



GOVERNMENT OF WEST BENGAL  
DIRECTORATE OF FORESTS  
OFFICE OF THE DIVISIONAL FOREST OFFICER,  
BANKURA (NORTH) DIVISION

Machantala, Bankura, Pin-722101

Phone & Fax No.. 03242-250758, E-mail: [dfo\\_bkn@gmail.com](mailto:dfo_bkn@gmail.com), Website: [www.bankuraforest.in](http://www.bankuraforest.in)

Memo No. 1686 /2 -e

Dated Bankura, the:

15 /06/2018

**Notice Inviting e-Tender: - WB/BKN/RKVY/NIT-8(e)/18-19**

**e-Tender FOR CONSTRUCTION OF ED & WARE HOUSE UNDER THE OFFICE OF THE DIVISIONAL FOREST OFFICER, BANKURA NORTH DIVISION, DIST.-BANKURA WEST BENGAL.**

The **Divisional Forest officer, Bankura(North) Division**, Bankura, West Bengal, on behalf of the Governor, West Bengal invites **e-Tenders** for the following work(s) from the eligible Contractors as detailed in the table below. [Collection (downloading) and Submission (uploading) of e-Tender can be made online through the website <https://wbtenders.gov.in> only].

**A. List of Work(s):**

Project No.	Name of Work	Location Of Works	Price of Form *	Estimated amount put to of e-Tender	Amount of EMD to be 2%	Period of completion of work
1	Construction of Earthen Dam	At Mouza Keshiara under Chakadoba JFMC. of G.Ghati Range	<b>Rs.1180/-</b> (Rs.-1,000/- + GST 18%. for successful tenderer only)	8,15,088/-	16301/-	90 days
2	Construction of Ware House	Bhora Beat Under Radhangar Range	<b>Rs.1180/-</b> (Rs.-1,000/- + GST 18%. for successful tenderer only)	11,40,521/-	22810/-	90 days

\* Price of Form Technical & Financial Bid documents and other annexure, Tender Fee Rs.1180/-(Rs.1,000/- + GST 18%) only for the L1 at the time of Award of Contract/ AOC

**B. Schedule of Dates:**

Sl.No.	Particulars	Date & Time
1	Date of uploading N.I.T. Documents—Online( Publishing Date)	18/06/2018 10.00AM
2	Documents download start date ( Online)	18/06/2018 10.00AM
3	Documents download end date (Online)	02/07/2018 05.00PM
4	Bid submission start date (Online)	18/06/2018 10.00AM
5	Bid submission closing date ( Online)	02/07/2018 05.00PM
6	Date of submission of <b>Earnest Money Deposit (Original)</b> , credential GST,PAN Card etc ( <b>Xerox Copy</b> )	03-04/07/2018 10.00AM to 05.00PM
7	Bid opening date for Technical Proposal ( Online)	05/07/2018 11.00AM
8	Date of uploading technically qualified bidders( Online)	To be notified in due course
9	Date of opening Financial Bids ( Online)	To be notified during uploading of Technical Evaluation Sheet of bidders
10	Date of uploading of list of bidders along with final rate, after negotiation with all e-Tenderers if necessary(Offline)	To be notified in due course.

Last date & time of submission of bids online is :02/07/2018 05.00PM.

**Cost of EMD in Original Copy Physically Submission & Credential in Offline: 03 & 04/07/2018 up to 05:00 p.m.**

Cost of Tender & EMD DD in Original Copy Physically Submission in Offline: as mentioned above.


1. Cost of Tender paper (each) - Rs.-1,000/- + GST 18%. =Rs.1180/-
2. Amount of Earnest Money - 2 % of Estimated cost.
3. Amount of Security Deposit - 10% of Offered rate.

Tender Fees through DD/Bankers' Cheque drawn in favour of **SFDA-DFO, Bankura (North) Division** payable at Bankura. (L1 Bidder Only)

**\*\* EMD through DD/Bankers' Cheque drawn in favour of SFDA-DFO, Bankura (North) Division payable at Bankura.**

**\*\*\* There is no exemption of any kind for any of the eligible contractors towards cost of tender paper fee or EMD. Unless exempted by specific order.**

- Note:
- 1). In case of any unscheduled holiday or on days of Bandh or natural calamity on the aforesaid dates, the next working day will be treated as scheduled / prescribed date for the same purpose.
  - 2). The e-Tender Inviting Authority may change the venue of opening the Technical or Financial Bids in case of exigent circumstances like breakdown of communications link or conditions of force majeure.
  - 3). The e-Tender Inviting Authority reserves the right to defer the date of opening of either Technical or Financial Proposal or both, if required.

  
**SFDA-D.F.O.**  
**Bankura(North) Divn.**

**INSTRUCTION TO BIDDERS (ITB)**  
**Section – A**

**1. General Guidance for e-Tendering**

**1.1 Instructions / Guidelines for e-Tenderers** for electronic submission of the e-Tenders online have been shown in Web site <https://wbtenders.gov.in>

**1.2 Registration of Contractors**

Any contractor willing to take part in the process of e-Tendering will have to be enrolled and registered with the Government e-Procurement System.

**1.3 Digital Signature Certificate (DSC)**

Each contractor is required to obtain a Class-II or Class-III Digital Signature Certificate (DSC) for submission of e-Tenders.

**1.4 Collection of e-Tender Documents**

The contractor can search and download NIT and e-Tender documents electronically from computer once he logs on to the website mentioned in Clause 1.1 using the Digital Signature Certificate. This is the only mode of collection of e-Tender documents.

**1.5 Participation in more than one work**

A prospective bidder shall be allowed to participate in the job either in the capacity of individual or as a partner of a firm or registered company. If found to have applied severally in a single job, all his applications will be rejected for that job.

**2. Submission of e-Tenders:**

**2.1 General process of submission:**

Tenders are to be submitted online through the website stated in Clause 1.1 in two folders, at a time for each work, one is Technical Proposal and the other is Financial Proposal, before the prescribed date and time mentioned in the list attached. Using the Digital Signature Certificate (DSC), the documents are to be uploaded, virus scanned and digitally signed. Tenderers should specially take note of all the addendum/corrigendum related to the e-Tender and upload the latest documents as part of the e-Tender.

**2.2 Technical Proposal**

The Technical Proposal should contain scanned copies and/or a declaration in standardized formats of the following in two covers (folders).

**A. Technical File (Statutory Cover) containing**

- i. NOTICE INVITING TENDER (NIT) **(to be submitted in “NIT” Folder).**
- ii. Section B (Form I, Form II, Form III and AFFIDAVIT – Y) **(to be submitted in “FORMS” Folder).**
- iii. **Earnest Money Deposit (EMD) and the cost of Tender Documents (Tender Fees)** is to be remitted by the Tenderer as mentioned in the NIT document in favour of “SFDA-DFO, Bankura (North) Division, W.B.”.
- iv. Instructions to Bidders. **(to be submitted in “ITB” Folder)**
- v. General Terms & Conditions of Contract. **(to be submitted in “GT AND CC” Folder)**
- vi. Technical Specification. **(to be submitted in “TS” Folder)**
- vii. Drawing if Any to **(“DRAWING” Folder)**

**Note:** a) The EMD and Cost of Tender Documents should be submitted physically to the office the Divisional Forest Officer, Bankura (North) Division as per the 'Date & Time Schedule' stated in N.I.T. **at least 24 hours before the opening of technical bid.** Technical Bid & Financial bid both will be submitted concurrently duly digitally signed in the Website <https://wbtenders.gov.in>. Tender document may be downloaded from website & submission of Technical Bid/Financial Bid as per Tender Schedule

viii. **Addenda/Corrigenda, if published** : Contractors are to keep track of all the Addendum/ Corrigendum issued with a particular tender and upload all the above, digitally signed, along with the NIT. Tenders submitted without the Addendum/Corrigendum will be treated as invalid and liable to be rejected.

**C. My Document (Non-Statutory Cover)**

Sl. No.	Category Name	Sub-Category Description	Document Name
			(For details see Clause 3 of ITB & relevant clauses of NIT)
A.	CERTIFICATES	CERTIFICATES	1 P.T. deposit receipt Challan
			2 GST Registration Certificate
			3 I.T.R. Acknowledgement Receipt
			4 I.T. PAN Card
			5 Voter ID Card
B.	COMPANY DETAILS	COMPANY DETAILS	1 Proprietorship Firm - Trade Licence.
			2 Partnership Firm - Registered Partnership Deed, Registered Power Attorney, Trade licence.
			3 Pvt. Ltd. Company - Registration Certificate under Company's Act, MOA & AOA, Registered Power of Attorney, Trade licence.
			4 Registered Un-employed Engineers and Labour Co-operative Societies Limited.
C.	CREDENTIAL	CREDENTIAL	1 Experience Profile- List of completed Projects of similar nature.
			2 Completion Certificate from the concerned.
D.	EQUIPMENTS	PLANT&MACHINERIES (OPTIONAL)	1 Authenticated copy of invoice, challan and way bill (Machinery)
		LABORATORY (OPTIONAL)	2 Authenticated copy of invoice, challan and way bill (Laboratory)
E.	FINANCIAL (INFO)	TURN OVER	1 Authenticated copy of the Income Tax RETURNS
		PAYMENT CERTIFICATE	2 Only Payment Certificate of work issued by the Concerned Supervisor and not the TDS certificate
F.	DECLARATION	STRUCTURE & ORGANISATION	1 Details of Structure and Organisation ITB Section B Form III.
		AFFIDAVIT	2 An affidavit made that no adverse report against the bidder
		TECHNICAL STAFF	3 An affidavit mentioning the name of the the technical staff as described in Clause 3(I).

**2.3. Financial Proposal**

i) The financial proposal should contain the Bill of Quantities (B.O.Q.) in one cover (folder). The contractor is to quote the rate in the space marked for quoting rate in the B.O.Q.

ii) Only downloaded copy of the B.O.Q. are to be uploaded quoting the rate, virus scanned & digitally signed by the contractor.

**3. Eligibility Criteria for participation in e-Tender:**

(a) The intending bidders should have proper licence for engaging labourers on contract.

(b) All categories of prospective Tenderers shall have to submit valid and upto date Professional Tax receipt challan, GST registration certificate, Income Tax return Acknowledgement receipt, PAN card issued by Income Tax Department, Voter ID card and Trade licence in respect of the prospective Tenderer. In addition to the above, any contractor who has executed any type of e-Tender works in Directorate of Forests, Govt. Of West Bengal, should submit previous credentials for his past performance, completion certificate from respective employer, the completion certificate and credentials should be signed by the officer not below the rank of Deputy Conservator of Forest, any other certificate signed by other officials will not be entertained (Non Statutory Documents).

(c) Where an individual person holds a Certificate in his own name duly issued to him against the company or the firm of which he happens to be a director or partner, such individual person shall, while submitting any e-Tender for and on behalf of such company or firm, invariably submit a copy of registered power of attorney showing clear authorization in his favour, by the rest of the directors of such company or the partners of such firm, to submit such e-Tender. The Power of Attorney shall have to be registered in accordance with the provisions of the Registration Act, 1908. (Non-statutory Documents).

(d). Neither prospective Tenderer nor any of the constituent partners had been debarred to participate in any e-Tender by Forest Dept., P.W.D., P.W.(R)D & P.W.(C.B.)D, Housing Department, W.B. or C.P.W.D. or M.E.S or Railways; during the last 5 (five) years prior to the date of this NIT. Such debarring will be considered as disqualification towards eligibility. (A declaration in this respect has to be furnished by the prospective bidders as per prescribed format). [Non-statutory Documents]

(e).The partnership firm shall furnish the Registered Partnership Deed and the Company shall furnish the Memorandum of Association (MOA) and Article of Association (AOA.) [Non-statutory Documents]

(f).Registered Un-employed Engineers' Co-operative Societies / Labour Co- operative Societies are required to furnish the following documents : - [Non-statutory Documents]

- i) Current "No Objection Certificate" from the Assistant Registrar of Co-operative Societies.
- ii) Supporting documents showing area of operation.
- iii) Bye-laws duly approved by the Assistant Registrar of Co-operative Societies.
- iv) Name with address and signature (in original) of the present Board of Directors of the Co-operative Society
- v) Copies of Minutes of last Annual General Meeting and Audit Report of the Co-operative Society with the evidence of submission of the same to the concerned Authorities, duly attested.

(g).The prospective Tenderers or any of their constituent partner shall neither have abandoned any work nor any of their contract have been rescinded during the last 5 (five) years. Such abandonment or rescission will be considered as disqualification towards eligibility.

(h).A prospective Tenderer shall be allowed to participate in the job either in the capacity of individual or as a partner of a firm. If the prospective Tenderer is found to have applied severally in a single job, all his applications will be rejected for that job.

(i).No conditional / Incompletee-Tender will be accepted under any circumstances.

(j).TheFinancial Eligibility:

- a. The bidder should have a minimum average annual turnover of least 100% of estimated project cost of the e-Tender in the last three 3 preceding years (the turnover of the lead member will be considered in case of joint venture).
- b. The bidder should have successfully completed at least one similar type of work during last three (3) years for a single contract of value not less than 80% or two contracts of value not less than 50% each
- c. The bidders should also have made profits after taxes for each of these last three (3) financial years.

#### **4. Opening of Technical Proposal**

Technical proposals will be opened by the authorized representatives electronically from the website stated in Clause 2.1, using their Digital Signature Certificate.

Intending Tenderers may remain present, at the time of opening of e-Tender, if they so desire.

Cover (Folder) for Statutory Documents should be opened first, if found in order, Cover (Folder) for Non-statutory Documents will be opened. If there is any deficiency in the Documents, the e-Tender will summarily be rejected.

Decrypted (transformed into readable formats) documents of the Non statutory Cover will be downloaded, and handed over to the e-Tender Evaluation Committee (constituted for evaluation of e-Tenders).

## 5. Uploading of summary list of technically qualified Tenderers (1st round)

Pursuant to scrutiny and decision of the e-Tender Evaluation Committee (TEC), the summary list of eligible Tenderers with the serial number of work(s) for which their Financial Proposals will be considered will be uploaded in the web portals.

While evaluation, the Committee may summon the Tenderers and seek clarification / information or additional documents or original hard copy of any of the documents already submitted and if these cannot be produced within the stipulated time frame, their proposals will be liable for rejection.

## 6. Final publication of summary list of technically qualified Tenderers

Date of opening of financial bid will to be intimated in the final summary list.

## 7. Opening and Evaluation of Financial Proposal

Financial proposals of the Tenderers declared technically eligible by the e-Tender Evaluation Committee will be opened electronically from the web portal stated on the prescribed date, normally after 2(two) working days of date of publication of final summary list of the e-Tenderers.

