :

During continuance of the contract, the Contractor and his sub contractors shall abide at all times by all existing labour enactments and rules made thereunder, regulations, notifications and bye laws of the State or Central Government or local authority and any other labour law (including rules), regulations, bye laws that may be passed or notification that may be issued under any labour law in future either by the State or the Central Government or the local authority. Salient features of some of the major labour laws that are applicable to construction industry are given below. The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made thereunder, regulations or notifications including amendments. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non- observance of the provisions stipulated in the notifications/bye laws/Acts/Rules/regulations including amendments, if any, on the part of the Contractor, the Engineer/Employer shall have the right to deduct any money due to the Contractor including his amount of performance security. The Employer/Engineer shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer.

The employees of the Contractor and the Sub-Contractor in no case shall be treated as the employees of the Employer at any point of time.

SALIENT FEATURES OF SOME MAJOR LABOUR LAWS APPLICABLE TO ESTABLISHMENTS ENGAGED IN BUILDING AND OTHER CONSTRUCTION WORK.

- a) Workmen Compensation Act 1923: The Act provides for compensation in case of injury by accident arising out of and during the course of employment.
- b) Payment of Gratuity Act 1972: Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed 5 years service or more or on death the rate of 15 days wages for every completed year of service. The Act is applicable to all establishments employing 10 or more employees.

- c) Employees P.F. and Miscellaneous provision Act 195: The Act Provides for monthly contributions by the employer plus workers @ 10% or 8.33%. The benefits payable under the Act are :
- (i) Pension or family pension on retirement or death as the case may be.
 - (ii) Deposit linked insurance on the death in harness of the worker.
 - (iii) payment of P.F. accumulation on retirement/death etc.
- d) Maternity Benefit Act 1951 :- The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.
- e) Contract Labour (Regulation & Abolition) Act 1970: The Act provides for certain welfare measures to be provided by the Contractor to contract labour and in case the Contractor fails to provide, the same are required to be provided, by the Principal Employer by Law. The principal Employer is required to take Certificate of Registration and the Contractor is required to take license from the designated Officer. The Act is applicable to the establishments or Contractor of Principal Employer if they employ 20 or more contract labour.
- f) Minimum Wages Act 1948: The Employer is supposed to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of Buildings, Roads, Runways are scheduled employment.
- g) Payment of Wages Act 1936: It lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of the workers.
- h) Equal Remuneration Act 1979: The Act provides for payment of equal wages for work of equal nature to Male and Female workers and for not making discrimination against Female employees in the matters of transfers, training and promotions etc.
- i) Payment of Bonus Act 1965: The Act is applicable to all establishments employing 20 or more workmen. The Act provides for payments of annual bonus subject to a minimum of 8.33% of wages and maximum of 20% of wages to employees drawing Rs.3500/- per month. or less. The bonus to be paid to employees getting Rs.2500/- per month or above upto Rs.3500/- per month. shall be worked out by taking wages as Rs.2500/- per month only. The Act does not apply to certain establishments. The newly set-up establishments are exempted for five years in certain circumstances. Some of the State Governments have reduced the employment size from 20 to 10 for the purpose of applicability of the Act.
- j) Industrial Disputes Act 1947: The Act lays down the machinery and procedure for resolution of Industrial disputes, in what situations a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.
- k) Industrial Employment (Standing Orders) Act 1946: It is applicable to all

establishments employing 100 or more workmen (employment size reduced by some of the States and Central Government to 50). The Act provides for laying down rules governing the conditions of employment by the Employer on matters provided in the Act and get the same certified by the designated Authority.

- l) Trade Unions Act 1926: The Act lays down the procedure per registration of trade unions of workmen and employers. The Trade Unions registered under the Act have been given certain immunities from civil and criminal liabilities.
- m) Child Labour (Prohibition & Regulation) Act 1986: The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulations of employment of children in all other occupations and processes. Employment of Child Labour is prohibited in Building and Construction Industry.
- n) Inter-State Migrant workmen's (Regulation of Employment & Conditions of Service) Act 1979 :- The Act is applicable to an establishment which employs 5 or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The Inter-State migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as Housing, Medical-Aid, Travelling expenses from home upto the establishment and back etc.
- o) The Building and Other Construction workers (Regulation of Employment and Conditions of Service) Act 1996 and the Cess Act of 1996: All the establishments who carry on any building or other construction work and employs 10 or more workers are covered under this Act. All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as may be modified by the Government. The Employer of the establishment is required to provide safety measures at the Building or construction work and other welfare measures, such as Canteens, First- Aid facilities, Ambulance, Housing accommodations for workers near the work place etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.
- p) Factories Act 1948: The Act lays down the procedure for approval at plans before setting up a factory, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing 10 persons or more with aid of power or 20 or more persons without the aid of power engaged in manufacturing process.

3. SUB-CONTRACTING (GCC Clause 7)

Please add the following as Clause 7.2:

The contractor shall not be required to obtain any consent from the employer for:

- a) the sub-contracting of any part of the Works for which the Sub-contractor is named in the contract;
- b) the provision of labour; and
- c) the purchase of materials which are in accordance with the standards specified in the Contract.

Beyond this if the contractor proposes sub-contracting any part of the work during execution of works, because of some unforeseen circumstances to enable him to complete the work as per terms of the contract, the Engineer will consider the following before according approval:

- The contractor shall not sub-contract the whole of the Works.
- The contractor shall not sub-contract any part of the Work without prior consent of the Engineer. Any such consent shall not relieve the contractor from any liability or obligations under the contract and he shall be responsible for the acts, defaults and neglects of any sub-contractor, his agents or workmen as fully as if they were the acts, defaults or neglects of the contractor, his agents or workmen.
- The Engineer should satisfy whether (a) the circumstances warrant such sub-contracting; and (b) the sub-contractors so proposed for the Work possess the experience, qualifications and equipment necessary for the job proposed to be entrusted to them in proportion to the quantum of work to be sub-contracted.
- If payments are proposed to be made directly to that sub-contractor, this should be subject to specific authorization by the prime contractor so that this arrangement does not alter the contractor's liability or obligations under the contract.)

4. **ARBITRATION** (GCC Clause 25.3)

The procedure for arbitration will be as follows :

- 25.3 (a) In case of Dispute or difference arising between the Employer and a domestic contractor relating to any matter arising out of or connected with this agreement, such disputes or difference shall be settled in accordance with the Arbitration and Conciliation Act, 1996. The arbitral tribunal shall consist of 3 arbitrators one each to be appointed by the Employer and the Contractor. The third Arbitrator shall be chosen by the two Arbitrators so appointed by the Parties and shall act as a presiding arbitrator. In case of failure of the two arbitrators appointed by the parties to reach upon a consensus within a period of 30 days from the appointment of the arbitrator appointed subsequently, the Presiding Arbitrator shall be appointed by the * Indian Council of Arbitration/President of the Institution of Engineers (India)/The International Centre for Alternative Dispute Resolution (India).

(Note: 1. All bidders are expected to indicate clearly in the bid, if they proposed sub-contracting parts of the works amounting to more than 20 percent of the Bid Price. For each such proposal the qualification and the experience of the identified sub-contractor in the relevant field should be furnished along with the bid to enable the employer to satisfy himself about their qualifications before agreeing for such sub-contracting and include it in the contract. In view of the above, normally no additional sub-contracting should arise during execution of the contract.)

2. However, [a] sub contracting for certain specialized elements of the work is not unusual and acceptable for carrying out the works more effectively; but vertical splitting of the works for subcontracting is not acceptable [b] In any case, proposal for sub-contracting in addition to what was specified in bid and stated in contract agreement will not be acceptable if the value of such additional sub-contracting exceeds 25% of value of work which was to be executed by Contractor without sub-contracting.

3. Assignment of the contract may be acceptable only under exceptional circumstances such as insolvencies/liquidation or merger of companies etc.

- (b) In the case of dispute with a Foreign contractor the dispute shall be settled in accordance with provisions of UNCITRAL (United Nations Commission on International Trade Law) Arbitration Rules. The Arbitral Tribunal shall consist of three Arbitrators one each to be appointed by the Employer and the Contractor. The third Arbitrator shall be chosen by the two Arbitrators so appointed by the Parties, and shall act as a presiding arbitrator. In case of failure of the two arbitrators appointed by the parties to reach upon a consensus within a period of 30 days from the appointment of the arbitrator appointed subsequently, the Presiding arbitrator shall be appointed by the * Indian Council of Arbitration/President of the Institution of Engineers (India)/The International Centre for Alternative Dispute Resolution (India).
- (c) If one of the parties fails to appoint its arbitrator in pursuance of sub-clause (a) and (b) above within 30 days after receipt of the notice of the appointment of its arbitrator by the other party, then the * Indian Council of Arbitration/President of the Institution of Engineers (India)/The International Centre for Alternative Dispute Resolution (India), both in cases of the Foreign Contractor as well as Indian Contractor, shall appoint the arbitrator. A certified copy of the order of the * Indian Council of Arbitration/President of the Institution of Engineers (India)/The International Centre for Alternative Disputes Resolution (India), making such an appointment shall be furnished to each of the parties.
- (d) Arbitration proceedings shall be held at NDRI KARNAL, India, and the language of the arbitration proceedings and that of all documents and communications between the parties shall be English.
- (e) The decision of the majority of arbitrators shall be final and binding upon both parties. The cost and expenses of Arbitration proceedings will be paid as determined by the arbitral tribunal. However, the expenses incurred by each party in connection with the preparation, presentation, etc. of its proceedings as also the fees and expenses paid to the arbitrator appointed by such party or on its behalf shall be borne by each party itself.
- (f) In the event value of the contract is upto Rs.50 millions, the disputes or differences arising shall be referred to the Sole Arbitrator. The Sole Arbitrator should be appointed by agreement between the parties, failing such agreement by the appointing authority, i.e. the * Indian Council of Arbitration/President of the Institution of Engineers (India)/The International Centre for Alternative Disputes Resolution (India).
- (g) Performance under the contract shall continue during the arbitration proceedings and payments due to the contractor by the owners shall not be withheld, unless they are the subject matter of the arbitration proceedings.

5. PROTECTION OF ENVIRONMENT:

Add the following as GCC Clause 16.2:

The contractor shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation.

