CPWD FORM No.-6 For e-Tendering	CPWD

1 The Executive Engineer, Shimla Division-1, Central PWD, Shimla on behalf of The President of India **invites** online **Percentage rate bids** from approved and eligible contractors of CPWD in appropriate class of composite (B&R) category for the work **"M/R to DPRA at Bemloe, Chotta Shimla and Park Area during 2026-27. SH: Repair of broken doors, flooring, provision of M.S. covered entrance in Oatland Lodge (U/F) Shimla (H.P.).**

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

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

The registered contractor of CPWD in composite category or contractors of appropriate class as per O.M No: DG/SE/CM/Enlist.Rules/43 dated 10/06/2019 of SE(C&M), with CPWD authorities, are eligible for this tender.

1.1 The work is estimated to cost **₹ 8,63,943.00. This** estimate, however, is given merely as a rough guide.

1.1.1 The eligibility of bidders will correspond to the combined estimated cost of different components put to bid.

2. Agreement shall be drawn with the successful bidder on prescribed Form No. CPWD 7 which is available as a Govt. of India Publication and also available on website www.cpwd.gov.in. Bidders shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.

3. The time allowed for carrying out the work will be **60 days** from the date of start as defined in schedule 'F' or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the bid documents.

4. The site for the work is made available.

5. The bid document consisting of building plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents except Standard General Conditions Of Contract Form - **2023** can be seen from website **www.etender.cpwd.gov.in,** or **www.eprocure.gov.in** free of cost.

6. After submission of the bid the contractor can re-submit revised bid any number of times but before last time and date of submission of bid as notified.

7. While submitting the revised bid, contractor can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the Percentages) but before last time and date of submission of bid as notified.

8. Earnest Money **₹ 17,279.00** in the form of Insurance Surety Bond, Treasury Challan or Demand Draft or Banker's Cheque or Deposit at call receipt or Fixed Deposit Receipt (**drawn in favour of Executive Engineer, Shimla Division-1, CPWD, Shimla)** shall be scanned and uploaded to the e-tendering website within the period of bid submission. **The original EMD should be deposited either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission. The EMD is normally to remain valid for a period of forty-five days beyond the final last date of submission or extended date as applicable. (The EMD document shall only be issued from the place in which the office of receiving division office is situated). However, if the EMD is issued from the place where Division Office of CPWD is not situated, then EMD can be deposited by the contractor with any other Division office of CPWD or in the Division office inviting tenders. The EMD receiving Executive Engineer shall issue a receipt of deposition of earnest money deposit to the bidder in a prescribed format (enclosed) uploaded by tender inviting EE in the NIT. This receipt shall also be uploaded to the e-tendering website by the intending bidder upto the specified bid submission date and time.**

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

EMD shall be made / issued only from the account of the bidder/tenderer submitting the bid/tender. EMD made/issued from the account other than that of the bidder/tenderer submitting the bid, shall not be accepted and the bid shall be rejected.

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

The bid shall be submitted upto 3:00 PM on **20-11-2026**

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

The bid submitted shall be opened at 3:30 PM on **20-11-2026**

9. The bid submitted shall become invalid if:

(i) The bidder is found ineligible.

(ii) The bidder does not deposit original EMD with Division Office of any Executive Engineer, CPWD (The EMD document shall only be issued from the place in which the office of receiving Division office is situated).

(iii) The bidder does not upload all the documents (including GST registration) as stipulated in the bid document including the copy of receipt for deposition of original EMD instrument.

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

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

10. The contractor whose Bid is accepted, will be required to furnish performance guarantee of 5% (Five Percent) of the bidded amount within the period specified in Schedule F. This guarantee shall be in the form of cash (in case guarantee amount is less than Rs. 10000/-) or Deposit at Call receipt of any Commercial bank/Banker's cheque of any Commercial bank/Demand Draft of any Commercial bank/Pay order of any Commercial Bank (in case guarantee amount is less than Rs. 1,00,000/-) or Government Securities or Fixed Deposit Receipts or Guarantee Bonds of any Commercial Bank or the State Bank of India in accordance with the prescribed form. In case the contractor fails to deposit the said performance guarantee within the period as indicated in Schedule 'F', including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor. **The earnest money deposited alongwith bid shall be returned after receiving the aforesaid performance guarantee**.

11. Intending Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bids as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid. A bidder shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent upon any misunderstanding or otherwise shall be allowed. The bidders shall be responsible for arranging and maintaining at his own cost all

materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a bid by a bidder implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and

rates at which stores, tools and plant, etc. will be issued to him by the contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work. In addition to the above, bidders are to advised to see for themselves the bridges existing on the approach passage to the site for assessing the position with regard to carriage of building materials and T&P. Nothing extra shall be payable to the successful bidder for any type of existing restricted conditions with regard to the above.

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

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

14. The competent authority on behalf of President of India reserves to himself the right of accepting the whole or any part of the bid and the bidders shall be bound to perform the same at the rate quoted.

15. The contractor shall not be permitted to bid for works in the CPWD Circle (Division in case of contractors of Horticulture/Nursery category) responsible for award and execution of contracts, in which his near relative is posted a Divisional Accountant or as an officer in any capacity between the grades of Superintending Engineer and Junior Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any gazetted officer in the Central Public Works Department or in the Ministry of Urban Development. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of this Department.

16. No Engineer of gazetted rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as a contractor for a period of one year after his retirement from Government service, without the prior permission of the Government of India in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of India as aforesaid before submission of the bid or engagement in the contractor's service.