The encrypted copies will be decrypted and the rates will be read out to the contractors remaining present at that time.

After evaluation of Financial Proposal, by the appropriate Authority of WBFOREST, may upload the final summary result containing inter-alia, name of contractors and the rates quoted by them against each work provided E-Tender evaluation committee is satisfied that the rate obtained is fair and reasonable and there is no scope of further lowering down of rate.

## 8. Procedures to be followed when one / two technically qualified Tenderers participated in any e-Tender:

Financial bid of technically qualified single / two Tenderers may not be opened. Re-Tender may be invited immediately in the process of evaluation as per norms of e-Tender as per G.O. No. 925/F(Y) dated 14/02/2017.

## 9. Acceptance of e-Tender (Technically eligible/qualified)

Lowest valid rate should normally be accepted. However, the e-Tender Accepting Authority does not bind himself to do so and reserves the right to reject any or all the e-Tenders, for valid reasons and also reserves the right to distribute the work amongst more than one e-Tenderer at the accepted rate after formal consultation with L1 (accepted rate) bidder and taking consent of L1 bidder for smooth & quick completion of the work.

## 10. Penalty for suppression / distortion of facts

If any e-Tender fails to produce the original hard copies of the documents (especially completion certificates and audited balance sheets), or any other documents on demand of the E-Tender Evaluation Committee within a specified time frame or if any deviation is detected in the hard copies from the uploaded soft copies or if there is any suppression, the e-Tenderer will be suspended from participating in the e-Tenders on e-E-Tender platform for a period of 3 (Three) years. In addition, his user ID will be deactivated and Earnest Money Deposit will stand forfeited. Besides, the **WBFOREST DEPARTMENT** may take appropriate legal action against such defaulting e-Tenderer.

## 11. Brief details on the nature of work:

a)	Name of the project	:	RKVY, WBSFDA
b)	Project ID	:	
c)	Job ID	:	
d)	Nature of Work	:	Construction of ED & Ware House
e)	Contractors eligible to submit the e-Tender	:	As stated in item 3 (a) to 3 (j) of this ITB.

## 12. Tender Document costs (Tender Fees) & Earnest Money Deposit (EMD):

- The cost of Tender Fees** through DD/Bankers' Cheque drawn in favour of **SFDA-DFO, Bankura (North) Division** payable at Bankura. (L1 Bidder Only).
- There is no exemption of any kind for any of the eligible contractors towards cost of tender document fee or EMD.** Unless exempted by specific order.
- Refund of EMD:** The EMD of the unsuccessful Tenderers deposited in favour of "SFDA-DFO, Bankura (North) Division" will be refunded without any interest on receipt of application addressed to the "Divisional Forest Officer, Bankura (North) Division, from Tenderers as per relevant Govt. Rules.
- Intending Tenderers should download the Tender Documents from the website <http://wbtenders.gov.in> directly with the help of Digital Signature Certificate.

- e) **The original instrument (Demand Draft / Banker's Cheque) towards the cost of Earnest Money Deposit (EMD) should be submitted physically by the Tenderer to the office of the Divisional Forest Officer, Bankura (North) Division as per the 'Date & Time Schedule' stated in this N.I.T.**
- f) In case of partnership firm(s), the pledged instrument(s) must reflect the name(s) of the firm as well as the name(s) and address(es) of the partner / partners who is/are authorized to pledge the same as per valid partnership deed(s).
- g) Both Technical Bid and Financial Bid should be submitted duly digitally signed by the Tenderer through the [website http://wbtenders.gov.in](http://wbtenders.gov.in) as per the 'Date & Time Schedule' stated in the N.I.T.

### 13. Opening of e-Tender:

- (a) The Technical Bid shall be publicly opened by the authority receiving e-Tender or by his authorized representative, as per the Date & time Schedule mentioned in NIT.
- (b) Prospective Tenderers or their authorized representatives may be present during the opening process.
- (c) Financial Bids of only those Tenderers who would qualify in the Technical Bid evaluation will be opened.
- (d) The intending Tenderers shall clearly understand that whatever may be the outcome of the present Invitation of e-Tender, no cost of e-Tendering shall be reimbursable by the Government. The **Divisional Forest Officer, Bankura North Division, Bankura, W.B.** reserves the right to reject any e-Tender or all Tenders without assigning any reason whatsoever and is not liable for any cost that might have incurred by any e-Tenderer at any stage of E-Tendering.
- (e) The acceptance of the e-Tender rests with the **Divisional Forest Officer, Bankura North Division, Bankura, W.B.** who does not bind himself to accept the lowest e-Tender and reserves to himself the authority to reject any or all the Tenders received without assigning any reason thereof.
- (f) Intending Tenderers are encouraged to inspect the site of work and get themselves thoroughly acquainted with the local condition and all factors which may affect their rates. Prior to the site visit the intending Tenderers must inform **the Divisional Forest Officer, Bankura North Division, Bankura, W.B.** about the time and date of the visit.

14. The selected Contractor must arrange to procure all materials required for the proper completion of the work (as per the Technical Specifications of the e-Tender document). The Employer will not on any account be responsible for procuring the same.

15. The selected contractor shall apply to the **Divisional Forest Officer, Bankura North Division, Bankura W.B.** for seeking permission for utilization of land at the close proximity of the site for arranging required plant & machineries, store of materials etc. at his own cost and responsibility. All such temporary shed etc. shall have to be dismantled and all debris etc. cleared from site post completion of the work or as directed by the **Divisional Forest Officer, Bankura North Division, Bankura, W.B.** Once an order to the effect is issued from the **Divisional Forest Officer, Bankura North Division, Bankura W.B.** in this regard, it shall be brought to effect by the contractor without contest.

### 16. Validity of Bids:

Bid shall remain valid for a period not less than 150 **(one hundred fifty) Days** after the dead line date for Financial Bid/Sealed Bid Submission. Bid validity for a shorter period shall be rejected by e-Tender Accepting Authority as non-responsive.

If any Tenderer withdraws his offer before Bid validity period without giving any satisfactory explanation for such withdrawals, he may be disqualified for submitted e-Tender to this Office and Directorate of Forests, Government of West Bengal for a minimum period of 1 (one) year.

### 17. Verification of credentials/onsite projects:

Before issuance of the work order, the e-Tender Accepting Authority may verify the credential and other documents of the lowest Tenderer if found necessary. After verification, if it is found that such documents submitted by the lowest Tenderer is either manufactured or false in that case, work order will not be issued in favour of the Tenderer under any circumstances and legal action will be taken against him.

### 18. Cancellation of e-Tender :

**The Divisional Forest Officer, Bankura North Division, Bankura, W.B.** reserves the right to cancel this N.I.T. due to unavoidable circumstances and no claim in this respect will be entertained.

### 19. Security Deposit:

The successful Tenderer to whom a Letter of Acceptance has been issued shall submit within 10 (ten) days from the date of Letter of Acceptance, **Security Deposit which is 10% (Ten Percent)** of the contracted value of work. Failure in depositing this amount and / or non-submission within the specified time shall render the contract liable to termination without reference to the contractor and in such case; the deposited earnest money shall stand forfeited to the Government. Security Deposit shall have to be deposited in the form of Demand Draft / Bankers Cheque in favour of **“SFDA-DFO, Bankura (North) Division, payable at Bankura”**.

**20. Technical Specification and Quality of Works:**

All works are to be carried out as per plan, specification and estimate of works subject to modification made in writing by the undersigned or his authorized officer.

**21. Deduction of Taxes Etc:**

Deduction of Income Tax and any other extant taxes as applicable from the Contractor's Bill will be made as per Govt. rules. Labour Welfare Cess @ 1%(one percent) of the cost of works will be deducted from every Bill of the selected agency.

**22. Maintenance Period:**

The Contractor will be liable to maintain the work at the appropriate service level to the satisfaction of **The Divisional Forest Officer, Bankura North Division, Bankura, W.B.** at his own cost for a period of Security Period/Maintenance period, as stipulated in the BOQ. If any defect/damage is found during the period as mentioned above, the Agency shall make the same good at his own cost. Failure to do so, penal action against the Agency will be imposed by the Government as deem fit. The Agency will have to quote his rate considering the above aspect. Also the Prospective Tenderers shall have to execute the work in such a manner so that appropriate service level of the work is kept during progress of work and the period of maintenance.

**23. Removal of Discrepancy:**

If any discrepancy arises between two similar clauses on different notification, the clause as stated in later notification will supersede former one in following sequence :-

- a. Form of Agreement
- b. e-Tender Form
- c. Technical Specifications
- d. General Terms and Conditions
- e. Relevant PWD(W.B.) Schedule of Rates
- f. Instructions to Bidders
- g. N.I.T.

**24. Mobilization Advance/ Cost Over Run:**

No Mobilisation Advance and Secured Advance will be allowed. Time / cost overrun and consequent cost of escalation for any materials, labour, P.O.L. etc. will not be allowed.

**25.**Canvassing in connection with the e-Tender is strictly prohibited.

**26.**Site of work and necessary drawings may be handed over to the successful Tenderer along with the work order or in a phase wise manner as deemed fit by **The Divisional Forest Officer, Bankura North Division, Bankura, W.B.** No claim in this regard will be entertained.

**27.**The successful Tenderer will have to start the work as per the work order. He has to complete different stages of work as per time frame specified in the work order. However, DCF may subsequently alter time frame.

**28.**The Successful Tenderer will be required to obtain valid registration certificate & labour licence from respective offices where work by them are proposed to be carried out under the Contract Labour (Regulation & Abolition) Act, 1970 and the same should be submitted to **The Divisional Forest Officer, Bankura North Division, Bankura, W.B.**

**29.**The successful Tenderer shall have to comply with the provision of (a) the Contract Labour (Regulation & Abolition) Act,1970 and (b) the Minimum Wages Act, 1948 and the Notifications thereof or other laws relating thereto and the rules made and orders issued thereunder from time to time, failure to do so will be treated as breach of contract and **The Divisional Forest Officer, Bankura North Division, Bankura, W.B.** may in his discretion cancel the contract. The contractor shall also be liable for any liability arising on account of any violation by him of the provisions of the Act and Rules made there under time to time.

**30.**The contractor shall not be entitled for any compensation for any loss suffered by him due to delay arising out for modification of the work, due to non-delivery of the possession of site and / or modification of work

**31.**Prevailing safety norms has to be followed by the successful Tenderer during execution of the work so that LTI (Loss of time due to injury) is zero.

**32.**Guiding schedule of works should be followed as per existing norms, patterns, lying in the working division.

**33.**The contractor shall abide by all acts and rules, especially but not limited to the field of forests, wildlife and biodiversity.

**34.**A Tenderer is to quote in figures as well as in words, his rates in the following forms in his cases against the estimated value put to e-Tender.



**35.**In the event of a e-Tender being submitted by a firm, it must be signed by a member or members of the firm having legal authority to do so and if called for, legal documentations in support thereon must be produced for inspection and in the case of a firm carried out by one member or a joint family it must disclose that the firm is duly registered under the Indian Partnership Act.

**36.**The Tenderer must sign at the bottom of each page of the e-Tender documents as a proof of acceptance of terms and conditions of the e-Tender. Overwriting shall not be allowed. All corrections, alternations etc. must be duly signed.

**37.**It must be clearly understood that the quantities of the various items indicated in the schedule or probable items are approximate only and may be increased or decreased during actual execution. The contractor shall remain effected by alteration.

**38. Rate should be quoted including GST & other all taxes.**

39. Work should be started from the within 7 (Seven) days from the date of issuing work order, failure of which work order would be cancelled and will be offered to the next bidder.


40. Tender inviting authority reserve the right to get the extra work done from less amount by successful bidder at the same rate if he is willing.

41. Work order will be issued after the receipt of the fund.

42. Tender inviting authority reserves the right to alter or modify the estimate, design and plan as per the field requirement.

43. The tender is issued in anticipation of receipt of fund and Govt sanction and in case of non receipt of govt sanction, tender inviting authority reserves the right to cancel the tender and is not liable for any damages.

**RATES ARE FIRM FOR THE PERIOD OF THE PROJECT. IN CASE ANY ABNORMAL DEVIATION IS OBSERVED DURING THE COURSE THE E-TENDER ACCEPTING AUTHORITY MAY REFER TO THE APPROPRIATE HIGHER AUTHORITY OF DIRECTORATE OF FORESTS, GOVT. OF WEST BENGAL IN DECIDING ON THE RATE REVISIONS (IF NEEDED).**



SFDA-D.F.O.  
Bankura(North) Divn.

**Section – B**  
**FORM-I**  
**APPLICATION**

To,  
**The Divisional Forest Officer,**  
**Bankura North Division, Bankura.**

Subject: Name of the Work with e-Tender reference no. \_\_\_\_\_.

Reference : (N.I.T No.)\_\_\_\_\_

Dear Sir,

Having examined the Statutory, Non-statutory and NIT documents; I/We hereby submit all the necessary information and relevant documents for evaluation.

The necessary evidence admissible by law in respect of authority assigned to us on behalf of the group of firms for application and for completion of the contract documents is attached herewith.

I/We are interested in bidding for the work mentioned above.

I/We understand that

- (a) e-Tender Inviting Authority and Accepting Authority can amend the scope and value of the contract bid under this project
- (b) e-Tender Inviting Authority and Accepting Authority reserve the right to reject any e-Tender without assigning any reason.

The application is made by me/us on behalf of \_\_\_\_\_in the capacity of \_\_\_\_\_duly authorized to submit the e-Tender.

Enclosure:

- (1) Technical Proposal (Envelop-1/Folder)
- (2) Financial Proposal (Envelop-2/Folder)

Date:\_\_\_\_\_

Signature of authorized officer of the firm:\_\_\_\_\_

Title & Capacity of the officer:\_\_\_\_\_

Name of the Firm with Seal:\_\_\_\_\_

**Section-B**

**FORM II**

**(TO BE FILLED UP BY E-TENDERER)**

To,  
**The Divisional Forest Officer,**  
**Bankura North Division, Bankura.**

Dear Sir/ Madam,

Ref:- Work for .....  
e-Tender Reference No. ....