During continuance of the contract, the contractor and his sub-contractors shall abide at all times by all existing enactments on environmental protection and rules made thereunder, regulations, notifications and bye-laws of the State or Central Government, or local authorities and any other law, bye-law, regulations that may be passed or notification that may be issued in this respect in future by the State or Central Government or the local authority.

Salient features of some of the major laws that are applicable are given below :

The Water (Prevention and Control of Pollution) Act, 1974, This provides for the prevention and control of water pollution and the maintaining and restoring of wholesomeness of water. 'Pollution' means such contamination of water or such alteration of the physical, chemical or biological properties of water or such discharge of any sewage or trade effluent or of any other liquid, gaseous or solid substance into water (whether directly or indirectly) as may, or is likely to, create a nuisance or render such water harmful or injurious to public health or safety, or to domestic, commercial, industrial, agricultural or other legitimate uses, or to the life and health of animals or plants or of aquatic organisms.

The Air (Prevention and Control of Pollution) Act, 1981, This provides for prevention, control and abatement of air pollution. 'Air Pollution' means the presence in the atmosphere of any 'air pollutant', which means any solid, liquid or gaseous substance (including noise) present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment.

The Environment (Protection) Act, 1986, This provides for the protection and improvement of environment and for matters connected therewith, and the prevention of hazards to human beings, other living creatures, plants and property. 'Environment' includes water, air and land and the inter-relationship which exists among and between water, air and land, and human beings, other living creatures, plants, micro-organism and property.

The Public Liability Insurance Act, 1991, This provides for public liability insurance for the purpose of providing immediate relief to the persons affected by accident occurring while handling hazardous substances and for matters connected herewith or incidental thereto. Hazardous substance means any substance or preparation which is defined as hazardous substance under the Environment (Protection) Act 1986, and exceeding such quantity as may be specified by notification by the Central Government.

[Employers should note that the Loan Agreement between IBRD and the borrowing

country may establish specific measures to be taken during construction of the Works for the protection of the environment. Sub-clause 16.2 should be modified/expanded to take into account such specific measures or other measures considered appropriate by the Employer]

6. LIQUIDATED DAMAGES:

Sub-clause 49.1:

Please substitute the last sentence with the following:

“Time is the essence of the contract and payment or deduction of liquidated damages shall not relieve the contractor from his obligation to complete the work as per agreed construction program and milestones or from any other of the contractor’s obligations and liabilities under the contract.”

SECTION 4: CONTRACT DATA

Contract Data

Items marked "N/A" do not apply in this Contract.

The following documents are also part of the Contract:

Clause Reference

- The Schedule of Operating and Maintenance Manuals [58]
- The Schedule of Other Contractors [8]
- The Schedule of Key Personnel [9]
- The Methodology and Program of Construction [27]
- The Schedule of Key and Critical equipment to be deployed [27] on the work as per agreed program of construction
- Site Investigation reports [14]

The Borrower is Government of India / **ICAR-NDRI, Karnal** [1.1]
[[name of Borrower and statement of relationship with the Employer, if different from the Borrower].

The World Bank means: **National Agricultural Higher Education Project** [1.1]

[insert "International Bank for Reconstruction and Development (IBRD)" or International Development Association (IDA), "as appropriate], and loan refers to an NAHEP [insert "IBRD Loan" or "IDA Credit", as appropriate]

The above insertions should correspond to the information provided in the

Invitation for Bids. The Employer is :

Name: **DIRECTOR, ICAR-NATIONAL DAIRY RESEARCH INSTITUTE 1.1)**

Address: **NDRI, KARNAL-132001**

Name of authorized Representative: **Sh: JITENDER KUMAR DABAS**

The Engineer is

Name: **Sh: JITENDER KUMAR DABAS**

Address: Maintenance Engineer, National Dairy Research Institute, Karnal

E-mail: jitender.dabas@icar.gov.in

Name of Authorized Representative: **Sh: JITENDER KUMAR DABAS**

The name and identification number of the Contract is: “**Providing one parking shed,one open sitting shed with PUF sheet roofing and SS furniture/railing, Alumininum frame/wiremesh in balconies, Rain water harvesting system, paver block flooring, and other flooring/plastering / RCC repair works etc. of various hostels at ICAR-NDRI, Karnal**” Under NAHEP Project.

F. No. 3-532/NAHEP/Hostel Work/2020-21/EV

[insert name and number as indicated in the Invitation for Bids (or Prequalification, if any). [1.1]

The Works consist of **Providing one parking shed,one open sitting shed with PUF sheet roofing and SS furniture/railing, Alumininum frame/wiremesh in balconies, Rain water harvesting system, paver block flooring, and other flooring/plastering / RCC repair works etc. of various hostels at ICAR-NDRI, Karnal**” Under NAHEP Project

[brief summary, including relationship to other contracts under the Project].

The start date shall be the date of issue of notice to proceed with the work. (1.1)

The intended completion Date for the whole of the work is **3 months** [17,28]

The following documents also form part of the Contract: [2.3]

The Contractor shall submit a revised Program for the Works (in such form and detail as the engineer shall reasonably prescribe) within **21** days of delivery of the Letter of Acceptance. [27]

The Site Possession Date is: [21]

03 MONTHS FROM THE AWARD OF CONTRCT

The Site is located at **Various Hostels, NDRI, Karnal** [1]
and is defined in drawings nos. _____

The Defects Liability Period is 365 days from the date of certification of completion of works (where sectional completion certificate is issued this will apply from those dates for those sections). [35]

Insurance requirements are as under:

[13]

		Minimum Cover for Insurance	Maximum deductible for Insurance
(i)	Works and Plant and Materials	Rs. 70 Lakhs	
(ii)	Loss or damage to Equipment	Rs. 70 Lakhs	
(iii)	Other Property	Rs. 50 Lakhs	
(iv)	Personal injury or death insurance:	Rs. 50 Lakhs	
	a) for other people;		
	b) for Contractor's Employees	In accordance with the statutory requirements applicable to India	

The following events shall also be Compensation Events:

[44]

1. Damage of Institute property

2. Natural calamity

3. _____

4. _____

The period between Program updates shall **be 30** days.

[27]

The amount to be withheld for late submission of an updated Program shall be 1
per cent

[27]

The language of the Contract documents is English [3]

The law which applies to the Contract is the laws of Union of India [3]

The currency of the Contract is Indian Rupees. [46]

The proportion of payments retained (retention money) shall be 6% from each bill subject to a maximum of 5% of final contract price [48]

The liquidated damages for the whole of the works are **Rs.0.05%** (amount) per day (49)

[To be fixed at not less than 0.05% per day of contract value]

The maximum amount of liquidated damages for the whole of the works [49]
]is ten percent of final contract price.

The Securities shall be for the following minimum amounts equivalent as a [52]
]percentage of the Contract Price:

Performance Security for 5 per cent of contract price plus Rs ...as additional security in terms of ITB Clause 29.5.

The standard form(s) of Performance Security acceptable to the Employer shall be an [52]
]unconditional Bank Guarantee of the type as presented in Section 8 of the Bidding Documents.

* The date by which operating and maintenance manuals are required is within 28 days of issue of certificate of completion of whole or section of the work, as the case may be. [58]

*The date by which “as-built” drawings (in scale ...) in 2 sets are required is within 28 days of issue of certificate of completion of whole or section of the work, as the case may be. [58]

The amount to be withheld for failing to supply “as built” drawings and/or operating and maintenance [58] manuals* by the date required is Rs. _____

The following events shall also be fundamental breach of the contract : [59.2]

1. The contractor has contravened Sub-clause 7 of GCC read with SCC and Clause 9 of GCC.
2. The contractor does not adhere to the agreed construction program and agreed environmental management plan (Clause 27 of GCC) and also fails to take satisfactory remedial action as per agreements reached in the management meetings (Clause 31) for a period of 60 days.
3. The contractor fails to carry out the instructions of Engineer within a reasonable time determined by the Engineer in accordance with GCC Clause 16.1 and 23.1.

The percentage to apply to the value of the work not completed representing the Employer's

[60

] additional cost for completing the Works shall be 20 percent.

* *Strike out whichever is inapplicable*

* *Strike out whichever is inapplicable*

SECTION 5: SPECIFICATIONS

SPECIFICATIONS

Technical specification (Civil)

SPECIAL CONDITIONS

General:

- (i) All Works will be executed as per latest standard Specifications.
- (ii) All the material tests to be done at Govt approved lab by the bidder at his own cost and arrangement
- (iii) The bidder should in his own interest visit the site and familiarize himself with the site conditions before bidding at his own cost.
- (iv) The bidder shall quote the rate keeping in view that they have to give an undertaking before award of work that **“they will install/ arrange field testing instruments, essential T&P.**
- (v) The bidder shall refer testing of materials/ maintaining of test registers during execution of the work.
- (vi) Completeness of bid: All sundry equipment, fittings, units assemblies, accessories, hardware items, foundation bolts, termination lugs for electrical connections, and all other item which are useful and necessary for Efficient assembly and installation of equipment and components of the work shall be deemed to have been included in the bid irrespective of the whether such items are specifically mentioned in the bid document or not.
- (vii) Completion Period: The completion period indicated in the tender document is for the entire work of planning, designing, supplying, installation, testing, commissioning and handing over of the entire system to the satisfaction of the Official(s) deputed by competent authority of ICAR-NDRI, Karnal.
- (viii) Period of Maintenance:**

The “Period of Maintenance” for the civil-works is 12 months from the date of taking over possession or one full monsoon season whichever occurs later. During the period of maintenance, the contractor will be responsible for rectifying any defects in construction free of cost to the Employer.

(ix) Power Supply:

Electric service connection shall be provided by the institute for installation purpose through a sub-meter after a formal request and depositing security by the contractor and the contractor will be bound to pay electricity charges at the rates applicable to all other contractors as per actual consumption. Water supply charges will be deducted from contractor's Bill by the ICAR-NDRI, Karnal.

- (x) The quantity of items may vary (i.e. minimum or maximum) of estimated quantity. The payment to the second party shall be released on the basis of actual quantity of the work executed by second party as per site requirements. The works contract tax/ labour welfare cess shall be deducted from the bills of the contractor as applicable in the state in which the work is carried out, at the time of payments.