1. I/We refer to the e-Tender notice issued by you for the supply of M.S.Stand in \_\_\_\_\_ division vide e-Tender reference no. \_\_\_\_\_ mentioned above.
2. I/ We do hereby offer to perform, provide execute, complete and maintain the works in conformity with the drawings, conditions of contract, specifications, Schedule of Quantities for the sum of Rs.....(quoted in Financial BOQ )..... only at the respective quoted ITEM WISE rates mentioned in the Schedule of Quantities.
3. I/ We have satisfied myself/ ourselves as to the site conditions, examined the drawings and all aspects of e-Tender conditions, subject above, I/ We hereby agree, should this e-Tender be accepted in whole or in part, to:
  - (a) abide by and fulfil all the terms and provisions of the said conditions annexed hereto;
  - (b) complete the works within.....days.
4. I/ We have deposited the earnest money of Rs. \_\_\_\_\_ only which, I/ We note that deposited EMD, will not bear any interest and is liable for forfeiture-
  - (i) If our offer is withdrawn within the validity period of acceptance.
  - (ii) If the contract is not executed within 15 days from the date of receipt of the letter of acceptance.Or  
(iii) If the work is not commenced within 10 days after issue of work order/handing over of the site which ever is later.
5. I/ We understand that you are not bound to accept the lowest or anye-Tender you receive.

Yours faithfully,

Signature.....  
Designation : .....  
Address : .....

Name of Partners of our Firm:

- 1) \_\_\_\_\_.
- 2) \_\_\_\_\_.

**Section – B**

**FORM – III**

**STRUCTURE AND ORGANISATION**

A.1. Name of the applicant (Tenderer):

A.2. Office Address:

Telephone No.:

Fax No.:

e-mail :

A.3. Name and address of Bankers:

A.4. Attach an organization chart showing the structure of the company with names of key personnel and technical staff with Bio-data

Date: \_\_\_\_\_

Signature of authorized officer of the firm: \_\_\_\_\_

Title & Capacity of the officer: \_\_\_\_\_

Name of the Firm with Seal: \_\_\_\_\_

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Note: Application covers Proprietary Firm, Partnership, Pvt. Ltd. Company or Corporation

**Section-B**

**AFFIDAVIT – Y**

**(To be furnished in Non-judicial stamp paper of appropriate value duly notarized)**

- (I) I, the undersigned do certify that all the statements made in the attached documents are true and correct. In case of any information submitted, proved to be false or concealed, the application may be rejected and no objection/claim will be raised by the undersigned.
- (II) The undersigned also hereby certifies that neither our firm M/S\_\_\_\_\_ nor any of constituent partners had been debarred to participate in e-Tender by the Directorate of Forests, Government of West Bengal or any of the Statutory Bodies or Government Organizations in favour of whom credentials are preferred by the undersigned towards eligibility criteria claim; during the last 3 (three) years prior to the date of this N.I.T.
- (III) The undersigned would authorize and request any Bank, person, Firm, or Corporation to furnish pertinent information as deemed necessary and/or as requested by the Deputy Conservator of Forests, W.B. herein referred to as the e-Tender Inviting & Accepting Authority, to verify this statement.
- (IV) The undersigned understands that further qualifying information may be requested and agrees to furnish any such information at the request of the e-Tender Inviting & Accepting Authority.
- (V) Certified that I have applied in the e-Tender in the capacity of individual/as partner of a firm & I have not applied severally for the same job.

Date:\_\_\_\_\_

Signature of authorized officer of the firm:\_\_\_\_\_

Title & Capacity of the officer:\_\_\_\_\_

Name of the Firm with Seal:\_\_\_\_\_

## GENERAL TERMS & CONDITIONS OF CONTRACT

### 1. Drawing / Map:

The work is to be carried out in accordance with drawings / maps related to these contract and specification, the priced scheduled of probable items with approximate quantities and directions or instructions which may be issued by the Tender Inviting Authority or his Representative from time to time during the execution of the contract.

### 2. Interpretations:

In constructing these conditions, the specifications, the schedule of quantities, e-Tender and Agreement, the following words shall have the meaning herein assigned to them except where the subject of context otherwise requires:

- I) The term Tender Inviting Authority shall mean Divisional Forest Officer Bankura North Division, Bankura, West Bengal, and include its successor and assigns or the Officers authorized to deal with any matters which those presents are concerned on its behalf.
- II) The term REPRESENTATIVE shall mean Authorized Official of the Divisional Forest Officer, Bankura North Division, Bankura W.B.
- III) **CONTRACTOR** shall mean the firm or company or person whose e-Tender has been accepted by the Tender

Inviting Authority and includes his (their) heirs, legal representative assigns and successors.

- IV) **SITE** shall mean the site of the contract work **including any erections thereof and any other land adjoining**

**V) thereto (inclusively as aforesaid allotted by the Tender Inviting Authority for the contractor's use).**

VI) This **CONTRACT** shall mean Articles of Agreement, these conditions, the schedule of quantities, the general instructions to the Contractor, the specifications, the drawings / maps and correspondences by which the contract is added, amended, valued or modified in any way by mutual consent.

(VI) **ACT OF INSOLVENCY** shall mean any act of insolvency as desired by the Presidency Towns Insolvency Act or the Provincial Insolvency Act or any amending statutes.

(VII) **THE WORKS** shall mean the work or works to be executed or done under this contract.

(VIII) The **SCHEDULE OF QUANTITIES, BILL OF QUANTITIES** shall mean the Schedule or Quantities as specified and forming part of contract.

### 3. Scope of works:

The work to be done is covered in this e-Tender. The same has been detailed in the drawings/maps and schedules of probable items with approximate quantities. It includes furnishing all materials, labour, tools, machinery and equipment and management necessary for completion of the work. All work during its progress and upon completion shall conform to lines as shown on the drawing/map furnished by the Tender Inviting Authority. Should any details essential for efficient completion of the work be omitted from the drawings/maps and specifications it shall be the responsibility of the Contractor to inform the Tender Inviting Authority and to furnish and install such details with their concurrence, so that upon completion of the proposed work the same will be acceptable and ready for use. The Tenderers are to note that the scope of work as mentioned may be reduced to any extent which is absolutely at the discretion of the Tender Inviting Authority. This reduction of the extent of work should not be a criterion for extra claim in respect of materials stored, establishment and cost incurred or any other losses occurring out of these causes. The Contractor shall carry out and complete the works in every respect in accordance with this contract and in accordance with the directions and to the satisfaction of Tender Inviting Authority who shall be the final authority. The Tender Inviting Authority may in their absolute discretion issue further area drawings/maps and /or written instructions, details, direction and explanations which are hereafter collectively referred to as the Tender Inviting Authority's instructions in regard to:

- a) The variation or modification of the design, quality or quantity of works or the addition or omission or substitution of any work.
- b) Any discrepancy in the drawings/maps or between the schedule of Quantities and /or Drawings/Maps and/or Specifications.
- c) The removal from the site of any materials brought thereon by the Contractor and the substitution of any other materials thereof.
- d) The demolition, removal and/or re-execution of any work executed by the Contractor.
- e) The dismissal from the work of any person employed thereupon.
- f) The opening up for inspection of any work covered up.

The Contractor shall forthwith comply with and duly execute any work comprised in such Tender Inviting Authority's instructions provided always that verbal instructions, directions and explanations given to the Contractor or his representative upon the works by the Tender Inviting Authority shall, if involving a variation, be confirmed in writing by the contractor within seven days. No work, for which rates are not specifically mentioned in the priced schedule of

quantities, shall be taken up without written permission of the Tender Inviting Authority. Rates of items not mentioned in the Priced Schedule of Quantities shall be fixed by the Tender Inviting Authority, as provided in Clause **VARIATION**. If complete with the Tender Inviting Authority's instructions as aforesaid involves work and/or loss beyond that contemplated by the Contract then, unless the same were issued owing to some breach of this contract by The Contractor, the Tender Inviting Authority shall pay to the Contractor the price of the said work an extra to be valued as hereinafter provided and /or loss.

#### **4. Variations:**

The Contractor may when authorized and shall when directed, in writing by the Tender Inviting Authority may for that purpose appoint, shall be bound to add or omit from or vary the works shown upon the Drawings/Maps or described in specification or included in the Schedule of Quantities but the Contractor shall make no addition, omission or variation without such authorization or direction. A verbal authority or direction by the Tender Inviting Authority, if confirmed by the Contractor in writing within seven days, be deemed to have been given in writing. No claim for an extra shall be allowed unless it shall have been executed by the Contractor on specific direction on the Tender Inviting Authority as herein mentioned any variation i.e. additions, omissions or substitutions shall vitiate the Contract.

(a) For the rates for the additional, altered or substituted work for items mentioned in the e-Tender, the e-Tender at quoted rates will be applicable.

(b) For the rates for the additional, altered or substituted work for items not mentioned in the e-Tender, the Contractor shall, within 7 days of the date of receipt of the order to carry out the work, inform the Tender Inviting Authority of the rates which it is his intention to charge for such class of work, supported by required documents, vouchers etc. and analysis of rates claimed and the Tender Inviting Authority shall determine the rates on the basis of the prevalent market rates and certify for the payment accordingly. The analysis shall be prepared on the basis of actual cost of materials and labour plus 10 (ten) per-cent to cover overhead supervision and profit etc.

However, the Tender Inviting Authority, by notice in writing, will be at liberty to cancel their order to carry out such work and arrange to carry out as they may consider advisable. But under no circumstances, the Contractor shall suspend the work on the plea of non-settlement of the rates of item falling under this clause.

(c) Where extra work cannot be properly measured or valued, the Contractor shall be allowed day work price as the net rates stated in the e-Tender or the schedule of quantities, if not so stated, then in accordance with local day work rates and wages for the district provided that in either case vouchers specifying the daily time (and if required by the Tender Inviting Authority the workman's names) and materials used be delivered for verification to the Tender Inviting Authority at or before the end of the work following that in which the work has been executed.

(d) As regards determination of the rates, the decision of the Tender Inviting Authority shall be accepted as final. No supplementary items shall be taken up for execution except with prior written approval of the e Tender Inviting Authority. The Tender Inviting Authority is not bound to recognize the cost of materials furnished in vouchers and in case the market value of such materials are found to be lower than the depicted in the vouchers the Tender Inviting Authority at their discretion will fix the price of such materials based upon market value. The contractor may be asked to produce original bills and /or Cash Memos in respect of purchases of such materials from market. Bills and Cash Memos in this regards shall not be entertained unless purchases are affected from registered regular merchants engaged in the trade of such items.

**5. Deviations:** No deviation from the contract will on any account be allowed unless an order in writing is obtained from the Tender Inviting Authority.

#### **6. Site Conditions:**

The contractor shall inspect the work site where the work under this contract are to be carried out, and note carefully the area restrictions and obtain for themselves at their own responsibility all the information which may be necessary for the purpose of the successful execution of the contracted work. They must also make themselves conversant with all the local conditions, means of access to the site of work, transport facilities and character of the work, the supply of materials, conditions affecting labour and other matter that may affect their e-Tender. Tender Inviting Authority does not undertake any responsibility, to obtain any concessions, permission from the owner of the adjoining plot or from other party in respect of any allowance, access, encroachments etc. whether for the facility of the works or otherwise. No claim therefore will be entertained should Contractors have failed to comply with this condition. All equipment required to be maintained are to be kept free from damages due to operation connection with the work. The site shall be made available to the Contractors in the present condition. Site organization within this site boundary shall be the responsibility of the Contractors.

## **7. Persons E-Tendering shall visit SITE Etc.**

Persons e-Tendering shall visit the site and make themselves thoroughly acquainted with the Nature and requirements of the case, facilities of transport, conditions affecting labour and materials and removal of rubbish, cost of carriage freight and other charges and shall allow for in their Tenders for any special difficulty in carrying out the work.

## **8. Contractor to provide everything necessary:**

The Contractor shall provide everything necessary (all inclusive and fixed rates for the proper execution of the work according to the intent and meaning of the drawings/maps, schedule of probable items with approximate quantities, specifications taken together whether the same may or may not be particularly shown or described there in provided that the same can reasonably be inferred therefore and if the Contractor finds any discrepancy therein, he will immediately refer the case in writing to the Tender Inviting Authority whose decision shall be final and binding on the parties. Figures dimensions shall be followed in; preference to scale. The Tender Inviting Authority shall on no account be responsible for the expense incurred by the Contractor for hired ground or water obtained from elsewhere. The quantities given in the schedule of quantities are only indicative being based on preliminary design and are liable to modification in the final design. The schedule of items and quantities include so far as can at present be determined, every materials which the Contractor is likely to be called upon to perform or supply. The rate quoted against individual item will be inclusive of everything necessary to complete the said items of the work within the contemplation of the contract and beyond the unit prices no extra payment will be allowed for individual or contingent work, labour and /or materials inclusive of all taxes and duties whatsoever except for specific items, if any, stipulated in the e-Tender documents. The Contractor shall supply, fix and maintain at his own cost during the execution of any work necessary for alignment watching required not only for the proper execution of the said work,

## **9. Access:**

The Tenderer /Representatives of the manufacturer of the materials (used for the work) shall at all reasonable times have free access to the work site/and or other places where materials are being prepared for the contract and also to any place the materials are lying or from who they are being obtained and the Contractor shall give every facility to the all of them and their representatives necessary for inspection and examination and test of the materials and workmanship. Except the representatives of Public Authorities no person shall be allowed on the work at any time without the written permission of the Tender Inviting Authority. If any, work is to be done at a place other than the site of the work, the Contractor shall obtain the written permission of the Tender Inviting Authority for doing so.

## **10. Quality of Materials & Workmanship:**

All the works specified and provided for in the specification or which may be required to be done in order to perform and complete and part thereof shall be executed in the best and most workmanlike manner with materials to the best and approved quality of the respective kinds in accordance with the particulars contained in and implied by the specification and as represented by the drawings/maps or according to such other additional particulars and instructions as may from time to time be given by the Tender Inviting Authority during the execution of the work and to their entire satisfaction.

## **11. Contractor's Employees:**

The Contractor shall keep for the full time a qualified and **skilled supervisor as defined in the ITB- A** and approved by the Employer, assisted with adequate staff constantly on the work, who will be responsible for the carrying out of the work to the true meaning of the specifications and schedule and quantities and instructions and directions given to him by the Employer. Any directions or instructions given to him in writing shall be held to have been to the Contractor officially.

The Employer/Authorized representative will have at all times access to the work site for inspection and examination of the work and materials proposed to be used. Authorised representatives of the Contractor shall have power of Attorney for receiving materials, cheque, signing measurement book etc. Any Supervisor, foreman, labour or other persons employed on the work by the contractor who

fails or refuses to perform the work in the manner specified herein shall be discharged immediately, and such persons shall not again be employed on the work. When required in writing by the Employer the Contractor shall discharge any person(s) who is, in their opinion, incompetent, disorderly or otherwise unsatisfactory. Such Discharge shall not be the basis of any claim for compensation or damages against the Employer or any of its officers or employees.

The Contractors shall keep the Employer saved, harmless and indemnified against claims if any of the workmen and all costs and expenses as may be incurred by the Employer in connection with any claim that may be made by any workman. The Contractor shall arrange to provide first aid treatment to the labourers engaged on the works. He shall within 24 hours of the occurrence of any accident at or about the site or in connection with execution of the works, report such accident to the Employer and also to the competent authority where such report is required by law.



## **12. Temporary Water Supply:**

The Contractor shall make suitable arrangement for supply of water for the work. The Contractor shall have to make their own arrangement for carrying water at the work site.

## **13. Clearing Away:**

All rubbish and superfluous materials either from Contractor's own work or from works of other agencies shall be removed from the work site on completion to the satisfaction of the Tender Inviting Authority.

14. The Contractor shall not without the written consent and approval of the Tender Inviting Authority assign the agreement or sublet any portion of the work.

## **15. Agreement:**

The successful Tenderers shall have to enter into an agreement with the Tender Inviting Authority. Stamp duty and all other costs connected with execution of such agreement shall be borne by the successful Tenderers.

## **16. Materials:**

The selected Contractor must arrange to procure all materials required for the proper completion of the work. The Tender Inviting Authority will not on any account be responsible for procuring the same. The non-availability of the above materials shall not in any way be considered to be an excuse for the extension of time.

## **17. Method of Measurement:**

Unless otherwise mentioned in the schedule of quantities the measurement will be net quantities of the work produced in accordance with the up-to-date rules laid down by the Indian Standard Institution. In the event of any disputes with regard to the measurement of work executed the decision of the Tender Inviting Authority shall be final and binding.

## **18. PAYMENT:**

### **RUNNING ACCOUNT PAYMENTS:**

Payment on Running Bills, at the discretion of the Tender Inviting Authority, shall be made to the Contractor on the bills certified by the Representative of the Tender Inviting Authority. All bills shall be prepared by the Contractor in the form prescribed by the Tender Inviting Authority. For this purpose, the Contractor must submit his/their R.A. Bills in the proper form duly accompanied by detailed measurements of works done and showing the deductions for previous payment received by him and also the deduction towards cost of materials (if any), supplied by the Tender Inviting Authority, the contractor shall be paid against measured bills only. Intermediate payments shall be regarded as payments by way of advance against the final payment and not preclude the requiring of bad unsound and imperfect or unskilled work to be demolished, removed and taken away and reconstructed, or to be any part thereof in any respect or the accruing of any claim, nor shall it conclude, determine or affect in any way the powers of the Tender Inviting Authority, under these conditions or any of them so as to the final settlement and adjustment of the accounts or otherwise or in any other way vary or affect the contract. ***Payment on R.A. Bill will be made after deduction of statutory deductions like, I.Tax, Labour Welfare Cess, CGST & SGST etc as per rule.*** Payment on materials stocked at site shall not be made. Payment of supplementary items shall only be made after those one entered properly in the site instruction book, approved and sanctioned by the Employer.

## **19. Final Payment:**

The final bill shall be accompanied by a certificate of completion **from the supervision Officer**. Payment of final bill shall be made within a month of submission of the same. The acceptance of payment of the final bill by the Contractor would indicate that he will have no further claim in respect of the work executed. The security money shall be refunded after 180 days from issue of completion certificate that the Contractor has rectified all defect, to the satisfaction of the Tender Inviting Authority.

## **20. Substitution:**

Should the Contractor desire to substitute any materials and workmanship, he must obtain the approval of the Tender Inviting Authority, in writing for any such substitution well in advance. Materials designated in this specification indefinitely by such terms and 'Equal' or other Approved etc. shall be considered as coming under the provisions of this clause as substitutions and no such materials shall be used until specific approved by the Tender Inviting Authority has been obtained in writing.

## **21. Commencement and Completion of Work:**

### **EXTENSION OF TIME AND LIQUIDATED DAMAGES FOR DELAY:**

The entire work is to be completed in all respects in stipulated times as mentioned in the e-Tender Notice from the date of issue of work order. Time is essence of contract and shall be strictly observed by the Contractor. The date of commencement of the work shall be the date on which the work order is issued to the Contractor or the date when the Contractor take possession of the site officially whichever is later. The Contractor shall complete the work in all respects to the satisfaction of Tender Inviting Authority within the stipulated time, failing which the contractor shall be bound to pay compensation @ 0.5% (half percent) over the total e-Tender value of work for delay of every week or part of a week by way of liquidated damages and not as penalty. Provided always that the entire amount of compensation to be paid under the provision of this clause shall not exceed 10% of the contract price. The payment of deduction of such damages shall not relieve the contractor of his obligation to complete the work or from any other obligation and liability under the contract. The contractor shall within 5 (Five) days of receipt of intimation that his e-Tender has been accepted to submit the Tender Inviting Authority an abstract programme of work so drawn as would enable him to complete the work within the time contemplated. The abstract programme must indicate the work within the time contemplated. The abstract programme must indicate dates of starting and completion of respective parts of sections of the work. The abstract programme would be subjected to the approval of the Tender Inviting Authority who will have the power of making such modification there in as found necessary. The actual progress as compared with this chart will be reviewed periodically. If the contractor be delayed in the progress of the work by exceptional weather condition, civil commotion, strike or lock-outs, fire, unusual delay in transportation of unavoidable casualties, act of public enemy, acts of the government, any acts of the authority or of another contractor in the performance of his contract with the employer or any other causes beyond the contractor's control, the contractor shall apply in writing to the Tender Inviting Authority for an extension of time of the completion of work or the part or section concerned within 10 (Ten) days of such occurrence, but before the expiry of the stipulated date of completion. The Tender Inviting Authority shall on such application make an enquiry and may grant such extension of time as they think justified. The decision of the employer in this respect shall be final and binding on the contractor. The work shall not be considered as completed until the Supervision Officer has certified in writing that they have been completed.

### **22. Escalation of Prices:**

The rates quoted by the Contractor shall be firm throughout the tenure of the contract (including extension of time, if any granted) and will not be subject to any fluctuation due to increase in cost of materials, labour, sales tax, Octroi etc.

### **23. Damage to Persons and Property/Insurance in respect of:**

The Contractor shall be responsible for all injury to persons/labourers or things or adjacent forest property which may arise from the operations or neglect of himself or of any sub-contractor or of any of his sub-contractor's employees, whether such injury or damage arises from carelessness, accident or any other cause whatever in any way connected with the carrying out of his contract.

The contractor shall indemnify the employer and held them harmless in respect of all and any expenses arising from any such injury or damage to persons or property as aforesaid and also in respect of any claim made in respect of injury or damage under any acts of Government or otherwise and also in respect of any award or compensation or the Contractor shall restore and repair all damage of every sort mentioned in this clause so as to deliver up to the whole of contract works complete and perfect in every respect so as to make good or otherwise satisfy all claims for damage to the property of the third parties. The contractor shall indemnify the Employer against all claims which may be made against the Employer by any member of the public or other third party in respect of anything which may arise in respect of the works or in consequence thereof and shall at his own expense arrange to effect and maintain, until the completion of the contract with any approved Insurance Company, a policy of insurance in the joint policy or policies with the Employer from time to time during the currency of this contract, and shall duly and punctually pay the premium payable thereof and if so required produce receipts for such payments, for the inspection of the Employer. The Contractor shall also indemnify the Employer against all claims which may be made upon the Employer, whether under the workman's Compensation Act or any other Statute in force during the currency of this contract or common law in respect of any injury to any of the contractor's or /and sub-contractor workmen or labour and shall at his own expense effect and maintain until the completion of the contract, with the approved Insurance Company a policy of Insurance in the joint names of the Employer and the Contractor against sub-risks and deposit such policy or policies with the Employer from time to time during the currency of this contract. The Contractor shall be responsible for anything which may be excluded from the Insurance Policies above referred to and also for all other damage to any property arising out of an incidental to the negligent or defective carrying out of this contract. The Contractor shall also indemnify the Employer in respect of any costs, charges or expenses arising out of any claims or proceeding and also in respect of any award of compensation of damages arising therefore the Employer shall be at liberty and have the power to deduct the amount of any damages, compensation costs, charges and expenses arising or to become due or to become due to the Contractor. The Contractor shall on signing the contract, issue the works and keep them insured (the works and keep

them insured) until the Completion of the contract against loss or damage by the fire and /or earthquake with any approved Insurance Company in the joint name of the Employer and the Contractor for the full amount of the contract and for any further sum if called upon to be so by the Employer the premium of such further sum being allowed to the Contractor as an authorized extra. Such policy shall cover the property of the Contractor or of any sub-contractor or Employees. The Contractor shall deposit the policy and receipts for the premium with the Employer within 21 days from the date of signing the contract unless otherwise instructed by the Employer. In default of the Contractor insuring as provide above, the Employer on his behalf may so insure and may deduct the premium paid from any money due or which may become due to the Contractor. The Contractor shall as soon as the claim under the policy is settled or the work reinstated by the Insurance Company should they elect to do so, proceed with all due diligence with the completion of the work in the same manner as through the fire had not occurred and in all respect under the same conditions of contract. The contract shall in case of rebuilding or reinstatement after fire shall be entitled to such extension of time for completion as the **Tender Inviting Authority** may deem fit.

#### **24. Termination of Contract by Tender Inviting Authority:**

If the contractor (being an individual or a firm) commit any act of insolvency or shall be adjusted as an insolvent or shall make an assignment or composition of the greater part in number or amount of his creditors or shall enter into a deed of assignment with his creditors, or (being incorporated company), shall have an order made against him or pass an affective resolution for winding up either compulsorily or subject to the supervision of the court or voluntarily, or if the official assignee of the contractor shall repudiate the contract, or if the official assignee or the liquidator in any such winding up shall be unable within 7 (Seven) days after notice to him requiring him to do so, to show to the responsible satisfaction of the employer that he is able to carry out and fulfil the contract and if required by the employer to give security or if the contractor (whether in individual form or incorporated company) shall suffer any payment under this contract to be attached by or on behalf of any of the creditors of the contractor or if the contractors shall assign or sublet the contract without the consent in writing of the employer first obtained if the contractor shall change or encumber this contract or any payment due to which may become due to the contractor their under or if the employer shall certify in writing of that in his opinion the contractor :

- a) has abandoned the contract, or
- b) has failed to commence the work, or has without any lawful excuse under these conditions suspended the progress of the work for 14 days after receiving from the Employer written notice to proceed, or
- c) has failed to proceed with the work such due diligence and failed to make such due progress as would enable the work to be completed within the time agreed upon, after receiving from Employer to employ more men, or,
- d) has failed to remove materials from site or to pull down and retained work within 7 days after receiving from the Employer as written notice that the said materials or work were condemned or rejected by the Employer under those conditions, or,
- e) has neglected or failed persistently to observe and perform all or any of the acts, matter or things by this contract to be observed and performed by the Contractor for 7 days after written notice shall have been given to the contract requiring the Contractor to observe or perform he same, or
- f) has to the detriment of good workmanship or define of the Employers instruction to the contrary sub-let any part of the contract.

Then and in any of the said causes the employer not withstanding any previous order after giving 7 (Seven) days notice in writing to the contractors, determine the contract, but without thereby affecting the powers of the employer of the obligations and liabilities of the contractor, the whole of which shall continue to be in force as fully as if the contractor has not been so determine and as if the works subsequently executed has been executed by or on behalf of the contractor and further the employer, his agents or representative may enter upon and take possession of the works and all plants, tools, shades, machinery and other power tools, utensils and materials, lying upon the premises or the adjoining land or roads and use the same as his own property or may employee the by means of his own representative and workman in carrying on and completing the work or by employing any other contractors or other persons or person to complete the work, and the contractor shall not in any way interrupt, or do any matter or thing to prevent or hinder such other contractor or other person or persons employed for completing and finishing or using the materials and plant for the work when the works shall be completed or as soon thereafter as convenient, the employer shall give a notice in writing to the contractor to remove his surplus materials and plant and should the contractor failed to do so within a period of 14 (Fourteen) days after receipt thereof by him the employer may sell the same by public auction and shall give credit to the contractor or for the amount so realised.

The employer shall thereafter ascertain and certify in writing under his hand that (if anything) shall be due or payable to or by the employer, for the value of the said plant and materials so taken possession of by the employer and the expense or loss which the employer shall have been put to in getting the work to be so completed and amount if any owing to the contractor and the amount which shall be certified shall there upon be paid by the employer as the case may be and the certificate shall there upon be paid by the employer, as the case may be and the certificate of the employer shall be final and conclusive between the parties.


**25. Settlement of Dispute, Arbitration:**

Except where otherwise provided in the Contract, all questions and disputes relating to the meaning of the specifications, designs, drawings and instruction herein before mentioned and as to the quality of workmanship or materials used on the work, or as to any other question, claim, rights, matter, or things whatsoever, in any way arising out of or relating to the contract, design, drawings, specifications estimates, instructions, orders or these conditions or otherwise concerning the works or the execution or failure or execute the same, whether arising during the progress of the work or after the completion or **abandonment** thereof shall be referred to the sole arbitration of the Chief Conservator of Forests, Central Circle, Directorate of Forests, Govt. of West Bengal. Should the Chief Conservator of Forests, Central Circle, West Bengal, be for any reason unwilling or unable to act as such arbitrator, such questions and disputes shall be referred to an arbitrator to be appointed by the DIRECTORATE OF FORESTS, GOVT OF WEST BENGAL. The award of the arbitrator shall be final, conclusive and binding both parties to this contract and no suit shall lie in Civil Court in respect of the award by the Arbitrator.

26. Tender inviting authority shall not be liable for any payment, if contractor fails to complete the work within stipulated time and in the event of lapse of fund owing to financial year ending.

27. Contractor shall take at most care in ensuring the safety of labourers who would work in the site. Any damages arising out of lapses of safety issues, only contractor will be liable for payment towards such damages and tender inviting authority /Govt shall not be liable for any such damages.

28. All the tender conditions and guidelines shall be part of the agreement and binding on the contractor.



SFDA-D.F.O.  
Bankura(North) Divn.

## **TECHNICAL SPECIFICATION FOR BUILDING**

### **CIVIL WORKS**

#### **(A) MATERIALS**

##### **GENERAL :**

All materials is to be used in works shall confirm to Indian Standards specifications as published by **I.S.I.** from time to time ( and in the absence thereof as approved by employer ).

##### **A-1) BRICKS :**

All bricks shall be approved quality of standard specifications, made of good brick earth, uniform deep red, cherry colour, thoroughly burnt in kiln ( machine made ) without being vitrified, regular in shape and size, sound, hard, homogeneous in texture, true to shape and of standard dimensions and shall be free from cracks, chips, flaws, stones or humps of any kind and shall not show appreciable signs of efflorescence either dry or subsequent to soaking in water. The bricks shall emit a clear ringing sound on being struck and have a minimum crushing strength of 70kg / sqcm. All the bricks which absorb water more than 20% of their own dry weight after 24 hours immersion in cold water shall be rejected.