(xi) Duties and responsibilities of successful bidder:

- (a)** Take up the works and arrange for its completion within the time period stipulated in clause 5;
- (b)** Employ suitable skilled persons to carry out the works ;
- (c)** Regularly supervise and monitor the progress of work ;
- (d)** Abide by the technical suggestions / direction of supervisory personnel including engineers etc. regarding building construction ;

- (e) Be responsible for bringing any discrepancy to the notice of the representative of the first party and seek necessary clarification :
- (f) Ensure that the work is carried out in accordance with specifications, drawings and within the total of the contract amount without any cost escalation;
- (g) Keep the first party informed about the progress of work ;
- (h) Be responsible for all security and watch and ward arrangements at site till handing over of the building to the first party .
- (i) Maintain necessary insurance against loss of materials/cash, etc. or workman disability compensation claims of the personnel deployed on the works as well as third party claims.
- (j) Pay all duties, taxes and other levies payable by construction agencies as per law under the contract (First party will effect deduction from running bills in respect of such taxes as may be imposed under the law).
- (k) All works shall be carried out in accordance with relevant regulation, both statutory and those specified by the Indian Standards related to the works covered by these specifications. In particular, the equipment and installation will comply with the following:
 - (i) Factories Act.
 - (ii) Indian Electricity Rules
 - (iii) I.S. & BS Standards as applicable
 - (iv) Workmen's compensation Act
 - (vi) Any other statutory approvals/norms as required
- (l) Nothing in this specification shall be construed to relieve the successful bidder of his responsibility for the design, manufacture and installation of the equipment with all accessories in accordance with currently applicable statutory regulations and safety codes.
- (m) Successful bidder shall arrange for compliance with statutory provisions of safety regulations and owners requirements of safety codes in respect of labour employed on the work by the bidder.
- (n) The successful bidder shall at all times indemnify the **ICAR-NDRI, Karnal**, and consequent on this works contract. The successful bidder shall be liable, in accordance with the Indian Law and Regulations for any accident occurring due to any cause and the **ICAR-NDRI, Karnal** shall not be responsible for any accident or damage incurred or claims arising here from during the period of erection, construction and putting into operation the equipments and ancillary equipment under the supervision of the successful bidder in so far as the latter is responsible. The successful bidder shall also provide all insurance including third party insurance as may be necessary to cover the risk. No extra payment would be made to the successful bidder due to the above.
- (o) All consignment are to be duly insured upto the destination from warehouse to site of work at the cost of the suppliers. The insurance covers shall be valid till the equipment is handed over duly installed, tested and commissioned.
- (p) All safety codes to be followed during execution of work , and safety of man material , loss is complete responsibility of contractor .

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 “latest 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.

In the case of discrepancy between, the Specifications and/ or the Drawings, the following order of preference shall be observed:-

- (i) Nomenclature of item as per Schedule of Quantities (B.O.Q)
- (ii) Special Conditions.
- (iii) Particular Specifications.
- (iv) CPWD Specifications.
- (v) Indian Standard Specifications of B.I.S.

(vi) All non-schedule items shall be governed by manufacturer's Standard specifications.

The works to be under taken by the contractor shall inter-alia include the following:

Contractor shall provide all the co-ordinated services before starting any work. The contractor shall submit material submittals along with material sample for site engineer approval prior to delivery of material at site.

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.**

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.

All the hidden items such as water supply lines, drainage pipes, conduits, sewers etc. are to be properly tested before covering.

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.

Equipment like concrete pump excavators/Transit mixer etc. shall be allowed to be moved away from the site when, in written opinion Engineer-in-charge, the same are no longer required at site of work.

The contractor, his agents / representative, workman etc. shall strictly observe orders pertaining to fire precautions prevailing in the area.

Contractor(s) shall study the soil investigation report for the site 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.

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.

Contractor shall take all precautionary measures to avoid any damage to adjoining property. All necessary arrangement shall be made at his own cost.

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.

The contractor shall take instructions from the Engineer-in-charge & Incharge (Civil) 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.

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.

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.

Water tanks, taps, sanitary, water supply and drainage pipes, fittings and accessories should conform Specifications are not applicable. The contractor should get the materials (fixtures/fittings) tested by the wherever required at his own cost.

The work shall be carried out in accordance with the approved drawings and Structural drawings. 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.

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.

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.

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.

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) 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.

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.

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.

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.

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.

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.

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.

BATCH MIX CONCRETE/ CAST IN SITU

The contractor shall establish a field 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.

Unless otherwise specified in the schedule of quantities or CPWD specifications, 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. 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: -

All cement , sand , aggregate , concrete , steel TMT, HYSD bars etc testing are to be carried out by authorised govt approved lab and certification to be arranged at contractors own cost and arrangements . as per C.P.W.D quantity norms for sample test.

- a) All the test in field lab setup at construction site shall be carried out by the Engineering Staff deployed by the contractor which shall be 100% witnessed by Technical Assistant (Civil Wing) & 50% of tests shall be witnessed by Incharge (Civil Wing). At least 10% of the tests are to be witnessed by the Engineer-in-charge.
- b) All the entries in the registers will be made by the designated Engineering staff of the contractor and same should be regularly reviewed by T.A./T.O./M.E.
- c) Contractor shall be responsible for safe custody of all the test registers.
- d) Submission of copy of all test registers, materials at site Register and hindrance register along with each alternate Running Account Bill and Final Bill shall be mandatory. These registers should be duly checked by Engineer-in-charge.
- e) Extensive testing of the materials used for construction is a pre-requisite for attaining high quality of the work. This shall also require specialized tests, physical, chemical, ultrasonic, x-ray and various other types of tests which cannot possibly be carried out in a site laboratory. These tests also require specialized personal who regularly deal in such testing. Therefore the need arises for carrying out the tests in outside laboratories. These laboratories may be in the Govt. sector, Semi Govt However,

testing of material in any Govt., Lab / Public Undertaking Lab / IIT or NIT Lab / Govt. Engineering College may be allowed by Engineer-in-charge.

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 at his own cost and arrangements.

In case there is any discrepancy in frequency of testing as given in list of mandatory tests and that in individual subheads 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.

FIELD LABORATORY

The contractor has to establish field laboratory at site including all necessary equipments and skilled manpower for the **field Tests** at his own cost to have proper quality control. For performing the above tests, the **Field Testing Equipments and Instruments** 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. the cost of taking of sample, packing, transportation, testing charges etc. shall be borne by the contractor irrespective of the results.

SECRECY

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.

The contract is 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.

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.

LABOUR AND SECURITY

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.

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.

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.

The contractor & his work people shall observe all relevant rules regarding security promulgated in which work is to be carried out by the Administration

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.

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 Engineer-in-charge. However, if the work is carried out in more than one shift or at night, no claim on this account shall be entertained.

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 Engineer-in-charge.

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.

TRANSPORTATION AND OFFICE INFRASTRUCTURE:

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 .

PROGRAM CHART: -

The Contractor shall prepare an integrated program chart in MS Project/or any Construction Project Software, 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.

The work has to be completed in stages for complete work with in time bound .

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.

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.

SAMPLE OF MATERIALS:-

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** 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.

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 at contractor own cost and arrangements

CEMENT & STEEL REINFORCEMENT

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

CEMENT:-

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. In case contractor / firm uses OPC only nothing extra shall be paid.

Samples of cement arranged by the contractor shall be submitted to Engineer-in-charge for quality check. The sample must be tested by contractor in govt. approved laboratory in accordance with provisions of relevant BIS Codes & submit report to Engineer-in-charge at contractor own cost and arrangements. 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 by the contractor/-

OPC/ PPC shall be brought at site in bulk supply of approximately as per site requirements.

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 as per site requirements 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 godowns. The contractor shall facilitate the inspection of the cement go-downs by the Engineer-in-charge at any time

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 of the contract and shall be governed by the conditions laid therein.

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.

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.

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.

STEEL REINFORCEMENT: -

The contractor shall procure Thermo Mechanical Treated (TMT) Steel Reinforcement bars of Fe 500D from Primary steel producers such as SAIL, Tata Steel Ltd, RINL, Jindal Steel & Power Ltd, and JSW Steel Ltd, or any other producer as approved by CPWD who are using iron ore as the basic raw material/ input and having crude steel capacity of 2.0 million tonnes per annum and above.

- a) The grade of the steel shall be Fe 500 D as per BIS 1786-2008.
- b) The TMT bars procured from primary producers shall conform to manufacture's specifications.

The contractor shall have to obtain and furnish test certificates to Engineer-in-charge in respect of all the supplies brought by him to the site of work.

- In case the test results indicate that the steel arranged by the contractor does not conform to the specifications, as defined under this contract , 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: -

The steel reinforcement shall be brought in bulk supply as per site requirement along with manufacturer test certificate for each lot.

The steel reinforcement shall be stored by the contractor at site of work in such a way as to prevent their distortion and corrosion and nothing extra shall be paid on these accounts. Bars of different sizes and lengths shall be stored separately to facilitate easy counting and checking.

Unless OTHERWISE specified elsewhere in the contract document, the testing (nominal mass, tensile strength, bend test, rebend test etc.) shall be done as per frequency of samples not less than as per CPWD norms

The contractor shall supply free of charge the steel required for testing including transportation to testing laboratories. The cost of tests shall be borne by the contractor.

The Actual issue and consumption of steel on work shall be regulated and proper account maintained as provided in of the contract. The theoretical consumption of steel shall be worked out as per procedure prescribed in the contract and shall be governed by conditions laid therein. In case the consumption is less than theoretical consumption including permissible variation, recovery at the rate so prescribed shall be made. In case of excess consumption no adjustment need to be made.

Steel brought to site and steel remaining unused shall not be removed from site without the written permission of the Engineer-in-charge.

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.

Reinforcement including authorized 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 centimeter. Wastage and unauthorized overlaps shall not be measured.

The standard sectional weights as in CPWD Specifications will be considered for conversion of length of various sizes of M.S. Bars, T or Steel Bars and T.M.T. bars into Standard Weight.

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.

- (a) If the Derived Weight as in sub-para (10.3.13) above is less than the Standard Weight as in Sub-para (10.3.12) above then the Derived Actual Weight shall be taken for payment provided, it is within the tolerances specified in IS 1786-2008, otherwise whole lot will be rejected.
- (a) If the Derived Actual Weight is found more than the Standard Weight, the Standard Weight as per in subpara (10.3.12) above shall be taken for payment. In such case nothing extra shall be paid for the difference between the Derived Actual Weight and the Standard Weight.

ENGAGING SPECIALISED AGENCIES FOR WORKS: -

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.