- a) The bricks shall be locally available kiln brunt bricks of generally regular and uniform size, shape & color uniformly well burnt but not over burnt. The bricks shall be free from cracks, chips, flaws, stones or lumps of any kind and the rating of efflorescence shall not be more than "moderate" when tested as per I.S. 3495 of latest edition. They shall not have any part unburnt. They shall not break even after being dropped on the ground on their flat face in a standard condition from a height of 60 cms.
- b) The size of brick shall normally 250 mm x 125 mm x 75 mm or 230 mm x 115 x 65 mm. Bricks of one standard size shall be used on one work unless specially permitted by the Owner / Architects.
- c) After immersion in water, absorption by weight shall not be exceed 20% of dry weight of the brick when tested according to IS 1077 of latest edition shall be less than 75 kg./Sq.cm.
- d) Prior approval of owner / Architects shall be obtained for the brands of bricks to be used in the work after compliance with the above specifications tests.

##### **A-2) COARSE AGGREGATES FOR CEMENT CONCRETE WORKS :**

Stone chips or stone ballast for cement concrete ( plain or reinforced ) shall be hard, of uniform and fine texture, free from faults or planes of weakness and free from weathered faces and coatings. The ballast or chips must be free from loam, clay, or any surface coating, free from organic matter or other impurities and screened, free of dust. Trap stone of black and hard variety as is generally available from quarries in Pakur or Chandil areas will be normally used. Stone aggregates from other sources may also be used provided the same is a trap stone with high density, linear cleavage, low absorption of water and finally found suitable in the opinion of Employer. The opinion of employer must be recorded in writing. The ballast or chips shall be obtained by breaking from large blocks and must be more or less cubicle in shape. Stone aggregate with flakiness index more than 25% is not allowed.

**SIZE OF COARSE AGGREGATES :** For any of the following nominal sizes of graded coarse aggregates, grading shall be in conformity with the requirements laid down in the Indian Standard Specification **IS. 383 – 1963** as shown in the **Table 1.**

**TABLE – 1**

I.S.Sieve designation	Percentage passing for graded aggregate of nominal size			
	40 mm	20mm	16mm	12.5mm
1	2	3	4	5
80mm	100	-	100	100
63mm	-	-	90 – 100	-
40mm	95 – 100	100	-	90 – 100
20mm	30 – 70	95 – 100	30 – 70	40 – 85
16mm	-	-	0 – 10	0 – 10
12.5mm	-	-	-	-
10mm	10 – 35	25 – 55		
4.75mm	0–5	0 – 10		
2.36mm	-	-		

When coarse aggregate brought to the site is ungraded, single size coarse aggregate of different nominal sizes conforming to the requirements vide **Table 2** given below, shall be mixed at site with the other ingredients of concrete either directly in the mixture or on the platform to the proportion indicated in **Table 3** below :-

**TABLE – 2**

I.S. Sieve Designation	Percentage passing for single sized aggregate of nominal size					
	63 mm	40mm	20mm	16mm	12.5mm	10mm
1	2	3	4	5	6	7
80mm	100	-	100	100	100	100
63mm	85 - 100	100	85 - 100	85 - 100	85 - 100	85 - 100
40mm	0 - 30	85 - 100	-	-	0 - 45	0 - 20
20mm	0-5	0 - 20	-	0 - 30	0 - 10	0-5
16mm	-	-	0 - 20	0-5	-	-
12.5mm	-	-	0-5	-	-	-
10mm	0-5	0-5	-	-	-	-
4.75mm	-	-	-	-	-	-
2.36mm	-	-	-	-	-	-

**TABLE – 3**

Sl. No.	Cement Conc. Mix.	Nominal size of aggregate	Parts of aggregate of size 63 mm.	Parts of aggregate of size 40 mm.	Parts of aggregate of size 20 mm.	Parts of aggregate of size 12.5 mm.	Parts of aggregate of size 10 mm.
1	2	3	4	5	6	7	8
1.	1 : 6 : 12	63mm	9	-	3	-	1.1 / 2
2.	1 : 6 : 12	40mm	-	9	3	-	1/2
3.	1 : 5 : 10	63mm	7.1 / 2	-	2.1 / 2	-	1
4.	1 : 5 : 10	40mm	-	7.1 / 2	2.1 / 2	3	1
5.	1:4:8	63mm	6	-	2	-	1
6.	1:4:8	40mm	-	6	2	-	-
7.	1:3:6	63mm	4.1 / 2	-	1.1 / 2	-	-
8.	1:3:6	40mm	-	4.1 / 2	1.1 / 2	-	-
9.	1:3:6	20mm	-	-	4.1 / 2	-	-
10.	1:2:4	40mm	-	2.1 / 2	1	-	-
11.	1:2:4	20mm	-	-	3	-	-
12.	1:2:4	12.5mm	-	-	-	-	-
13.	1 : 1.5: 3	20mm	-	-	2	-	-

Notes :- The proportions indicated in **Table 3** above are by volume. These proportions may be varied somewhat by employer after making sieve analysis of the aggregates brought to the site, when considered necessary for obtaining better density and strength of concrete.

A-2.1)ALL – IN- AGGREGATES : If combined aggregates are available, they need not be separated into fine and coarse, but necessary adjustment may be made in the grading by the addition of single sized aggregates.

The grading of the all – in – aggregate when analysed as described in IS : 2386 ( Part 1 ) shall be in accordance with Table 4.

**TABLE – 4**

I.S. Sieve Designation	Percentage passing for all – in – aggregate of	
	40mm. Nominal Size	20mm. Nominal Size
80mm	100	100
40mm	95 – 100	95 – 100
20mm	45 – 75	30 – 50
4.75mm	25 – 45	15 – 35
600micron	8 – 30	0-6
150micron	0-6	

A – 2.3 ) **JHAMA** chips, not to be used in structural concrete whether plain or **R.C.** for cement concrete work shall be obtained by breaking good quality over burn bricks or jhama bats, must not be spongy or with any coating of foreign materials and should be homogeneous in texture. The chips shall be more or less cubicle in shape and to be screened to make removal of dust. No under-burnt brick aggregates should remain present. All coarse aggregates for concrete works must be well-graded. These shall be screened for removal of dust and if so necessary in the opinion of employer shall be washed at the cost and expense of the contractor.

**A– 3) COARSE AGGREGATE FOR LIME CONCRETE WORKS :**

1 ) Brick aggregates for lime concrete if made shall consist of approved, clean hard and over burnt jhama khoa. The khoa must be well-graded and unless otherwise specified, shall pass through 32mm. Sieve.

2 ) Brick aggregates for lime terracing work on roof shall consist of khoa broken from 1st class bricks bats and unless otherwise specified, shall pass through 25mm. Sieve and be suitably graded. No over burnt or under burnt bricks or bats are to be broken for preparing such aggregates. No jhama khoa should be used in lime terracing work.

**A – 4) SAND :**

All sand shall be clean sharp and free from clay, loam, organic or any other foreign matter shall be obtained from approved source. The silt content should be as minimum as possible and in no case it should exceed 0.10% by wt. of fine aggregate. The contractor shall get the sample of sand to be used in different kinds of work approved by the Employer before using the same in work. Sand, which in the opinion of the Employer or his representative is dirty, must be washed to his satisfaction at the cost and expenses of the Contractor.

1 ) . Sand for all cement concrete work must be coarse. The sand shall pass through a mesh 4.75mm. square measured in the clear. Sand shall not be used for concrete works if contains more than 10% of fine grains through a 76 mesh sieve as used for cement test nor should fineness modules be less than 2.00

2 ) Medium course sand may be used for cement mortar, for masonry plaster etc. Fineness modulus shall be between 2 to 1.8.

3 ) Sand filling in plinth or foundation where specified may be done with fine sand or silver sand but should be free from clay or loam.

**A– 5) CEMENT :**

A) Unless otherwise specified, cement shall be ordinary Portland cement / Slag cement of grade 43 or 53 conforming to **IS : 8112 & IS : 12269** of approved make and brand and to be tested at an approved laboratory.

B) It shall be stored in a dry place in regular piles not exceeding 10 bags high and in such a manner that it is adequately protected from moisture and contamination.

C) Different consignments shall be stacked separately so that they can be used in the order in which they are received.

## A – 6) STEEL REINFORCEMENT

### 1) MATERIALS :

- A) Mild steel reinforcement shall be cold rolled mild steelbars conforming to **IS : 432 – Grade – 1 or IS : 226 – 1962** – “ Standard Quality “ . Other qualities of Steel shall not be acceptable.
- B) Strength of cold rolled mild steel deformed bars shall conform to **IS : 1139** and cold twisted deformed bars should conforming to **IS : 1786**.
- C) Each consignment shall be of approved make and if necessary certificates of test performed by a recognized testing laboratory or the manufacturer shall be produced. These test certificates shall give the ultimate stress, yield stress, elongations and results of cold bend test. If further required steel shall be tested at an approved laboratory.
- D) Reinforcing steel of different varieties and sizes and types shall be stacked separately.
- E) Reinforcement bars shall be stored at the site in such a manner as to prevent rusting and contamination of the surface by deleterious materials like dirt, oil, grease, paint, etc.
- F) When placed in the work, reinforcement shall be free of loose mill scale, rust, dirt, oil, grease, paint, etc.
- G) Steel reinforcement shall always be protected from damages due to impact and rough handling.

### 2) FABRICATION, BENDING & SPLICING :

- A) Bars shall be cut to size and bent to shape in accordance with the appropriate dimensions shown in the drawings. When an overall or an internal dimension of bent bar is specified, the tolerance unless otherwise specified, shall be as in **Table 11 of IS : 2502**.
- B) Bars shall be bent cold gradually by machine or any other means approved by employer except in case of mild steel bars larger than 28mm. If approved by employer, mild steel bars greater, than 28mm. dia and conforming to **IS : 433** only may be bent hot at cherry rod heat ( not exceeding 850 C ). Bars bent hot shall be allowed to cool gradually in air and shall not be cooled by quenching. High yield strength deformed steel bars shall not be hot bent.
- C) Bars having cracks or splits shall be rejected.
- D) All bars shall be properly tagged for easy identification.
- E) All reinforcement shall be furnished in full length indicated in the drawing. Splicing of bars, except those shown on the drawings, will not be permitted without the written authority of employer.
- F) At a tension splice, the minimum clear distance between bars shall be maintained. Splices in adjacent tension bars shall be staggered. At a compression splice, each side of lapped bar may be contacted but the minimum clear spacing between the splice and an adjacent splice shall be that specified for adjacent unspliced bars.
- G) In no case shall the clear distance between two adjacent bars be less than the diameter of the bar (larger of the diameters to be considered if the adjacent bars of different diameters ) or 6mm more than the maximum size of coarse aggregate used in the concrete Guidance as per I.S.I code 456.
- H) Unless otherwise stated in the working drawing provisions of clause No. 25.4 of **IS : 456** regarding cover to the reinforcement shall be followed.

### 3) PLACING AND FASTENING :

- A) All steel reinforcement shall be accurately placed in position shown on the drawing and firmly held during the placing and setting of concrete. Bars shall be tied together with mild steel wire ( annealed ) not less than 0.9mm dia. ( conforming to **IS : 280** ) or secured with clips at all intersections. Where the spacing of intersection is less than 30cms. In each direction alternative intersections shall be tied. Binders shall tightly embrace and shall be securely held. Placing of bars on layers of fresh concrete as the work progress shall not be permitted. Adjusting bar spacing in concrete already poured shall not be permitted.
- B) Distance of the bars from the form work shall be maintained by approved concrete spacer blocks, ties, hangers and other approved supports. Metal chairs which are in contact with the exterior surfaces of concrete where specially allowed shall be galvanized or painted with epoxy. Layers of bars shall be supported at correct spacing by precast



mortar blocks or other equally suitable devices approved by the Engineer – In – Charge.

The mortar for the precast blocks shall have the same composition as the concrete in which it is embedded and shall have been cured for at least 28 days before being placed in position. The use of pebbles, pieces of broken stone of bricks, metal pipe or wooden blocks will not be permitted for use as spacers.

C) No reinforcement shall be bent when in position in the work without the approval of employer whether or not it is partially embedded in concrete. Workmen will not be permitted to climb on bar extensions until the concrete has sufficient strength so as not to be damaged and no movement of the bar is possible.

## **(B) EXECUTION**

### **GENERAL :**

All works shall be carried out in proper workmanlike manner. Items of works not covered by the following, shall carried out as per best practice according to the directions of the Employer and to his satisfaction. Unless otherwise specified in this section or in the description of item, the cost of all stages of works mentioned hereunder shall be deemed to have been included in the rates of items provided in the Tender.

### **B – 1 (A) EXCAVATIONS OF FOUNDATION AND FILLING UP TRENCIES :**

i) Foundation when excavated to the level shown in the drawing will be shown to employer and if on account of bad ground or for any reason whatsoever he decides to go deeper with the foundation, the Contractor shall excavate further to the depths required by employer . In no case shall the foundation soling or concrete be laid prior to receiving orders to that effect from employer or his authorized representative.

ii) Excavating shall include throwing the excavated earth at least one meter or half the depth of excavation, whichever is more, clear of the edge.

iii) The excavated areas around the foundation of structures are to be filled up properly to the required levels with earth obtained from excavation or other materials as directed, well rammed with water and consolidated in layers not exceeding 150mm. at a time. The quality for this item of work will be measured on the basis of the quantity of the excavation paid for less the volume occupied by the structure in foundation.

### **(B) SHORING**

i) Shoring for loose earth and when the depth of the excavation exceeds 3 metres poling boards ( Vertical members ) of 50 to 75mm. In thickness and 75 to 225mm. in which preferably of sal – wood to be placed closed together and to be driven about 300mm. in ground below the bottom of the trench with intermediate sal-bullah pilling of dia. not less than 100mm. at the rate of 900 to 1000mm.center to be placed in between the vertical surface of trench and the poling boards and double struts of sal-bullah of not less than 100mm. in dia.between two wallings ( horizontal members ) of 250mm. in with and 75mm. thickness held horizontally between them.

ii) For medium clay and when the depth of excavation exceeds 2 metres but does not exceed 3 metres single struts will be provided and sal-bullah pilling may not be placed. Other requirements are to be satisfied as ( i ) above.