Provisions mentioned above are not applicable for engagement of Electrical Agency. However contractor shall submit MOU to Engineer-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**. It will be obligatory on the part of main contractor to sign the tender documents for all the components.

If the main contractor fails to associate agency/agencies for execution of minor components of work within

prescribed time or furnishes incomplete details or furnishes details of ineligible agencies even after the tenderer is given due opportunity, the entire scope of such component of works shall be withdrawn from the tender and the same shall be got executed by the Engineer-in-charge committee at the risk and cost of the main contractor.

Same milestones shall be applicable for all components of work.

For the specialized item of Polypropylene Pipes the contractor shall engage such vendors as approved by the manufacturer.

Defect liability:

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

Sl. No.	Description	Defect Liability
(i)	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.
(ii)	Brick work	(a) Rectification of cracks in panel wall / portion. (b) Cracks / settlement of dwarf walls. (c) Rectification of efflorescence.
(iii)	Joinery	(a) Replacement of warped joinery. (b) Cracks in panels, rails / styles etc.
(iv)	Builders Hardware	(a) Repairs / Replacement of loosened / pre-mature failure of fittings. (b) Tightening / Replacement of sag in mosquito proofing.
(v)	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.
(vi)	Roof treatment	(a) Rectification of leakage / seepage of roof slab including covering at junction till guarantee period.
(vii)	Plastering	(a) Rectification of structural / superficial cracks if any. (b) Rectification of protruding / peeling off plaster if any. (c) Rectification of efflorescence
(viii)	Flooring	(a) Rectification of sinking portion of plinth protection including saucer drain. (b) Settlement of foundation & floors.
(ix)	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, nonfunctioning of cistern.
(x)	Finishes	(a) Making good of defective / dissimilar patches of painting to match with remaining surfaces.
(xi)	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.
(xii)	Roads	(a) Repair of sinking portion of road & potholes, if any
(xiii)	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.
(xiv)	Drains	(a) Repair to Drains. (b) Settlement of Drains
(xv)	External Water Supply	(a) Repairs to installations & fittings.
(xvi)	General	(a) All manufacturing defects of structures / fixtures / fittings / equipments other than listed above.

PARTICULAR SPECIFICATIONS

EARTH WORK:-

Earthwork should be well rammed and filling of soil should be done in layered manner as per latest CPWD specifications.

R.C.C. WORK:-

Design Mix Concrete.

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 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.

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:-**

As per CPWD Specifications

(b) **Fine Aggregate:-**

As per CPWD Specifications

(c) **Water:-**

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. If Portland Pozzolona Cement is used for RCC work, the same shall be subject to fulfillment of conditions of circular No. CDO/SE(RR)/Fly ash (MAN) 02 dated 09.04.09 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 make only shall be used to attain the required workability. Nothing extra on account of use of Admixture / Plasticizer shall be payable.

Water Cement Ratio and Slump:-

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.

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	> $f_{ck} + 0.825 \times \text{established standard deviation}$ (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 (i): 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. (ii) : The acceptance criteria for compressive strength as mentioned in IS 456:2000 as amended upto date shall prevail over the above criteria in case of any difference.		

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 Engineer-in-charge..

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.

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.

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.

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
M-40	5.0

However, actual standard deviation based on test strength of samples for each grade of concrete shall be calculated separately as per procedure laid down in clause 9.2.4 of code of practice IS:456:2000.

TRIAL BATCHES

- The designed mix proportions shall be checked for target mean compressive strength by means of trial batches.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.

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 (T_{ck}).
- (b) The strength of any specimen cube is not less than $0.85 T_{ck}$.
- (c) The concrete mix is of required degree of workability and acceptable concrete finish.

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. General information to be supplied by the contractor to supplier of RMC shall be as per Table given.
- (c) RMC shall conform to CPWD specifications -2019. However contractor may use design mix concrete for smaller RCC works like lintels, filling starters of columns, coping etc. with the help of batch mix plant of approved capacity at site.
- (d) All measuring equipment shall be maintained in a clean and serviceable condition and their accuracy shall be checked at least once a month.
- (e) Only single sized good quality stone aggregate shall be brought to site of work from the approved source.
- (f) 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).

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.

SAMPLING:-

(a) Samples from fresh concrete shall be taken as per IS 1199 and the test cubes shall be made, cured and tested in accordance with IS: 516.

(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.

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 + 15% percent of the average. If variation is more, the test results shall be treated as invalid.

STANDARD OF ACCEPTANCE: -**Compressive strength :**

i) The concrete shall deemed to comply with the strength requirement when both the following conditions are met.

(a) The mean strength determined from any group of four consecutive test results complies with the appropriate limits

(b) Any individual test result complies with the appropriate limits

ii) **Quality of concrete represented by strength test result**

The quantity of concrete represented by a group of four consecutive test results shall include the batches for which the first and last samples were taken together with all intervening batches.

Where the mean rate of sampling is not specified the maximum quantity of concrete that four consecutive test results represents shall be limited to 60m^3 .

iii) Concrete of each grade shall be assessed separately.

iv) 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. However, the hardened concrete may be accepted after carrying out suitable remedial measures to the satisfaction of Engineer-in-charge and Works Committee.

MEASUREMENT –

(i) As per CPWD Specifications.

TOLERANCES - As per CPWD Specifications.

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/ Institute's works committee 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/ Institute's works committee 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.

FORM WORK

The work shall be done in general as per CPWD Specifications.

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.

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.

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.

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.

REINFORCEMENT:-

The reinforcement shall be done as per CPWD Specifications.

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.

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** of high early strength and same colour as surrounding concrete. However Cover Guard Bars shall also be used to maintain proper cover of RCC columns in addition to spacer blocks as mentioned above. 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 & Cover Guard Bars.

PRE CAST R.C.C WORK:-

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.

Pre-cast units shall be clearly marked to indicate the top of member and its location.

Pre-cast units shall be stored, transported and placed in position in such a manner that these are not damaged.

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.

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.

The work shall be done in accordance with CPWD Specifications.

BRICK WORK:-

The brickwork shall be carried out with good quality well common burnt clay Machine moulded / F.P.S. (Non modular) bricks of class designation 7.5 as per CPWD Specifications. Exposed brick work for ground level to plinth level shall be executed with selected bricks of class designation 7.5

The rate shall also include for leaving chases / notches for dowels / cramps for all kinds of cladding to come over brick work.

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.

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.

Half brick masonry work shall be carried out with good quality well common burnt clay F.P.S. (non modular) bricks of class designation 7.5 as per CPWD Specifications.

STONE / MARBLE WORK :-

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

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.

STEEL WORK:-

The work shall be carried out as per CPWD Specifications.

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

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.\

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.

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

6.0 Workmanship/Execution: Skilled Staff to be provided at site so that proper finishing and execution may be achieved within time boundation.

FLOORING:-

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

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.

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.

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.

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

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

PVC& Wooden Flooring

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..

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

The full body vitrified tiles of specified sizes shall be used & samples of tiles shall be got approved from the Engineer-in-charge . All tiles shall be rectified. The mandatory tests for vitrified tiles shall be got done as per CPWD Specifications (Vol.1)/relevant BIS Code.

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.

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

WATER PROOFING FOR SUNKEN FLOORS:-

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

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.

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

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.

WATER PROOFING TREATMENT WORK :-

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

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.

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

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.

WOOD WORK:

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

The sample of timber to be used shall be deposited by the contractor with Engineer-incharge before commencement of work.

Glazing for toilets shall be of translucent type.

The shape and size of beading shall be as per drawings. The joints of beading shall be mitred.

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.

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.

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.

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

Factory made panelled / wire gauge door shutters

The work shall be executed through specialized agencies to be approved by the Engineer in Charge.

The shutters should be fabricated in factories & fabrication should conform to CPWD Specifications..

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.

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.

The shutters should be brought at site without primer / painting.

11.0. FINISHING:-

The work shall be done in accordance with CPWD Specifications.

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 by Engineer-in-charge. The empty containers shall not be removed from the site till the completion of the work without permission of the by Engineer-in-charge.

SANITARY INSTALLATIONS /WATER SUPPLY / DRAINAGE:-

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 by Engineer-in-charge.

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.

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

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.

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.

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

(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.

- 12.6. (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.

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

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

Aluminium doors, windows, ventilators etc. Glazing specifications:

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.

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 by Engineer-in-charge and no work shall be performed until the approval of these drawings is obtained.

Shop Drawings (architectural and structural drawings): - The contractor shall submit the shop drawings of all architectural and structural drawings including door, 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.

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.

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 aluminum 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.

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.

Anodizing: - All aluminum 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.

Protection of finish: - All aluminum members shall be wrapped with approved self-adhesive non-staining. PVC tapes.

Handling and Stacking: -

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.

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.

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.

The contractor shall be responsible for doors, windows, etc. being set straight, plumb, level and for their satisfactory operation after fixing is complete.

Installation: -

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.

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 anchorage hole. 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.

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.

Fittings: - Hinges, stays, handles, tower bolts, locks and other fittings shall be of quality and manufacturer as approved by the Engineer-in-charge.

contractor's Attendance: - The manufacturer/contractor 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.

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.

Details of Test: -

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

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

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

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.

Acceptance Criteria: - The aluminium work shall carry guarantee after completion of work against unsound material, workmanship and defective anodizing/ powder coating as per guarantee bond. Guarantee in prescribed Performa attached under this NIT must be given by the specified firm, which shall be countersigned by the contractor, in token of his overall responsibility. If any defect is noticed during the guarantee period, the contractor should rectify it within seven days and if not attended to the same will be got done from another agency at the risk and cost of contractor.

Rates: -

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

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

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

SCOPE:

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.

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

PVC door shutters shall be used in internal locations only.

REFERENCES:

The Indian Standards and other Standards 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.

TERMINOLOGY:

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

14.3.1.1

- (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.
- (i) 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.
- (ii) Aggregate Defects: Presence of defects such as pin holes, impurities and traces of mending 5 or more in aggregate for defects at localized place.

HANDLING:

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

14.5.0 MATERIAL:

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.

PROCESS:

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 1100 C to 1250 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.

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 2050 C by rotating

screws. The thick paste of PVC material is then passed through a hot die to make the sheet of required thickness.

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 thereafter on a roller table by atmospheric air.