### **B – 2) CEMENT CONCRETE WORKS ( PLAIN OR REINFORCED ) :**

#### **i) SHUTTERING AND STAGING :**

Wherever necessary, shuttering and staging must be provided. Unless otherwise stated no payment will be made for shuttering or staging and the cost thereof will be deemed to have been covered by the rate of relevant finished item of work. Where payment for shuttering has been specified, the rate shall be deemed to cover the cost of the necessary staging as well.

Payment if any, for shuttering will be on the basis of surface area of shuttering in actual contact with concrete.

Shuttering may be of approved dressed timber true to line, not less than 25mm. thick. Surface to be in contract with concrete are to be planed smooth except where otherwise stated. As an alternative, sufficiently rigid steel shuttering may be used. In every case, joins of the shuttering are to be such as to prevent the loss from concrete. In timber shuttering the joins must be perfectly covered with polythene sheets of approved quality. In case of steel shuttering also the joins are to be similarly lined.

All shuttering and framing must adequately be stayed and braced to the satisfaction of employer for properly supporting the concrete during the period of hardening. Each shall concrete is vibrated.

Before the concrete is placed those faces of the form work come in contact with the concrete shall be treated to prevent concrete adhesion to them and to reduce the risk of damage to the concrete when the form work is struck. Light diesel oil to be applied to the surface of the shuttering.

Interior of all moulds and boxes must be thoroughly washed out with a hose pipe or otherwise so as to be perfected clean and free from all extraneous matter prior to the deposition of concrete.

All form works shall be removed without shock or vibration. Before the form work is stripped, the concrete surface shall be exposed where necessary in order to ascertain that the concrete has hardened sufficiently.

In normal weather and with ordinary cement, vertical or side shuttering may be removed after days and the bottom shuttering of horizontal member after 14 days in case of slab and 21 days in case of beams and 28 days for cantilevers etc. from the date of placing the last concrete in the structure. The above figures are minimum and may be extended if found necessary. Before stripping the shuttering of structural member the contractor shall take prior permission of the Employer or his representative.

No plugs, bolts, ties, hold fasts or any other appliances whatsoever for the purpose of supporting the shuttering are to be fixed in the structure of placed in such a way that damage might result to the work in removing the same when the shuttering is struck.

## ii) STRIPPING TIME :

Forms shall not be struck until the concrete has reached a strength at least twice the stress to which the concrete may be subjected at the time of removal of form work. The strength referred to shall be that of concrete using the same cement and aggregates, with the same proportions and cure under conditions of temperature and moisture similar to those existing on the work. Where possible, the form work shall be left longer as it would assist the curing.

In normal circumstances and where ordinary Portland cement is used, forms may generally be removed after the expiry of the following periods :

a) Walls, Columns and vertical faces of all structural members	24 to 48 hours as may be decided by employer
b) Slabs ( props left under )	3 days
c) Beam soffits ( props left under )	7 days
d) Removal of props under slabs :	
1) Spanning upto 4.50 m.	7 days
2) Spanning over 4.50 m.	14 days
e) Removal of props under beams and arches:	
1) Spanning upto 6.0 m.	14 days
2) Spanning over 6.0 m.	21 days

The above period are minimum and may be extended for other type of cement used if necessary. Before stripping the shuttering of structural members the contractor shall take previous permission of Employer or his representatives.

## iii) SCAFFOLDING :

The scaffolding must be strong and rigid stiff end with necessary cross bracers and always decked and boarded on the sills with close boarded ceiling and swings to prevent any injury to persons. The contractor shall have to allow other traders to make reasonable use of his scaffoldings as and when directed by the Engineer – in –Charge.

If for the interest of the work contractors have to erect scaffolding in other's properties including local bodies Corporation, the arrangement for the same including the cost of licensing fees etc. shall have to be borne by the contractor and the department should be kept free from any liability on this account

## iv) MIXING, PLACING AND COMPACTING OF CONCRETE :

### MACHINERY AND EQUIPMENTS

#### a) Batching

Batching shall be done by weigh batchers conforming to IS : 2722. A platform scale of capacity 300Kg. With fraction upto 100gms. shall be at site.

For water supply to mixture through metering system shall be organized.

Design mix converted to volumetric may be permitted by EIC. Accordingly suitable size of boxes equivalent to 1 bag of 50Kg. Cement shall be prepared by the contractor.

b) Mixer

Mixers used shall conform to IS. Type Capacity shall be as per size, extent and nature of work.

All structural concrete shall be mixed in mixture machine of appropriate capacity & shall have to be vibrated with suitable vibrator ( needle or form vibrator ). Mixing shall be continued until there is a uniform colour and consistency, but in no case shall the mixing be done for less than two minutes. Concrete mix obtained from mixture machine should be laid within 20minutes from the time water is added to the dry mix. Beyond 20minutes the mix should not be used in structural concrete. No hand mixing is permissible under any circumstances.

As the bulking of sand may vary from day to day and at different parts of the day on account of varying moisture content, frequent tests for bulking shall be carried out with the sand to be used and the amount of bulking allowed for in the field mix so as to keep the actual proportion constant throughout.

Only such quantities are as required for immediate use are to be mixed at any one time. Sufficient water is to be added to obtain proper workability so that the mixture may flow readily round the reinforcement and into every part of the moulds. The workability shall be measured by the amount of slump.

Water Cement ratios should be as follows :

- M10 : 0.60 ( For 1:3:6 mix 30 liter per bag of Cement )
- M15 : 0.60 ( For 1:2:4 mix 30 liter per bag of Cement )
- M20 : 0.55 ( For 1:1.5:3 mix 27.5 liter per bag of Cement )
- 0.50 ( For 1:1:2 mix 25 liter per bag of Cement )

The total water content in each batch of concrete shall always be kept constant as the amount previously determined by trial mixes. The quantity of water to be actually added may, therefore, vary depending on the moisture content in the aggregates. In actual job if the quantities of the ingredients remain constant the amount of slump may be taken as a good guide indicating the total water content in the mixture. The consistency and consequently the water content of the concrete shall, therefore, be kept constant and checked from time to time as work proceeds, by means of standard slump tests. The slump tests shall be carried out with concrete immediately after it has been mixed and before any initial set has commenced, the sample being taken perfectly at the point where the concrete is being delivered for placing in the moulds.

The Slump Cone shall be filled about one-fourth of its height with concrete which shall then be tamped, using 25 strokes of a 16mm. diameter rod, 60cm.long and bullet-pointed at the lower end. The filling shall be completed in successive layers similar to the first and top struck off so that the Slump Cone is exactly filled.

The Slump Cone then be removed by raising vertically immediately after filling. The mould concrete shall then be allowed to subside and the height of the specimen measured after coming to rest.

The consistency shall be recorded in terms of millimetres of the subsidence of the specimen during the test, which is known as slump.

The following slumps shall be adopted for different works :-

Sl. No.	TYPE OF WORK	SLUMPS	
		When vibrators are used	When vibrators are not used

1.	Mass concrete in foundation footings and retaining walls and pavements.	10 to 25mm.	50 to 75mm.
2.		10 to 25mm.	80mm
3.	Mass concrete in R.C.C foundations, footings and retaining walls.	25 to 40mm.	100 to 125mm
4.	Beams, slabs and columns simply reinforced. The R.C.C section or section with congested steel	40 to 50mm.	125 to 150mm

**IS : 456 – 1978** allows use of nominal mix of concrete upto grade M20 and may be allowed in works at the discretion of Employer and will be guided by the provision of the **IS : 456 – 1978**. For grade of concrete above M20 design mix has to be adopted. For determination of mix proportion of design mix concrete, the target strength should be higher than the specified characteristic strength to ensure that characteristic strength is attained at 28 days. Accordingly to the Explanatory Hand Book on **IS : 456 – 1978 ( S.P. 24 – 1983 )**.

Target strength = characteristic strength + 1.65 x Standard deviation.

If controlled concrete is to be adopted, design mix is required. Otherwise proportion with cubic strength of concrete at 28 days shall be the guidance.

Standard deviation for different grades of concrete in absence of any test may be taken as per **IS : 456 – 1978** as follows :-

GRADE OF CONCRETE	ASSUMED STANDARD DEVIATION (N/MM2)
M10	2.3
M15	3.5
M20	4.6
M25	5.3
M30	6.0

Once the target strength of cube moulds with specific mix design is obtained in the laboratory, it may be inferred that corresponding characteristic strength of concrete, prepared with the materials used in the test mould (s) cured under identical condition as that of the test specimen, shall be obtained at site at 28 days.

#### Frequency Of Sampling :

**Sampling Procedure** – A random sampling procedure shall be adopted to ensure that each concrete batch shall have a reasonably chance of being tested ; that is, the sampling should be spread over the entire period of concreting and cover all mixing units.

**Frequency** – The minimum frequency of sampling concrete of each grade shall be in accordance with the following :-

QUANTITY OF CONCRETE IN THE WORK ( )M <sup>3</sup>	NO.OF SAMPLE
1–5	1
6 – 15	2
16 – 30	3
31 – 50	4
51 AND ABOVE	4

( Plus one additional sample for each Additional 50 m3 or part thereof. )

**Test Specimen** – Three test specimens shall be made from each sample for testing at 28 days. Additional cubes may be required for various purposes such as to determine the strength of concrete at 7 days or at the time of striking the form work, or to determine the duration of curing, or to check the testing error. Additional cubes may also be required for testing cubes cured by accelerated methods as described in **IS : 9013 – 1978**. The specimen shall be tested as described in **IS : 516 – 1959**.

**Test Strength Of Sample** – The test strength of the sample shall be the average of the strength of three specimens. The individual variation should not be more than (+- ) 15 percent of the average.

**Transporting, Placing, Compacting** – Concrete shall be handled from the place of mixing to the place of final deposit as rapidly as practicable by methods which will prevent the segregation or loss of the ingredients. It shall be deposited as nearly as practicable in the final position to avoid rehandling or flowering. Unless specially permitted by the Engineer –In –Charge, concrete shall not be dropped freely from a height of more than 1.5 metres.

Before placing the concrete, the moulds shall be cleaned of shavings, pieces of wood or other rubbish. The concrete shall be carefully placed against the moulds so that the faces of concrete shall be left perfectly smooth and free from honey – combing upon withdrawal of the moulds. Any defect in this respect must be dealt with by the contractor as directed by employer without any extra charges therefore.

During placing and also immediately after deposition, the concrete shall be thoroughly compacted by ramming, spearing etc. until it has been made to penetrate and fill all the spaces between and around the steel rods, around embedded fixtures, and into the comers of form work in such a manner as to ensure a solid mass entirely free from voids. If so directed by employer addition to usual ramming, spearing etc., sufficient number and suitable type of vibrators may have to be used on important jobs to enable working with a comparatively low water-cement ratio and ensure the maximum possible degree of compaction and homogeneity.

Use of form vibrators for slabs, nozzled vibrators for beam and columns are permitted. It is imperative that the work should be done quickly as well as efficiently and adequate number of hands must therefore be employed to ensure this. Concrete shall be placed and compacted in its final position before setting is commenced and shall not subsequently be disturbed.

Concreting shall be carried out continuously up to construction joints, the position and arrangement of which shall be predetermined by employer or his representative. Any rest, pauses, such as for meal, shall also be subject to his approval. All concreting work should be so programmed as not to necessitate work at night. If for any reasons this becomes imperative, the contractor shall obtain previous permission of employer or his representative and make proper lighting arrangements to his satisfaction.

#### **v) PROTECTION AND CURING :**

The Contractor shall adequately protect freshly laid concrete, for about 1 to 2 hours after its laying from too rapid drying due to sunshine, drying winds etc. and also from rains or surface water and shocks. About 24 hours after laying of concrete, the surface shall be cured by flooding with water of minimum 25 mm depth or by covering with wet absorbent materials. The curing shall be done for a minimum period of 10 days. Over the foundation concrete the masonry work may be started after 48 hours of its laying, but the curing of cement concrete shall be continued along with the masonry work for a minimum period of 10 days.

In case of cement concrete used as sub – grade for flooring, the flooring may be commenced within 48 hours of the laying of sub – grade. In case it is not possible to do so due to exigencies of work, the sub – grade shall be roughened with a steel wire brush without disturbing the concrete, wetted and neat cement slurry at the rate of 1.75 kg of cement per square /metre applied to the base before laying floor. Full rate of IPS / mosaic flooring will be paid with the specific orders of the Engineer – In – Charge. The curing to be continued along with the top layer of flooring for a minimum period of 10 days.

#### **vi) CONSTRUCTION JOINTS :**

All joints in slabs and other horizontal members are to be formed by inserting vertical boards against which the concrete deposited can be properly rammed. The positions where such joints to be made will be indicated by the Engineer – In – Charge or his representative.

In the case of horizontal joints any excess mortar or laitance shall be removed from the surface after the concrete is deposited and before it has set.

When the work has to be commenced on a surface which has hardened, such surface shall be well roughened and all laitance removed, the surface shall then be swept clean, thoroughly wetted and covered with a thin layer of mortar composed of equal volumes of cement and sand.

Such works shall be deemed to be covered by the rates for concrete.

## vii) MAJOR R.C.C. WORKS :

Where concrete is specified by strength the mix should not be leaner than 1 : 2 : 4 so as to give ultimate crushing not less than 15 N/mm<sup>2</sup> at 28 days cured under field condition. The mix for the concrete is to be so adopted and the slump is to be so allowed as to give specified strength and proper workability at the existing site conditions. Contractor shall remain fully responsible for producing concrete of specified strength in the actual job and therefore cast at his own cost test specimens of 15cms. cube as already specified during work and cure the same in similar way as for laid concrete for being tested for strength. Each set of test specimen shall be taken to cover the quality of concrete laid on the job during the period from time of taking the previous set of specimens and the quality will be estimated by the Engineer –in –charge from records maintained by him.

a) When the job concrete is compacted by ordinary methods, the test specimen shall be moulded by placing the fresh concrete in the mould in three layers, each approximately one-third of the volume of the mould. In placing each scoopful of concrete, the scoop shall be moved around the top edge of the mould as the concrete slides from it in order to ensure a uniform distribution of concrete within the mould. Each layer shall be rodded, 25 times with a 16mm. Rod, 60cm. In strength, bullet pointed at the lower end. The strokes shall be distributed in a uniform manner over the cross-section of the mould and shall penetrate into the underlying layer. The bottom layer should be rodded, throughout its depth. After the top layer has been rodded, the surface of the concrete shall be struck off with a trowel and covered with a glass plate atleast 6.5mm. thick or machined metal plate. The whole process of moulding shall be carried out in such a manner as to preclude the alteration of the water-cement ratio of the concrete, by loss of water either by leakage from the bottom or overflow from the top of the mould.