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

15. SHEETS ROOFING:

PRECOATED GALVANISED IRON PROFILE SHEET:

Sheets shall be of the thickness specified in the description of the item and shall conform to IS 277. The sheets shall be free from cracks, split edges, twists, surface flaws etc. They shall be clean, bright and smooth. The galvanising shall be non-injured and in perfect condition. The sheets shall not show signs of rust or white powdery deposits on the surface. The corrugations shall be uniform in depth and pitch and parallel with the side.

Precoated galvanised iron profile sheets (size, shape and pitch of corrugation as approved by Engineer-in-charge) 0.50 mm (+ 0.05 %) total coated thickness with zinc coating 120 grams per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns. Sheet should have protective guard film of 25 microns minimum to avoid scratches during transportation and should be supplied in single length upto 12 metre or as desired by Engineer-in-charge.

The sheet shall be fixed using self drilling /self tapping screws of size (5.5x 55 mm) with EPDM seal, complete upto any pitch in horizontal/ vertical or curved surfaces, excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required.

- 15.2 **Percolated galvanised iron composite Insulated Profile Sheet (PUF Sheet):** As per standard specifications & BOQ given inside this tender document

REFERENCES:

The Indian Standards and other Standards listed 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.

- 17 **PAVER BLOCKS:** The paver blocks shall conform to IS :15658: 2006 Testing and sampling shall be conducted to satisfy the code. The contractor shall submit the test certificate of paver blocks along with the supply of paver blocks.
- 18 **STAINLESS STEEL:** stainless steel (SS 304 grade) Grills of approved quality with necessary stainless steel screws etc. as per CPWD specifications & direction of Engineer in-charge complete.
- 19 **TOUGHNENED GLASS:** 12 mm thick frameless toughened glass of approved brand and manufacture as per site condition
- 20 **FALSE CEILING:** As per CPWD specifications & BOQ given inside this tender document
- 21 **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) Bulking of sand
- vi) Silt content of sand
- vii) Temperature measuring with thermometer with brass protected end 0-200° C

22 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 tape – 3 m
- ii) Vernier Caliper
- 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) Digital Distance meter
- xiv) Leveling machine
- xv) Theodolite

C. Minimum required T&P

Detail of T&P		Qty.	Remarks
1	Concrete mixer with hopper (Full bag)	2 Nos.	
2	Steel props	2000 cum space	
3	Steel Shuttering	600sqm	
4	Excavator cum loader	1 No.	
5	Plate Vibrator	2 Nos.	
6	Needle Vibrator	2 Nos.	
7	Floor grinding machine	2 Nos.	
8	Welding machine	2 Nos.	
9	Water pump	2 Nos.	
10	Concrete Pump	1 No.	

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 Issue	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	TA/TO INITIAL	Periodical Check	M.E./COMMITTEE
1	2	3	4	5	6	7

LIST OF PREFERRED MAKES FOR CIVIL WORKS

S.NO.	NAME OF PRODUCT/ MATERIAL	PREFERRED BRAND NAMES
1	ORDINARY PORTLAND CEMENT (GREY) (43 GRADE)	ACC, ULTRATECH, SHREE CEMENT, AMBUJA, JAYPEE CEMENT, CENTURY CEMENT & J.K. CEMENT.
2	PORTLAND POZZOLONA CEMENT (GREY) (43 GRADE)	ACC, ULTRATECH, SHREE CEMENT, AMBUJA, JAYPEE CEMENT, CENTURY CEMENT & J.K. CEMENT.
3	WHITE CEMENT	J.K.WHITE, JAIPUR SUPREME PACKAGINGPVT. LTD., ULTRATECH CEMENT LIMITED.
4	REINFORCEMENT STEEL	SAIL, TATA STEEL LTD., RINL, JINDAL STEEL & POWER LTD. AND JSW STEEL LTD.
5	ADMIXTURES	CICO, FAIRMATE, HIND PLAST SUPER, SUPAPLAST, SIKKA
6	WATER PROOFING COMPOUND	FOSROC, CICO, KRYTON BUILDMAT, PIDILITE, PRIYA ENTERPRISES, FAIRMATE
7	READY MIX CONCRETE	M/S L&T CONCRETE (LAFARGE), ULTRATECH CEMENT LTD., ACC CONCRETE LTD., RMC READY MIX (INDIA) PVT. LTD.
8	AUTOCLAVED AERATED BLOCKS	BILTECH, ECO GREEN, FINECRETE, J.K. LAKSHMI CEMENT LTD.
9	POLYMER MODIFIED ADHESIVE FOR AAC BLOCKS	MYK LATICRETE, FERROUS CRETE, ARDEX ENDURA, ULTRATECH, SIKKA.
10	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
11	FLUSH DOOR SHUTTERS	KUTTY FLUSH DOOR, SAMRAT LAMINATE, NATIONAL PLYWOODS, JAIN WOOD INDUSTRIES, MERINO, KITPLY, CENTURY, AS TIMBER
12	BLOCK BOARD	MERINO, KITPLY, NATIONAL, ARCHIDPLY, CENT PLY, JAYNA, CENTURY.
13	LAMINATES	SAMRAT, VIRGO, MERINO, ARCHIDPLY, CENTURY LAMINATES, GREENLAM
14	PRE-LAMINATED PARTICLE	ARCHIDPLY, CENTURY PLY BOARDS,

	BOARD	BALAJI ACTION BUILDWELL, ECOBOARD
15	PARTICLE BOARD (MEDIUM DENSITY)/ VENEERED PARTICLE BOARD	CENTURY PLYBOARDS (INDIAN) LTD., BALAJI ACTION BUILDWELL, EVERGREEN BOARDLAM, ECOBOARD INDUSTRIES LTD.
16	PRE-LAMINATED MEDIUM DENSITY FIBRE BOARD	CENTURY PLYBOARDS, GREEN PLY, BALAJI ACTION BUILDWELL
17	OMS/ MS DOOR FITTINGS	ASHISH, AGGARWAL STEELS, DOOR DEVICES MANUFACTURING COMPANY, MANU ENGINEERING COMPANY, M.C. MOWJEE & CO., SHRI GANPATI DOORS
18	HYDRAULIC DOOR CLOSER	HARDWYN, EVEREST, HYPER, UNIVERSAL, SUDARSHAN INDUSTRIES
19	STAINLESS STEEL DOOR/WINDOW HARDWARE FITTINGS (FIRE RATED AND NON-FIRE RATED)	DORMA, ASSA ABLOY, GEZE, D-LINE
20	ANODISED/ ZINC ALLOY/ ALUMINIUM HARDWARE DOOR/ WINDOW FITTINGS	PULSE, SAVIO, HOPPE, ALUTECH
21	FRP DOOR FRAMES & SHUTTERS	ASHISH INDUSTRIES, JAYNA, SAINIK (CENTURY PLYWOOD), SELECTED PRODUCTS CO.
22	UPVC WINDOWS/ DOORS	VEKA, FENESTA, REHAU, ALUPLAST
23	UPVC WINDOW/ DOOR HARDWARE FITTINGS (ZINC ALLOY)	PULSE, HOPPE, GU, ROTO
24	WIDOWS BLINDS	VISTA, MAC, HUNTER, DOUGLAS, DE- DÉCOR
25	STRUCTURAL STEEL SUCH AS MS FLATS, SQ.BARS ANGLES ETC.	SAIL, TATA STEEL, RINL, JINDAL STEEL &POWER LTD. AND JSW STEEL LTD
26	FIRE RATED DOORS (METTALIC/ NON METTALIC)	KUTTY DOORS, NAVAIR, PROMAT, SYNERGY THRISLINGTON
27	HOT-ROLLED STEEL SECTIONS FOR MS DOORS, WINDOWS AND VENTILATORS	NAV DURGA STEEL CORPN, CRM STEELS P. LTD, SHYAM ISPAT UDYOG, VIMAL, SHIV
28	MILD STEEL DOOR, WINDOWS & VENTILATORS MANUFACTURERS	FRIENDS MANUFACTURING COMPANY, KOTKAPURA, PD INDUSTRIES, SHAKTI INDUSTRIES, STEELMAN INDUSTRIES, SKS STEEL INDUSTRIES, SHIVAM
29	PRESSED STEEL DOOR FRAMES MANUFACTURERS	KRISHNA STEEL FABRICATOR SIRSA, LAXMI STEEL WORKS BAHADURGARH,

		ASHISH INDUSTRIES GHAZIABAD, ASHWANI & SONS.
30	HOLLOW STEEL SECTIONS	JINDAL INDUSTRIES HISAR, TATA STEEL, STEEL & METAL TUBES (INDIA)PVT. LTD
31	STEEL TUBES FOR STRUCTURAL STEEL	JINDAL INDUSTRIES HISAR, TATA STEEL, STEEL & METAL TUBES (INDIA) PVT. LTD.
32	DASH/ ANCHORING FASTENERS, BOLTS, SCREWS AND NUTS.	HILTI , FISCHER, CKW, ATUL, PRIYA
33	STAINLESS STEEL RAILING	DORMA, KICH, OM STEEL , D-LINE.
34	CHEQUERRED PRE-CAST CC TILES	NTC, SWASTIK TILE, POOJA CONCRETE FABRICATORS, GTC
35	CERAMIC TILES	SOMANY, ORIENTBELL, RAK, ASIAN GRANITO INDIA LTD.
36	VITRIFIED TILES	SOMANY, ORIENTBELL, RAK, ASIAN GRANITO INDIA LTD.
37	ADHESIVE/ GROUTING FOR USE WITH TILES	FERROUS CRETE, MYK LATICRETE, ARDEX EDURA, FAIRMATE, DURA BUILD CARE, SIKKA
38	WOODEN LAMINATE FLOORING	PERGO, KRONOTEX, FLORENCE, UNITEX, ACTION TESA
39	UNPLASTICISED RIGID PVC PIPE & FITTINGS	A S H IRVAD , FLOWGUARD, FINOLEX, RAKSHA
40	GALVANISED STEEL SHEETS (UNCOATED & PRE-COATED)	SAIL, TATA, BHUSHAN POWER STEELS, JINDAL
41	ROOFING SHEETS (GALVALUME)	CRIL, LLOYDS, INTERACH, MULTICOLOR, BHUSHAN POWER STEEL
42	FALSE CEILING- GYPSUM	SAINT GOBAIN, VANS GYPSUM, USG BORAL, LLYOD
43	FALSE CEILING- METAL	ARMSTRONG, DEXUNE, SAINT GOBAIN, HUNTER DOUGLAS, GYPTECH
44	FALSE CEILING- CALCIUM SILICATE	HILUX, AEROLITE, ARMSTRONG
45	FALSE CEILING-MINERAL FIBRE	ARMSTRONG, DEIKEN, DEXUNE, SAINT GOBAIN.
46	ACCOUSTIC: GLASS / WOODEN FIBRE FALSE CEILING AND WOODEN/ FABRIC WALL LINING	ARMSTRONG, DEXUNE, ACCOUSTIBLOK, HIMALYAN ACOUSTICS, ANUTONE, GYPTECH
47	FALSE CEILING-ALUMINIUM POWDER COATED	ARMSTRONG, DEXUNE, SAINT GOBAIN, HUNTER DOUGLAS

48	LIGHT WEIGHT GYPSUM PLASTER	SAINT GOBAIN, ULTRATECH, FERROUS CRETE, USG BORAL.
49	OIL BOUND DISTEMPER/ ACRYLIC DISTEMPER *	NEROLAC ACRYLIC DISTEMPER, TRACTOR ACRYLIC DISTEMPER (ASIAN PAINTS), MAXILITE ACRYLIC DISTEMPER (ICI), BISON ACRYLIC DISTEMPER (BERGER).
50	INTERIOR EMULSION/ PLASTIC EMULSION*	DULUX ACRYLIC EMULSION/ SOLITAIRE A-1000 (ICI), APCOLITE PREMIUM EMULSION (ASIAN), BEAUTY GOLD (NEROLAC), SILK (BERGER)
51	ACRYLIC SMOOTH EXTERIOR PAINT*	APEX ULTIMA (ASIAN), DULUX WEATHERSHEILD MAX (ICI), EXCEL (NEROLAC), WEATHERCOAT ALL GUARD (BERGER)
52	DRY DISTEMPER*	NEROLAC, BERGER, ASIAN PAINTS, ICI, JENSON & NICHOLSON (J&N)
53	TEXTURED EXTERIOR PAINT*	NEROLAC, BERGER, ASIAN PAINTS, ICI
54	SYNTHETIC ENAMEL PAINTS*	DULUX HI-GLOSS (ICI), APCOLITE PREMIUM GLOSS (ASIAN), NEROLAC HIGH GLOSS (NEROLAC), LUXOL HIGLOSS (BERGER)
55	WOOD PRIMER*	NEROLAC, BERGER, ASIAN PAINTS, ICI
56	STEEL PRIMER*	NEROLAC, BERGER, ASIAN PAINTS, ICI
57	EXTERIOR WALL PRIMER*	EXTERIOR NEROLAC PRIMER, EXTERIOR BERGER PRIMER, EXTERIOR ASIAN PAINTS PRIMER, EXTERIOR ICI PRIMER
58	WALL PUTTY (WHITE CEMENT BASED)	BIRLA WALL CARE, JK WHITE, SARA WALL PUTTY
59	POLYMER MODIFIED SELF CURING PLASTER	MYK LATICRETE, FERROUS CRETE, ARDEX ENDURA, ULTRATECH
60	PAVER/ GRASS PAVER BLOCKS & KERB STONES	SHIV SHAKTI, PUNEET TILES, NATIONAL TILES CORPORATION, SARAL IMPEX, BALAJI TILES, METRO PAVERS, MGM INFRA, KRISHNA TILES, POOJA CONCRETE FABRICATORS, GIAN NIRMAN LIMITED.NITCO
61	VITREOUS CHINA SANITARY WARE	HINDWARE, CERA, PARRYWARE, JOHNSON PEDDER, NEYCER
62	PLASTIC FLUSHING CISTERN FOR WC AND URINALS	JINDAL, STEEL BIRD, SEEMLINE, VIKRAM PLASTIC, PRAYAG POLYMERS (P) LTD.

63	PLASTIC SEAT COVER OF W.C.	AJANTA POLYMERS, JINDAL MALPINE, JAIN POLYMERS
64	STAINLESS STEEL SINK	ALLEX, JAYNA, JMD INTERNATIONAL, STEEL CRAFT
65	MIRROR GLASS	ATUL, MODIGUARD, GOLDEN FISH
66	CENTRIFUGALLY CAST (SPUN) IRON PIPES	NECO, BENGAL IRON, DURGAPUR ISPAT UDYOG, SINGHAL IRON FOUNDRY (SKF), KAPILANSH DHATU UDYOG PVT. LTD., HIF, BINAY UDYOG
67	HUBLESS CENTRIFUGALLY CAST (SPUN) IRON PIPES	NECO, RAJ PATTERN MAKERS & FOUNDERS, SKF
68	CP FITTINGS & ACCESSORIES	JAQUAR, HINDWARE, PRIMA, CERA, JAL
69	BRASS STOP & BIB COCK	DHAWAN SANITARY UDYOG, JAINKO, SHAKTI, VARDHMAN INDIA PRODUCTS
70	FERRULES FOR WATER SUPPLY	HIND METAL WORKS, KRITIKA, DRP, SHAKTI
71	BALL COCK WITH ROD	RESP FAUCET INDUSTRIES, DHAWAN SANITARY UDYOG, NEW METAL WORKS, KPR, PRAYAG.
72	POLYETHYLENE WATER STORAGE TANK	SINTEX, VECTUS, KAVERI
73	STONEWARE PIPES & GULLY TRAPS	SORKHI INDUSTRIES, RK INDUSTRIES, NAVNEET, MOLLI CERAMICS, OCR, ANAND
74	PRE-CAST CONCRETE PIPES (NON-PRESSURE)	RAMNIK, BFSP, JAGDAMBHEY SPUN PIPE, GURKIRPA SPUN PIPES
75	GI PIPE	JINDAL (HISSAR), TATA, PRAKASH SURYA, BST, BHUSHAN POWER STEEL
76	GI FITTINGS	UNIK, AVR, ZOLOTO, SANT, HBI, C-BRAND, NVR
77	C-PVC PIPE	ASHIRVAD, FLOWGUARD, FINOLEX, RAKSHA.
78	WATER METER	CRESCENT, PRINCE, FEDREL, DASHMESH, NBESON, SANT
79	GUN METAL GATE, GLOBE, CHECK VALVES & NON-RETURN VALVES	LEADER, ZOLOTO, SANT, RAJAN METAL INDUSTRIES, H.B. METALS, HVI, NVR.
80	CENTRIFUGALLY CAST (SPUN) IRON PIPES (CLASS LA).	TRU FORM ENGINEERS, KAPILANSH, ELECTROSTEEL, HITECH METAL CASTINGS.
81	C.I. SLUICE VALVES & REFLEX VALVES	ZOLOTO INDUSTRIES, SANT VALVES, AMCO INDUSTRIES, KIRLOSKAR, RATAN INDUSTRIAL CORPORATION, HVI, NVR.

82	STAINLESS STEEL PIPES & FITTINGS	JINDAL STAINLESS STEEL, OM STEEL GROUP, V STEEL, VIEGA, RAMPART INDIA PVT. LTD.,
83	DUCTILE IRON PIPES & FITTINGS	JINDAL SAW LTD, ELECTRO STEEL, CHANDRANCHAL INFRA, ELECTROTHERAM
84	C.I/ D.I. MANHOLE COVERS & FRAMES	SWASTIKA ENTERPRISES, BENGAL IRON CORPORATION, NECO, BINAY UDYOG, CHANDERANCHAL
85	WATER REPELLANT SILANE CHEMICAL	PIDILITE, FERROUS CRETE, ARDEX ENDURA
86	ALUMINIUM SECTIONS	HINDALCO, JINDAL, INDIAN ALUMINIUM CO.
87	BASIC/ TOUGHENED ETC. GLASS	SAINT GOBAIN, ASAHI, MODI, GOLD PLUS GLASS, PILINGTON
88	APPROVED PROCESSORS FOR PERFORMANCE GLASS/ TOUGHENED GLASS/ HERMETICALLY SEALED/ LACQUERED GLASS etc	ART & GLASS, MIRAGE TOUGHENED GLASSES (P) LTD.,AAR PAR GLASS, VERMA GLASS.
89	STRUCTURAL GLAZING	ALCOB, ALUPRO, ALUPLAX, SP FABRICATORS, SAINT GOBAIN, GLAVERBEL.
90	FAÇADE GLASS OPENABLE FITTINGS	ALUALPHA, SAVIO, HOPPE, ALUTECH
91	GLASS FAÇADE/ GLASS CANOPY WITH SS SPIDER FITTINGS	ALCOB, ALUPRO, ALUPLAX, SP FABRICATORS, SAINT GOBAIN, GLAVERBEL.
92	FRAMELESS GLAZING WITH SS PATCH FITTINGS	DORMA, ASSA ABLOY, GEZE, D-LINE

***Batch test certificate of cement, steel, aluminium, Paints and Primer shall be supplied along with each lot including testing of material & approved govt lab at contractor's own cost and arrangements.**

***If any further material other than this approved list may be require to use (in non availability case). First approval may be taken from engineer-in-charge**

SIGNATURE OF CONTRACTOR

SECTION 6: DRAWINGS

SECTION 7: BILL OF QUANTITIES

Bill of Quantities

[illegible]

Note:

- (1) Item for which no rate or price has been entered in will not be paid for by the Employer when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities (refer: ITB Clause 13.2 and GCC Clause 43.3).
- (2) Unit rates and prices shall be quoted by the bidder in Indian rupee [ITB Clause 14.1].
- (3) Where there is a discrepancy between the rate in figures and words, the rates in words will govern. [ITB Clause 27.1(a)]

- (4) Where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by quantity, the unit rate quoted shall govern [ITB Clause 27.1 (b)].