## viii) R.C.C. CAST- IN-SITU BORED PILES :

Piles shall be of R.C.C. cast-in-situ bored piles & shall have sufficient embedment into the hard strata of soil.

Boring operations are to be done by rotary or percussion type drilling rigs using direct mud circulation method to bring the cutting out. In soft clays and loose sands the bailer and chisel method should be used with caution to avoid the effect of suction. The size of the cutting tool should not be less than the diameter of the pile by more than 75mm. drilling mud ( Bentonite ) is to be used in stabilizing the sides of the boreholes. The specific gravity of the bentonite solution should be about 1.12 and should conform to other basic properties as per **IS 2911 (Part 1 / Sec 2) –1979**.

### DRIVING

The boring tools shall be centered at the exact pile location. Boring and driving shall then proceed alternately till the appropriate strata is reached. When the casing is being driven in, care shall be taken to check that it is truly vertical. The casing shall be driven upto hard strata to establish, that hard stratum has been reached the well boring shall be carried on for at least half- an- hour or as directed by the Engineer- in-charge for each pile during which period the penetration of the casing or bore-hole into the hard strata is negligible. If desired by employer, the chiseling shall be allowed to ensure the hard stratum only and proper records for rig hours shall be maintained for chiseling being carried out only and not for sludge removing operations after or before chiseling. However time required for change of chisel or cutting tool from bailer & from bailer to chisel not exceeding 10m., minutes each time for operation shall be measured under relevant item.

When the boring is done to a satisfactory stratum according to plan or as approved by the Engineer – in – charge, all loose materials existing at the bottom of the hole shall have to be removed before pouring concrete.

Water may be used in the boring operations only to the extent absolutely necessary for facilitating boring. All necessary steps shall be taken to prevent surface water from entering the bore hole.

If water is present in the bore hole it shall be removed by a bailer wherever possible and concrete deposited by pouring directly into the bore. If necessary the inside of the casing shall be inspected by lowering a light and it shall be seen that any material like earth, clay etc. sticking to the casing is removed. If, however, this is not possible, concrete will be placed underwater by means of a bottom-opening to a height sufficient to neutralise the head of water.

## **TOLERANCE**

Piles shall be installed as accurately as possible as per the designs and drawings either vertically or to the specified batter. Greater care should be exercised in respect of installation of single pile or piles in two-pile groups. As a guide, for vertical piles a deviation of 1.5 percent and for raker piles a deviation of 4 percent should not normally be exceeded. Piles should not deviate more than 75mm. or D/10 whichever is more in case of piles having diameter more than 600mm. from their designed positions at the working level of the piling ring. In the case of a single pile in a column positional tolerance should not be more than 50mm. ( 100mm. in case of piles having diameter more than 600mm. ) In case of piles deviating beyond these limits and to such an extent that the resulting eccentricity cannot be taken care of by a redesign of the pile cap or pile ties, the piles should be replaced or supplemented by one or more additional piles.

## **ROUTINE TEST ON PILES**

The routine load is to be carried out either on individual working pile or on a group of working piles or both as will be directed by employer. The routine load test shall be carried out as specified in IS 2911 ( Part 4 ) – 1985 by maintained load method for a test load of at least one and half times the working load, the maximum settlement of test loading in position being not exceeding 12mm. The number of tests is generally one-half percent of the total number of piles as required.

Compression load is applied to the pile top by means of a hydraulic jack against rolled steel joist or suitable load or suitable load frame capable of providing reaction. The test loads are applied in increments, each increment being of about 20 percent of safe load in the pile. The settlement of the piles shall be recorded with minimum 2 dial ganges for single pile and 4 dial ganges of 0.01mm. sensitivity for groups, each positioned at equal distance around the piles and normally held by the datum bars resting on immovable supports at a distance of 3D, subject to a minimum of 1.5m. from the edge of the piles, where D is the pile stem diameter. The application of increment of test load and taking of measurement of displacement in each stage of loading is maintained till rate of displacement of the pile top is either 0.1mm. in first 30 minutes or 0.2mm. in first one hour or till 2 hours whichever occur first. The final test load shall be maintained for 24 hours before taking records of the final settlement.

## **B-3) 1<sup>st</sup> – CLASS BRICK WORKS :**

Cement mortar shall be prepared by mixing sand and cement in specified proportion. Sand shall be measured on the basis of its dry volume. In case of damp sand, its quantity shall be increased suitably to allow for bulkage.

Brick work shall be laid in English bond. The brick shall be laid by Larrying method. A layer of mortar shall be spread on full width for suitable length of the lower courses. Each brick shall first be laid so as to project over the one below, both at the end and at the side, then pressed into the mortar and shoved into final position so as to embed the brick and to fill its inside face fully with mortar cut bricks shall not be used except where necessary.

The walls shall be taken up truly plumb with plumb bob. The thickness of brick courses shall be kept uniform and for this purpose, wooden straight edge with graduations giving thickness of each brick course including joint shall be used. All courses shall be laid truly horizontal and all vertical joints shall be truly vertical. Vertical joints in alternate course shall come directly one over the other. A set of tools comprising wooden straight edge, masons sprit level, square, half metre rule, line and pins, string and plumb shall be kept for every 3 masons for frequent checking during progress of work. Faces of walls found not in plumb shall be dismantled.

Both the faces of walls of thickness greater than 25 cm (10" ) shall be kept in proper plane. All the connected brickwork shall be carried up nearly at one level and no portion of the work shall left more than 1m. below the rest of the work. Where this is not possible, the work shall be racked according to bond (and not left ) at an angle not steeper than 45 degrees.

Brick shall be so laid that all joints are quite full of mortar. The thickness of the joints shall not exceed 10mm. Bricks shall be laid with frogs upward except in the top course where from shall be placed downwards. The face joints shall be racked to a minimum depth of 15 mm. by tacking tools daily during the progress of work when the mortar is still green, so as to provide proper key for plaster or pointing to be done. Where plastering or pointing is not required to be done, the joints shall be flush and finished at the time of laying.

The face of brick work shall be cleaned the very day that brick work is laid and all mortar droppings removed.

Green work shall be kept wet for a period of at least 7 days. The top of masonry work shall be left flooded at the close of the day Scaffolding shall be sound and strong and holes left in masonry work for supporting the scaffolding shall be filled and made good before plastering.

#### B-4) **DAMP PROOF COURSE**

This shall be laid to specified thickness over walls for the full thickness of the super-structure walls. The surface shall be leveled and prepared before laying the cement concrete. Edge of damp proof course shall be straight, even and vertical. Side shuttering shall consist of wooden form and shall be strong and properly fixed so that it does not get disturbed during compaction and the mortar does not leak through. The concrete mix shall be of workable consistency and shall be tamped thoroughly to make a dense mass. When the sides are removed, the surface should come out smooth without any honey-combing. The damp proof course shall be laid continuous and the surface shall be double chequered. Damp proof course shall be cured for at least seven days, after which it shall be allowed to dry. Water proofing materials of approve quality shall be added to the concrete mixture in accordance with the manufacturer's specification. No extra payment will be made for such admixture of water proofing compound.

#### B -5) **CEMENT PLASTER :**

The proportion of mortar of exterior or interior plaster shall be as specified in the items of work.

The plaster shall be of thickness as specified and the surface shall be similarly cures as for cement concrete. The moulding shall be carried out as shown in the drawing and shall be separately measured in overall length unless otherwise specified in the items. Interior comers and edges of openings if so directed by employer shall be rounded of or chamfered with the same mortar for which no extra payment will be allowed. All cement concrete surface should be chipped off properly before taking up the plastering work.

- (i) **Barium Plaster** shall be done by mixture of one part of cement , two parts of fine barium sulphate and two parts of coarse barium sulphate thoroughly mixed with requisite amount of water. Cement used shall be fresh Portland cement of approved brand and sand shall be medium clean and free from organic matter and clay or any other deleterious materials. Water to be used shall be clean potable water. The mixture shall be well stirred during the use to maintain an even consistency.
- (ii) The mixture as mentioned above shall be applied over a layer of cement sand (1:4) backing of thickness of 20mm. admixed with approved water proofing compound as per manufacturer's specification. The application of the mixture shall be done uniformly to maintain a thickness of about 1.5mm. and to be rubbed thoroughly with wooden trowel. Finishing shall be done with steel trowel to give a smooth surface. The surface should be kept wet by sprinkling water for at least one week.

#### B - 6) **WHITE WASHING, COLOUR WASHING :**

**Preparation of surface :** All surface for white washing, colour washing, painting, shall thoroughly cleaned free from mortar droppings and foreign matter and prepared to the satisfaction of Engineer- in -charge, before application of the treatment.

Before white washing, all the nails etc. have to be removed from the walls and all the nails or other holes, small depressions or damages in plaster or wall surface shall be filled or repaired to original condition with lime consisting 2 parts of shell lime and 1 part of stone lime.

Treatment of oily surface to be done with soda & sajimati cleaned with fresh water.

**Preparation of White wash :** The white washing is to be done with 5 parts of stone lime and one part of shell lime with necessary gum ( 2 kg. Per cu. m. of lime ) using indigo as necessary and to be mixed as per standard practice.

**Preparation of Colour wash :** Colour washing shall have primer of white wash and shall be of shade as approved by employer. Sufficient quantity of colour wash enough for complete job shall prepared in one operation to avoid any difference in shade. Procedure and preparation of surface shall be same as in white washing.

**Application of white wash and colour wash :** The operation for each coat shall consist of four consecutive strokes of the brush, one horizontally from right to left and next from left to right and the third stroke bottom upward and the fourth from top downward before the previous stroke dries. Each coat shall be allowed to dry before the next coat applied. No



portion of the surface shall be left out initially to be patched up later on. The brush shall be dipped in white wash or colour wash, pressed lightly against the wall of the container and then applied by lightly pressing against the surface with the full swing of hand.

The white wash on ceiling should be done prior to that on walls.

**Protective Measures :** Surface of doors, windows, floors, articles of furniture, beams etc. and such other parts of the building not to be white or colour washed shall be protected from being splashed upon. Such surface shall be cleaned of white or colour wash splashed, if any Dados are to be cleared as also the windowsills.

**Plaster of Paris :** The material ( gypsum ) shall be in the form of a fine white powder of smooth texture, free from foreign matter and lumps conforming to **IS : 2547**.

The Plastered surface over which plaster of Paris to be applied shall be thoroughly cleaned and kept wet with water for at least 24 hrs. before application. The powder should be stirred with requisite quantity of water to form a paste shall be applied uniformly to maintain a thickness of about 1.5 mm. and the surface shall be rubbed thoroughly with wooden trowel. Finishing should be done with steel trowel to give as a shining appearance.

#### **B-7) DRY DISTEMPERING :**

Dry distemper of approved brand and manufacture shall be used. The shade shall be got approved from the Engineer – in - charge before application of the distemper. The dry distemper shall be stirred slowly in clean water using 6 decilitres ( 0 – 6 litre ) of water per kg. of distemper or as specified by the manufacture. Warm water shall preferably be used. It shall be allowed to stand for at least 3 minutes ( or if practicable over night ) before use. The mixture shall be well stirred before and during use to maintain an even consistency. Distemper shall not be mixed in larger quantity than is actually required for one day's work.

Before new work is distempered, the surface shall be thoroughly cleared free from mortar dropping and other foreign matter and sand papered smooth. New plaster surface shall be allowed to dry for at least two months before applying distemper. In case of old work, all loose pieces and scales shall be removed by sand papering. The surface shall be cleaned of all grease, dirt etc. Pitting in plaster shall be made good with plaster of Paris mixed with dry distemper of the colour to be used. The surface shall then be rubbed down again with a fine grade sand paper and made smooth. A coat of the distemper shall be applied over the patch. The surface shall be allowed to dry thoroughly before the regular coat of distemper is applied. The priming coat of whiting shall be applied and no white washing coat shall be used as a priming coat for distemper.

Whiting ( ground white chalk ) shall be dissolved in sufficient quantity of warm water and thoroughly stirred to form a thin slurry which shall be screened through a clean cloth. Areldite or equivalent adhesive to be added as per manufacturer's specification and the mix then be diluted with water to the consistency of milk so as to make a wash ready for use.

The treated surface shall be allowed to dry before distemper coat is given. In the case of new work, the treatment shall consist of a priming coat of whiting followed by the application of two or more coats of distemper till the surface shows an even colour. For old work the surface is to be prepared as described above and one or more coats of distemper shall be applied till the surface attains an even colour. The application of each coat shall be as follows :-

The entire surface shall be coated with the mixture uniformly, with proper distemper brushes (ordinary white-wash brushes shall not be allowed) in horizontal strokes followed immediately by vertical ones which together shall constitute one coat. The subsequent coats shall be applied only after the previous coat has dried. The finished surface shall be even and uniform and shall show no brush marks. Enough distemper shall be mixed to finish one room at a time. The application of a coat in each room shall be finished in one operation and no work shall be started in any room, which cannot be completed the same day. After each day's work, the brushes shall be washed in hot water and hung down to dry. Old brushes which are dirty or hardened with distemper shall not be used.

#### **B-8) PAINTING :**

All surface for painting shall be properly sand papered and cleaned and where necessary good quality ready-mixed putty shall be used to hide all holes, cracks, open joints etc. The rate for painting includes such work. Paint shall be applied with approved brushes and surfaces shall be sand papered after drying of every coat. All work when completed shall present a smooth, clean solid and uniform surface, to the satisfaction of the Employer.

**a) Primer :** All surface for painting, if they are new, should have a coat of priming before application of the paint. Old surface where existing paints have been completely worn out and raw wooden surface is exposed owing to long use should also receive a coat of priming before application of fresh painting. The primer should be of approved quality of ready mix primer.

**i) Wood Primer :** Wood primer of approved brand and manufacture is to be applied on the wooden surface which would be free from moisture and loose particles.

**ii) Steel Primer :** For steel surface red oxide primer, zinc chromate primer of approved brand and manufacture and as per direction of the Employer is to be applied on the surface. The surface should be made free of grease, rust, moisture and loose particles. All blistered surface should be made free by hammering, filling or otherwise so as to have smooth surface after priming.