NATIONAL DAIRY RESEARCH INSTITUTE, KARNAL							
Maintenance Section Division-Civil Wing							
NAHP HOSTEL ESTIMATE Based on C.P.W.D. UPDATED Rates 2021							
<i>Providing one parking shed, one open sitting shed with PUF sheet roofing and SS furniture/railing, Aluminium frame/wire mesh in balconies, Rain water harvesting system, paver block flooring, and other flooring/plastering/RCC repair works etc. of various hostels at ICAR-NDRI, Karnal</i>							
Sr. No	Description of Item	Quantity		Rate (Rs)	Unit	Amount(Rs)	DSR-21 Code
1.	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil.	100.00	Cum	286.85	cum	28685.00	2.8.1
2.	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m. cum	70.00	Cum	253.95	cum	17777.00	2.25
3.	Excavating, supplying and filling of local earth (including royalty) by mechanical transport upto a lead of 5km also including ramming and watering of the earth in layers not exceeding 20 cm in trenches, plinth, sides of foundation etc. complete.	40.00	Cum	368.85	One Square Metre	14754.00	2.25(a)
4.	Surface dressing of the ground including removing vegetation and inequalities not exceeding 15 cm deep and disposal of rubbish, lead up to 50 m and lift up to 1.5 m. 2.28.1 All kinds of soil sqm 28.15	450.00	Sqm	28.15	sqm	12668.00	2.28.1
5.	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level :1:2:4 (1 cement : 2 coarse sand	10.00	cum	7945.60	one cum	79456.00	5.1.3

	(zone-III) derived from natural sources : 4 graded stone aggregate 20 mm nominal size derived from natural sources) <u>for cantilevers , and beams</u>						
6.	Providing and laying 1:2:4 (1 cement : 2 coarse sand (zone-III) derived from natural sources : 4 graded stone aggregate 20 mm nominal size derived from natural sources) cum	40.00	Cum	7365.15	One Cubic Metre	294606.00	4.1.3
7.	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)	50.00	Cum	6326.05	One Cubic Metre	316303.00	4.1.8
8.	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level 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)	15.00	Cum	6050.65	One Cubic Metre	90760.00	4.1.10
9.	Providing and laying damp-proof course 40mm thick with cement concrete 1:2:4 (1 cement : 2 coarse sand (zone-III) derived from natural sources : 4 graded stone aggregate 12.5mm nominal size derived from natural sources)	10.00	Sqm	370.85	One Square Metre	3709.00	4.10
10.	Providing & applying a coat of residual petroleum bitumen of grade of VG-10 of approved quality using 1.7kg per square metre on damp proofcourse after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil. sqm	5.00	Sqm	113.85	One Square Metre	569.00	4.13
11.	Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° 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	6.00	Cum	10719.30	one cum	64316.00	5.3

	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). cum 10719.30						
12.	Suspended floors, roofs, landings, balconies and accessplatform with water proof ply 12 mm thick sqm	10.00	Sqm	853.75	one sqm	8538.00	5.9.21
13.	Centering and shuttering including strutting, propping etc. and removal of form for Lintels, beams, plinth beams, girders, bressumers and cantilevers	130.00	Sqm	608.35	One Square Metre	79086.00	5.9.5
14.	Extra for additional height in centering, shuttering where ever requiredwith adequate bracing, propping etc., including cost of de-shutteringand decentering at all levels, over a height of 3.5 m, for every additionalheight of 1 metre or part thereof (Plan area to be measured). Suspended floors, roofs, landing, beams and balconies (Plan area to be measured)	150.00	Sqm	319.25	One Square Metre	47887.50	5.11.1
15.	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete above plinth level.Thermo-Mechanically Treated bars of grade Fe-500D or more.	900.00	kg	89.65	per kg	80685.00	5.22A.6
16.	Brick work with common burnt clay F.P.S. (non modular) bricks of classdesignation 7.5 in foundation and plinth inCement mortar 1:4 (1 cement : 4 coarse sand)	26.00	Cum	6882.00	PER CUM	178932.00	6.1.1
17.	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level in all shapes and sizes in : Cement mortar 1:4 (1 cement : 4 coarse sand)	8.00	Cum	8512.10	CUM	68097.00	6.4.1
18.	Half brick masonry with common burnt clay F.P.S. (non modular) bricks	25.00	Sqm	111.60	One Square Metre	2790.00	6.13.2
19.	Steel work in built up tubular (round, square or rectangular hollow tubes etc.) trusses etc., including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and	2500.00	kg	154.90	per kg	387250.00	10.16.1

	<i>bolted with special shaped washers etc. complete. Hot finished welded type tubes .</i>						
20.	<i>Steel work welded in built up sections/ framed work, including cutting,hoisting, fixing in position and applying a priming coat of approved steelprimer using structural steel etc. as required.10.25.1 In stringers, treads, landings etc. of stair cases, includinguse of chequered plate wherever required, all complete</i>	200.00	kg	102.25	per kg	20450.00	10.25.1
21.	<i>Providing and fixing on wall face unplasticised Rigid PVC rain waterpipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion, (i) Single socketed pipes. 75 mm diameter</i>	24.00	metre	213.00	per metre	5112.00	12.41.1
22.	<i>Providing and fixing precoated galvanised iron profile sheets (size, shape and pitch of corrugation as approved by Engineer-in-charge) 0.50 mm (+ 0.05 %) total coated thickness with zinc coating 120 grams per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns. Sheet should have protective guard film of 25 microns minimum to avoid scratches during transportation and should be supplied in single length upto 12 metre or as desired by Engineerin-charge. The sheet shall be fixed using self drilling /self tapping screws of size (5.5x 55 mm) with EPDM seal, complete upto any pitch in horizontal/ vertical or curved surfaces, excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required. sqm 671.55</i>	90.00	Sqm	671.55	One Square Metre	60440.00	13.62.1(12.50)
23.	<i>Providing and fixing precoated galvanised steel sheet roofing accessories 0.50 mm (+0.05 %) total coated thickness, Zinc coating 120 grams per sqm as per IS: 277, in</i>	15.00	metre	450.60		6759.00	12.51.1

	240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns using self drilling/ self tapping screws complete :Ridges plain (500 - 600mm)						
24.	Gutter (600 mm over all girth) metre	30.00	metre	1110.60	One Square Metre	33318.00	12.51.6
25.	12 mm cement plaster of mix : 1:4 (1 cement: 4 fine sand)	210.00	Sqm	294.85	ONE SQM	61919.00	13.1.1
26.	13.4 12 mm cement plaster of mix : 13.4.1 1:4 (1 cement: 4 coarse sand)	440.00	Sqm	307.25	ONE SQM	135190.00	13.4.1
27.	13.5 15 mm cement plaster on rough side of single or half brick wall of mix 1:4 (1 cement: 4 coarse sand)	1090.00	Sqm	354.50	ONE SQM	386405.00	13.5.1
28.	Distemping with 1st quality acrylic distemper (ready mixed) having VOC content less than 50 gms/litre, of approved manufacturer, of required shade and colour complete, as per manufacturer's specification. Two or more coats on new work	2000.00	Sqm	92.75	ONE SQM	185500.00	13.42.1
29.	Finishing walls with Premium Acrylic Smooth exterior paint with Silicone additives of required shade: New work (Two or more coats applied @ 1.43 ltr/10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/10 sqm) for narmda & satluj hostel	1800.00	Sqm	162.35	ONE SQM	292230.00	13.47.1
30.	Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade : Two or more coats on new work over an under coat of suitable shade with ordinary paint of approved brand and manufacture	54.00	Sqm	191.40	ONE SQM	10336.00	13.62.1
31.	Providing and applying white cement based putty of average thickness 1 mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete.	1750	Sqm	123.85	ONE SQM	216738.00	13.80.0
32.	6 mm plaster on cement concrete or reinforced cement concrete work with white cement based	400.00	Sqm	217.50	ONE SQM	87000.00	13.86

	<i>polymer modified self curing mortar of approved make as per the direction of Engineer-In-Charge.</i>						
33.	<i>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.</i>	8869.00	Sqm	20.85	ONE SQM	184919.00	13.91
34.	<i>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 With cement mortar 1:4 (1cement: 4 coarse sand)</i>	250.00	Sqm	478.00	ONE SQM	119500.00	14.1.2
35.	<i>Raking out joints in lime or cement mortar and preparing the surface for re-pointing or replastering, including disposal of rubbish to the dumping ground, all complete as per direction of Engineer-in-Charge.</i>	350.00	SQM	59.75	ONE SQM	20913.00	14.17
36.	<i>Providing gola 75x75 mm in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 stone aggregate 10 mm and down gauge), including finishing with cement mortar 1:3 (1 cement : 3 fine sand) as per standard design : 12.21.1 In 75x75 mm deep chase metre 260.2</i>	200	metre	260.20		52040.00	12.21.1
37.	<i>Flush pointing with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% of integral water proofing compound by weight of cement for flat tile bricks on top of mud phaska : With modular brick tiles</i>	350.00	SQM	115.95	ONE SQM	40583.00	14.18.2
38.	<i>Demolishing cement concrete manually/ by mechanical means including disposal of material within 50 metres lead as per direction of Engineer - in - charge.Nominal concrete 1:3:6 or richer mix (i/c equivalent design mix) cum</i>	8.00	Cum	2007.10	CUM	16057.00	15.2.1
39.	<i>Extra for cutting reinforcement bars manually/ by mechanical means</i>	90.00	Sqm	947.10	ONE SQM	85239.00	15.5

	<i>in R.C.C. or R.B. work (Payment shall be made on the cross sectional area of R.C.C. or R.B. work) as per direction of Engineer-in-charge.</i>						
40.	<i>Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge. In cement mortar TILTED WALL SATLUJ</i>	7.72	Sqm	1698.45	ONE SQM	13112.00	15.7.4
41.	Removing mortar from bricks and cleaning bricks including stacking within a lead of 50 m (stacks of cleaned bricks shall be measured): From brick work in cement mortar 1000 Nos	3860.0 0	NUMB ERS	5.52	PER 1000 BRICKS	21307.00	15.8.3
42.	<i>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. sqm</i>	1500.0 0	Sqm	45.05	ONE SQM	67575.00	15.56
43.	<i>Providing and laying 60mm thick facioy made cement concrete interlocking paver block of M -30 grade made by block making machine with strong vibratory compaction, of approved size, design & shape, laid in required colour and pattern over and including 50mm thick compacted bed of coarse sand, filling the joints with line sand etc. all complete as per the direction of Engineer-in-charge. sqm For common parking shed and alaknanda shed front only</i>	500.00	Sqm	951.00	ONE SQM	475500.00	16.68
44.	<i>Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete :19.6.3 250 mm dia. R.C.C. pipe metre</i>	135.00	METRE	811.15	METRE	109505.00	19.6.3
45.	<i>Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other</i>	700.00	KG	433.95	PER KG	303765.00	21.1.1

	sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, paneling and dash fasteners to be paid for separately) : For fixed portion For fixed portion Anodised aluminium (anodised transparent or dyed to required shade according to IS: 1868, Minimum anodic coating of grade AC 15)						
46.	Providing and fixing factory made precast RCC perforated drain covers, having concrete of strength not less than M-25, of size 1000 x 450x50 mm, reinforced with 8 mm dia four nos longitudinal & 9 nos cross sectional T.M.T. hoop bars, including providing 50 mm dia perforations @ 100 to 125 mm c/c, including providing edge binding with M.S. flats of size 50 mm x 1.6 mm complete, all as per direction of Engineerin-charge.	40	NOS	1213.25	EACH	48530.00	23.9
47.	Providing and fixing of aluminium wiremesh 25 mm x50 mm x3 mm thick in aluminum frame including screw and dash fastner etc complete	732.29	kg	450.00	per kg	329531.00	M.R
48.	Providing and fixing dash hold fastners 12.5 mm dia , 50 mm long with 6 m dia bolt	238	numbe rs	18.00	each	4284.00	7388+ m.r
49.	Marble work gang saw cut (polished and machine cut) of thickness 18	25	Sqm	4998.10	per sqm	124953.00	8.1.1.2

	mm for wall lining (veneer work), backing filled with a grout of average 12 mm thick cement mortar 1:3 (1 cement : 3 coarse sand), including pointing with white cement mortar 1:2 (1 white cement : 2 marble dust) with an admixture of pigment to match the marble shade (To be secured to the backing by means of cramps, which shall be paid for separately). 8.1.1 Raj Nagar Plain white marble/ Udaipur green marble/ Zebra black marble. Area of slab over 0.50 sqm						
50.	Kota stone slab flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab, including rubbing and polishing complete with base of cement mortar 1 : 4 (1 cement : 4 coarse sand) : 25 mm thick	70		1706.60		119462.00	11.26.1
51.	Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade : One or more coats on old work	1800.00	Sqm	86.55	ONE SQM	155790.00	13.99.1
52.	Finishing walls with Acrylic Smooth exterior paint of required shade .Old work (Two or more coat applied @ 1.67 ltr/ 10 sqm) on existing cement paint surface	8896	Sqm	111.60	sqm	992794.00	13.111
53.	Providing & applying a coat of residual petroleum bitumen of grade ofVG-10 of approved quality using 1.7kg per square metre on damp proof course after cleaning the surface with brushes and finally with apiece of cloth lightly soaked in kerosene oil.	8.00	Sqm	113.85	One Square Metre	911.00	4.13
54.	Providing and fixing of aluminium wiremesh 25 mm x50 mm x3 mm thick in aluminum frame including screw and dash fastner etc complete	300	kg	450.00	per kg	135000.00	M.R
55.	Providing and fixing dash hold fastners 12.5 mm dia , 50 mm long with 6 m dia bolt	30	numbe rs	12.00	each	360.00	7388+ m.r

56.	<i>Regrading terracing of mud phaska covered with tiles or brick, in cement mortar by dismantling tiles or bricks, removing mud plaster, preparing the surface of mud phaska to proper slope, relaying mud plaster gobri leaping and tiles or bricks, grouted in cement mortar 1:3 (1 cement : 3 fine sand), including replacing unserviceable tiles or bricks with new ones and disposal of unserviceable material to the dumping ground (the cost of the new tiles or brick excluded), all complete as per direction of Engineer-in-Charge. sqm 577.9</i>	300	Sqm	577.90		173370.00	14.13
56(a)	<i>12.17 10cm thick (average) mud phaska of damped brick earth on roofslaid to slope consolidated and plastered with 25 mm thick mud mortar with bhusha @ 35 kg per cum of earth and gobri leaping with mix 1:1 (1 clay : 1 cow-dung) and covered with machine moulded tile bricks, grouted with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% of integral water proofing compound by weight of cement and finished neat.12.18 Extra for every additional 1 cm thickness of mud phaska. sqm 20.35</i>	300	Sqm	20.35		6105.00	12.18
57.	<i>Providing and laying brick tiles over mumty roofs, grouted with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% of integral water proofing compound by weight of cement, over 12 mm layer of cement mortar 1:3 (1 cement : 3 fine sand) and finished neat: With common burnt clay F.P.S. (non modular) brick tiles of class designation 10 sqm</i>	50	Sqm	549.05		27453.00	12.19
58.	<i>Providing gola 75x75 mm in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 stone aggregate 10 mm and down gauge), including finishing with cement mortar 1:3 (1 cement : 3 fine sand) as per standard design : In 75x75 mm deep chase metre</i>	150	metre	260.20		39030.00	12.21.1

59.	Proving and fixing of chicken mesh for double coat cover plastering of balconys	130	kg	400.00	per kg	52000.00	m.r
						6997853.50	
				SAY Rs TOTAL AMOUNT		6997854.00	

Including G.S.T. @ 18% on M.R Items and other applicable taxes complete .

Ravinder Singh
T.O Civil

Dr J.K Dabas
Maintenance Engineer

Annexure-3

F. No. 3-532/NAHEP/Hostel Work/2020-21/EV				
Name of work: Providing one parking shed, one open sitting shed with PUF sheet roofing and SS furniture/railing, Aluminium frame/wire mesh in balconies, Rain water harvesting system, paver block flooring, and other flooring/plastering/RCC repair works etc. of various hostels at ICAR-NDRI, Karnal				
Estimated cost put to Bid			Rs. 6997854.00	
PERFORMA FOR QUOTING THE RATES				
Name of Bidder				
Sr. No.	Estimated cost (Rs.) (Including GST & all other applicable taxes)	Percentage above below the estimated /cost (in words)	% in figures	Total Cost (Rs.) (In figures) (Including GST & all other applicable taxes)
1	Rs. 6997854.00			

Total Cost (In words)

Note: The Rates quoted above are including of GST @18%, material testing cost and all other taxes, levies and cess as applicable.

SIGNATURE OF BIDDER

SECTION 8: FORMS OF SECURITIES

Forms of Securities

Acceptable forms of securities are annexed. Bidders should not complete the Performance and Advance Payment Security forms at this time. Only the successful Bidder will be required to provide Performance and Advance Payment Securities in accordance with one of the forms, or in a similar form acceptable to the Employer.

Annex A: Bid Security (Bank Guarantee)

Annex B: Performance Bank Guarantee

Annex C: Deleted

Annex D: Bank Guarantee for Advance Payment

BID SECURITY (BANK GUARANTEE)

WHEREAS, _____ *[name of Bidder]* (hereinafter called "the Bidder") has submitted his Bid dated _____ *[date]* for the construction of _____ *[name of Contract]* (hereinafter called "the Bid").

KNOW ALL PEOPLE by these presents that We _____ *[name of bank]* of _____ *[name of country]* having our registered office at _____ (hereinafter called "the Bank") are bound unto _____ *[name of Employer]* (hereinafter called "the Employer") in the sum of _____ 1 for which payment well and truly to be made to the said Employer the Bank binds itself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this _____ day of _____ 19____.

THE CONDITIONS of this obligation are:

- (1) If after Bid opening the Bidder withdraws his bid during the period of Bid validity specified in the form of Bid; or
- (2) If the Bidder having been notified of the acceptance of his bid by the Employer during the period of Bid validity,
 - (a) fails or refuses to execute the Form of Agreement in accordance with the Instructions to Bidders, if required; or
 - (b) fails or refuses to furnish the Performance Security, in accordance with the instruction to Bidders; or
 - (c) does not accept the correction of the Bid Price pursuant to Clause 27,

we undertake to pay to the Employer up to the above amount upon receipt of his first written demand, without the Employer having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him is due to him owing to the occurrence of one or any of the three conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force up to and including the date _____ 2 days after the deadline for submission of Bids as such deadline is stated in the Instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this guarantee should reach the Bank not later than the above date.

DATE _____ SIGNATURE OF THE BANK _____
WITNESS _____ SEAL _____

[signature, name, and address]

1 The Bidder should insert the amount of the guarantee in words and figures denominated in Indian Rupees.

This figure should be the same as shown in Clause 16.1 of the Instructions to Bidders.

2 90 days after the end of the validity period of the Bid.

PERFORMANCE BANK GUARANTEE

To: _____ *[name of Employer]*
 _____ *[address of Employer]*

WHEREAS _____ *[name and address of Contractor]* (hereinafter called "the Contractor") has undertaken, in pursuance of Contract No. _____ dated _____ to execute _____ *[name of Contract and brief description of Works]* (hereinafter called "the Contract");

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee;

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of _____ *[amount of guarantee]* 1 _____ *[in words]*, such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of _____ *[amount of guarantee]* 1 as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed thereunder or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until 28 days from the date of expiry of the Defects Liability Period.

Signature and seal of the guarantor _____
 Name of Bank _____
 Address _____
 Date _____

1 An amount shall be inserted by the Guarantor, representing the percentage of the Contract Price specified in the Contract including additional security for unbalanced Bids, if any and denominated in Indian Rupees.

BANK GUARANTEE FOR ADVANCE PAYMENT

To: _____ *[name of Employer]*
 _____ *[address of Employer]*
 _____ *[name of Contract]*

Gentlemen:

In accordance with the provisions of the Conditions of Contract, subclause 51.1 ("Advance Payment") of the above-mentioned Contract, _____ *[name and address of Contractor]* (hereinafter called "the Contractor") shall deposit with _____ *[name of Employer]* a bank guarantee to guarantee his proper and faithful performance under the said Clause of the Contract in an amount of _____ *[amount of guarantee]* 1 _____ *[in words]*.

We, the _____ *[bank or financial institution]*, as instructed by the Contractor, agree unconditionally and irrevocably to guarantee as primary obligator and not as Surety merely, the payment to _____ *[name of Employer]* on his first demand without whatsoever right of objection on our part and without his first claim to the Contractor, in the amount not exceeding _____ *[amount of guarantee]* 1 _____ *[in words]*.

We further agree that no change or addition to or other modification of the terms of the Contract or of Works to be performed thereunder or of any of the Contract documents which may be made between _____ *[name of Employer]* and the Contractor, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall remain valid and in full effect from the date of the advance payment under the Contract until _____ *[name of Employer]* receives full repayment of the same amount from the Contractor.

Yours truly,

Signature and seal: _____
 Name of Bank/Financial Institution: _____
 Address: _____
 Date: _____

1 An amount shall be inserted by the bank or financial institution representing the amount of the Advance Payment, and denominated in Indian Rupees.