**iii) Cement Primer Coat ( Alkali Resisting Primer ) :** Cement primer coat is to be used as base coat on wall finish of cement, lime or lime cement plaster or on asbestos cement surface before application of any wall coating e.g. oil bound distemper, oil based paints, synthetic enamel, plastic emulsion etc on them. The cement primer is composed of a medium and pigment which are resistant to the alkalis present in the cement, lime or lime cement in wall finish and provides a barrier for the protection of subsequent coats of the bound distemper or paints. Priming coat shall be preferably applied by brushing and not by spraying. Hurried priming shall be avoided particularly on absorbent surface. New plaster patches in old work before applying oil bound distemper paints etc. should also be treated with cement primer. The surface shall be thoroughly cleaned of dust, all white or colour wash by washing and scrubbing. The surface shall then be allowed to dry for at least 48 hours. It shall then be sand papered to give a smooth and even surface. Any unevenness shall be made good by applying putty, made of plaster of Paris with water on the entire surface including filling up the undulation and the sand papering the same after it is dry. The cement primer shall be applied with a brush on the clean dry and smooth surface. Horizontal stroke shall be given first. Vertical strokes are to be applied after horizontal stroke is absorbed on wall / ceiling immediately afterwards. This entire operation will constitute one coat. The surface shall be finished as uniformly as possible leaving no brush mark. It shall be allowed to dry for at least 48 hours before oil bound distemper or paint is applied.

**b) Aluminium Paint :** Aluminium paint of approved brand and manufacture shall be used. The paint comes in compact dual containers with the paste and the medium separately. The two shall be mixed together to proper consistency before use. Each coat shall be allowed to dry for 24 hours and lightly rubbed down with fine grade sand paper and dusted before the next coat is applied. The finished surface shall present an even and uniform appearance. As aluminium paint is likely to settle in the container, care shall be taken to frequently stir the paint during use.

**c) Plastic ( Acrylic ) Emulsion Paint :** Plastic ( acrylic ) emulsion paints are not suitable for application on external surface and surface which are liable to have condensation and are to be used generally on internal surface. For plastered surface a cement priming coat is required before application of plastic emulsion. Plastic emulsion paint of approved brand and manufacture and of the required shade shall be used. The paint will be applied in the usual manner with the brush or the roller. The paint dries by evaporation of the water content and as soon as the water has evaporated the film get hardened the next coat can be applied.

The time for drying varies from one hour on absorbent surface to 2 to 3 hours on non- absorbent surfaces. Thinning will be particularly required for the undercoat which is applied on the absorbent surface. The quantity of thinner to be added shall be as per manufacturer's instructions. The surface on finishing shall present a flat, velvety, smooth finish. If necessary more coats will be applied till the surface present a uniform appearance.

**Precaution :**

- i) Brushes should be quickly washed in water, immediately after use and kept immersed in water during break periods to prevent the paint from hardening on the brush.
- ii) In the preparation of walls for plastic emulsion painting, an oil base putty shall be used in filling cracks, holes etc.
- iii) Splashes in floors etc. shall be cleaned out without delay as they will be difficult to remove after hardening.
- iv) Washing of surface treated with emulsion paints shall not be done within 3 to 4 weeks of application or the time specified by manufacturer.

## **OIL EMULSION ( OIL BOUND DISTEMPERING )**

### **Materials :**

Oil emulsion ( Oil Bound ) distemper ( **IS – 428 – 1969** ) of approved brand and manufacture shall be used. The primer where used as on new work shall be cement primer or distemper primer as described in the item. These shall be of the same manufacturer as distemper. The distemper shall be diluted with water or any other prescribed thinner in a manner recommended by the manufacturer.

Only sufficient quantity of distemper required for days work shall be prepared.

The distemper and primer shall be brought by the contractor in sealed tins in sufficient quantities at a time to suffice for a fortnight's work, and the same shall be kept in the joint custody of the Contractor and the Engineer. The empty tins shall not be removed from the site of work, till this item of work has been completed and passed by the Engineer.

### **Preparation of the Surface :**

For new work the surface shall be thoroughly cleaned of dust, old white or colour wash by washing and scrubbing. The surface shall then be allowed to dry for at least 48 hours. It shall then be sand papered to give a smooth and even surface. Any unevenness shall be made good by applying putty, made of plaster of Paris mixed with water on the entire surface including filling up the undulation and then sand papering the same papering the same after it is dry.

In the case of old work, all loose pieces and scales shall be removed by sand papering. The surface shall be cleaned of all grease, dirt etc. pitting in plaster shall be made good with plaster of Paris mixed with the colour to be used. The surface shall then be rubbed down again with a fine grade sand paper and made smooth. A coat of the distemper shall be applied over the patches. The patched surface shall be allowed to dry thoroughly before the regular coat of distemper is applied.

### **Application :**

Priming Coat – The priming coat shall be with distemper primer or cement primer, as required in the description of the item.

If the wall surface plaster has not dried completely cement primer shall be applied before distempering the walls. But if the distempering is done after the wall surface is dried completely, distemper primer shall be applied.

Oil bound distemper is not recommended to be applied, within six months of the completion of wall plaster.

### **Distemper Coat –**

For new work, after the primer coat has dried for at least 48 hours, the surface shall be lightly sand papered to make it smooth for receiving the distemper, taking care not to rub out the priming coat.

All loose particles shall be dusted off after rubbing. One coat of distemper properly diluted with thinner ( water or other liquid as stipulated by the manufacturer ) shall be applied with brushes in horizontal strokes followed immediately by vertical ones which together constitute one coat.

The subsequent coats shall be applied in the same way. Two or more coats of distemper as are found necessary shall be applied over the primer coat to obtain an even shade.

A time interval of at least 24 hours shall be allowed between consecutive coats to permit the proper drying of the preceding coat. For old work the distemper shall be applied over the prepared surface in the same manner as the new work. One or more coats of distemper as are found necessary shall be applied to obtain an even and uniform shade.

15cm. Double bristled distemper brushes shall be used. After each day's work brushes shall be thoroughly washed in hot water with soap solution and hung down to dry. Old brushes which are dirty and caked with distemper shall not be used on the work.

Touch Wood Finish –

Touch wood polyurethane clear wood finish to be applied whenever specified in the Bill of quantities as per the following direction of use : -

Touch Wood Clear Matt : is to be applied on filled wood surface, ( Apcolite wood filter ) which have been smooth sanded

along the grains with emery paper No.320. Staining with Apcolite wood stainer is also to be done. It is to be ensured that suffice coated is free from all loose dust. TOUCHWOOD Clear Mat is a single pack system. The contents should be well stirred and strained through a clean muslin cloth prior to use. Two coat of touch wood to be applied by brush with thinner 101. The first coat of TOUCHWOOD Clear Mat should be allowed to dry for 6 – 8 hour prior to sanding and recoating. Container's should be well capped after use.

Flat Wall Painting : The painting coat shall consist of “ Distemping Primer or Cement Primer “ . The flat wall paint shall be of approved brand and manufacture and of required shade. The surface shall be prepared as described in sub-head “ Cement Primer Coat “ . Flat wall paint shall normally be applied on walls twelve months after their completion ( in case of new work ) , in which case Distemper Primer will be sufficient. If the walls are to be painted earlier the primer coat shall consist of cement Primer.

When the surface is dry, painting with the wall in uniform and even layers will be done to the required number of codes. Each coat shall be allowed to dry overnight and lightly rub with very fine grade of sand paper and loose particles brushed off before the next coat is applied. If after the final coat of wall paints the surface obtained is not up to the mark, further one or more coat as required shall be given to obtain a smooth and even finish at the cost of Contractor. If primer or wall paint gets thickened it shall be thinned suitably with the thinner as recommended by manufacturer.

### **CONSTRUCTION DETAILS :**

- a) A bed of cement mortar consisting of 1 part of cement to 4 four parts of sand shall be laid and properly levelled to an average thickness of 20 mm., the surface being kept slightly rough to provide a key for the tiles.
- b) Neat cement paste of honey like consistency shall spread over the mortar bed over such an area as would be covered by about 20 tiles.
- c) Tiles should be soaked in water for 15 minutes and allowed to dry for an equal amount of time before being late.
- d) The tiles shall then be ported with a thin coat of cement paste on the back and fixed in place and gently tapped with a wooden mallet till it is properly bedded and level with the adjoining tiles. The joints between the tiles shall be fine and nearly imperceptibly ( 1. ½ mm. maximum )
- e) After tiles have been laid in a room or a day's work completed, surplus cement paste that has come out of the joints should be wiped clean. A thick slurry of coloured cement, matching the colour of the tiles is then spread over the laid tiles and rubbed so as to seal even the thinnest joint between the tiles.
- f) The floor shall be cured for 14 days.
- g) The floor shall be polished and finished in accordance with **IS : 1433**.

### **MODES OF MEASUREMENTS**

#### **C-1 Bricks walls :-**

- a) The thickness of the brick wall made with one brick laid on edge(with the long side paralleled to the length of the wall) shall be measured as 75 mm. Similarly, a wall made with one brick laid flat (with the long side parallel to the length of the wall) shall be measured as 125 mm. One brick thick walls (with the length of the brick parallel to the thickness of the wall) shall be measured as 250 mm; Two bricks wall measured as 500 mm. and soon. The width of lintels etc. covering the entire thickness of the brick wall shall also be measured as equal to the corresponding wall thickness. In measuring depth of brick work in foundation two courses of brick work will be measured as 150 mm.
- b) Net measurements of all walls will be taken after deduction of all opening etc. This applies to 125 mm. thick and 75 mm. thick walls also. Parapets( upto 106 cm. height) will be measured along with the brickwork of the floor just below the roof and will be paid for at the same rate.
- c) No extra will be paid for curved or chamfered work even though it may necessitate cutting of bricks. For small curves or chamfers the Employer may, at the discretion allow, all measurement on the square (i.e. without deduction for the quantity removed for forming the small curve or chamfer).

#### **C-2 Concrete(Plain or reinforced):-**

Finished nett measurement will be taken after deduction of large holes, rebates etc., but without deduction for the volume of reinforcement if any, in the concrete.

#### **C-3 Reinforcement :-**

The measurement will be on the basis of calculated weight of reinforcements only( i.e. without considering the weight of tying wires) actually consumed in the finished work as per drawing and design or as per direction of the Employer or his representative. If the length of any rod be more than that shown in the drawing (but has been allowed to be used) the

length will be taken on the length shown in the drawings. Hooks and laps, as per standard practice will be measured and paid for.

#### C-4 Plaster :-

For measurement of plaster (exterior or interior ) deduction is to be made for door, windows or openings of similar dimensions and allowance is to be made for jambs, sills and soffits. Payment will be made on the basis of surface measurement of such openings and without any separate measurement for jambs sills and soffits. In case of large openings, however as in the case of verandahs with columns, payment will be made on actual measurements.

#### C-5 White washing and colour washing :-

Payment will be made on the basis of surface measurement without any deduction for door window or opening of similar dimensions and without any separate measurement for jambs, sills and soffits of such openings.

#### C-6 Painting :-

a) Measurement for painting work in doors and window grills, gratings, collapsible gates corrugated roofing etc. shall be on the following basis. In all such case the ('Area' shall be measured flat (and not girthed).

For doors and windows, no separate payment shall be made for the frames (chowkhats)'Area' in such cases represent the area of the wall opening covered by the frames (including the frames).

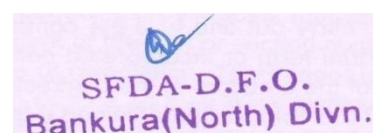
For grills, gratings etc. the 'Area' represents the Area of the opening covered by the outer frames.

b) The 'Area' measured as above shall be multiplied by the factor given below at the work of painting be paid on the quantities thus arrived at.

Name of Surface Painted	Multiplying factor	Multiplying factor
	painting one side	painting both sides.
i) Timber doors, windows etc. full glazed or with Glass substitutes)	0.8	1.6
Fully panelled or flush or battened	1.3	2.6
Fully venetian of fixed-louvre	1.8	3.6
2/3 <sup>rd</sup> panelled 1/3 <sup>rd</sup> glazed	1.14	2.28
½ panelled ½ glazed	1.0	2.0
1/3 <sup>rd</sup> panelled 2/3 <sup>rd</sup> glazed	0.75	1.50
1/3 <sup>rd</sup> panelled 2/3 <sup>rd</sup> venetian (or fixed louvered)	1.33	2.66
1/3 <sup>rd</sup> glazed 2/3 <sup>rd</sup> venetian (or fixed louvered)	1.47	2.94
Neted (without painting on the net)	0.3	0.6
Neted (with painting to the net as well)	0.63	1.25
Corrugated (i.e. with leaves of C.I. Sheets)	1.25	2.5
ii) Corrugated iron sheet roof or wall	1.14	2.20
iii) Corrugated asbestos sheet roof or wall	1.20	2.40
iv) Trafford asbestos sheet roof or wall	1.10	2.20
v) Cast iron or wooden railing (complete)	-----	1.50
vi) Grill, gratings (normal type)	-----	1.00
vii) Heavy type grating or grated doors (as in jails etc.)	-----	1.50
viii) Collapsible gate	-----	1.50
ix) Steel roll-top shutters (including top casing)	1.10	2.20
x) Glazed steel windows	0.50	1.00


#### NOTE:

In case of non- availability of any particular brand of material or equivalent as specified in Bill of Quantities bidder could also supply any other equivalent approved brand or material or equipment conforming to the latest IS specifications.



Copy forwarded for wide circulation & information to:-

1. The Principal Chief Conservator of Forests(HOFF), West Bengal
2. The Chief Conservator of Forests, Central Circle, West Bengal along with two copies of the Tender Notice with the request to return one copy duly approved.
3. The Chief Conservator of Forest, MIS & e-governance, West Bengal to upload in the website [www.westbengalforest.gov.in](http://www.westbengalforest.gov.in)
4. Member Secretary, WBSFDA.
5. The Sabhadhipati, BankuraZillaParishad.
6. The District Magistrate, Bankura.
7. The Superintendent of Police, Bankura.
8. The District Information Officer, Bankura.
9. The Chairman, Bankura Municipality.
10. The Sub-Divisional Officer, Bankura.
11. The Honorary Wildlife Warden, Bankura
12. The Karmadakshya, Ban-O-BhumisanskarSthayeeSamity, BankuraZillaParishad.
13. The Treasury Officer, Bankura Treasury
14. The Divisional Forest Officer, BankuraSouth Division&Panchet Division, Central Circle, West Bengal.
15. The Divisional Forest Officer, Working Plan (South) Division- II, Bankura.
16. The Divisional Manager, Bankura Forest Development Corporation Limited.
17. The Assistant Divisional Forest Officer- I & II under Bankura(North) Division.
18. All Range Officers, Bankura (North) Division &Bankura (South) Division. They are requested to put it in their Notice Board.
19. The Head Clerk, Bankura (North) Division, He is requested to upload this tender Notice on the Official website <https://wbtenders.gov.in>&[www.bankuraforest.in](http://www.bankuraforest.in) with immediate effect.
20. Notice Board, Bankura North Division.

  
SFDA-D.F.O.  
Bankura(North) Divn.