17. The bid for the works shall remain open for acceptance for a period of **Thirty (30) days from the date of opening of financial bid.** If any bidders withdraws his tender before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the bid which are not acceptable to the department, then the Government shall, without prejudice to any other right or remedy, be at liberty to forfeit 50%/100%, as per the OM No: DG/MAN/393 dated 03/01/2020, of the said earnest money as aforesaid. Further the bidders shall not be allowed to participate in the retendering process of the work.

18. This notice inviting Bid shall form a part of the contract document. The successful bidder/contractor, on acceptance of his bid by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract consisting of: -

a) The Notice Inviting Bid, all the documents including additional conditions, specifications and drawings, if any, forming part of the bid as uploaded at the time of invitation of bid and the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence leading thereto.

b) Form GCC **2023,** CPWD Form 7 modified and amended up-to last date of online submission of bids.

19. The intending bidders are required to update their profile in CPWD e-tender portal and to upload their bids well in advance of last date of submission of tender. Any issue related to updating profile/uploading tender can be resolve through the concerned Executive Engineer/Assistant Engineer (Phone No 01772652830 e-mail id eescd1.sml.cpwd@nic.in) or ERP help line no. 18001803286 or email Id cpwd.support@techmahindra.com. The e-tendering bidders are also advised not to wait to raise any issues till the last date of submission of bid in their own interest.

For & on behalf of the President of India.
Signature .....

Executive Engineer,
Shimla Division-1
Central PWD, Shimla.

INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR e-TENDERING — CPWD

The Executive Engineer, Shimla Division-1, Central PWD, Shimla on behalf of President of India **invites** online **Percentage rate bids** from approved and eligible CPWD registered in appropriate class of composite (B&R) category: कार्यपालक अभियन्ता-1 द्वारा भारत के राष्ट्रपति की ओर से उपयक्त श्रेणी में पंजीकृत एंव पात्र निविदाकारों से प्रतिशत दर निविदाएं आमंत्रित की जाती है:

S. N.(क्रम संख्या)	NIT No. (नि.आ.सू.संख्या)	Name of work & Location (कार्य का नाम एवं कार्यस्थल)	Estimated cost put to tender (अनुमानित लागत)	Earnest Money (अग्रिम राशि)	Period of Completion (समय)	Last date & time of submission of online bid, submission of original EMD, and uploading of copy of receipt for deposition of original EMD, and other documents as specified in the NIT. (आनलाईन निविदा जमा करने की आखिरी तारीख)	Last date of submission of all the scanned and uploaded documents as specified in the NIT in physical form by the lowest bidder (संबंधित दस्तावेज़ आपलोड करने की तिथि)	Time & date of opening of online tender (आनलाईन निविदा खोले जाने की तिथि एवं समय)
1	2	3	4	5	6	7	8	9
1	168/2026-27/EE-1/AE-II/Shimla	**M/R to DPRA at Bemloe, Chotta Shimla and Park Area during 2026-27. SH: Repair of broken doors, flooring, provision of M.S. covered entrance in Oatland Lodge (U/F) Shimla (H.P.)..**	**₹ 8,63,943.00**	**₹ 17,279.00**	**60 days**	**20-11-2026 Upto 3:00 PM**	**Within one week after the date of opening of financial bid.**	**20-11-2026** 3:30 **PM**

The registered contractor of CPWD in composite category or contractors of appropriate class as per O.M No: DG/SE/CM/Enlist.Rules/43 dated 10/06/2019 of SE(C&M), with CPWD authorities, are eligible for this tender.

The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen from website www.etender.cpwd.gov.in or www.cpwd.gov.in or http://www.eprocure.gov.in free of cost.

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

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

Those contractors not registered on the website mentioned above, are required to get registered beforehand. If needed they can be imparted training on online tendering process as per details available on the website. The intending bidder must have valid class-III digital signature to submit the bid.

Earnest Money can be paid in the form of Insurance Surety Bond, Treasury Challan or Demand Draft or Banker's Cheque in or Deposit at call receipt or Fixed Deposit Receipts (**drawn in favour**

of Executive Engineer, Shimla Division-1, CPWD, Shimla) along with Bank Guarantee of any Commercial Bank wherever applicable.

A part of earnest money is acceptable in the form of Bank Guarantee also. In such case, 50% of earnest money or **₹ 20 lakh**, whichever is less, will have to be deposited in shape prescribed above, and balance in shape of Bank Guarantee of any Commercial Bank.

The intending bidder has to fill all the details such as Banker's name, Demand Draft/ Fixed Deposit Receipt/ Pay Order/ Banker's Cheque/ Bank Guarantee number, amount and date to the e-tendering website within the period of tender submission and original should be deposited in office of EE within the period mentioned in this NIT.

The amount of EMD can be paid by multiple Insurance Surety Bond/Demand Draft/ Banker's Cheque / Deposit at call receipt / Fixed Deposit Receipts alongwith multiple Bank Guarantee of any Commercial Bank if EMD is also acceptable in the form of Bank Guarantee.

Interested contractor who wish to participate in the bid has also to make following payments in the form of Demand Draft/Pay order or Banker`s Cheque of any commercial Bank within the period of tender submission:

The online bid shall be submitted upto 3:00 PM on **20-11-2026**

The bid submitted shall be opened at 3:30 PM on **20-11-2026**

9. The bid submitted shall become invalid if:

(i) The bidder is found ineligible.

(ii) The bidder does not deposit original EMD with Division Office of any Executive Engineer, CPWD (The EMD document shall only be issued from the place in which the office of receiving Division office is situated).

(iii) The bidder does not upload all the documents (including GST registration) as stipulated in the bid document including the copy of receipt for deposition of original EMD instrument.

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

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

10 **But the bid can only be submitted after deposition of original EMD either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission. (The EMD document shall only be issued from the place in which the office of receiving division office is situated). (However, is the EMD is issued from the place where Division Office of CPWD is not situated, then EMD can be deposited by the contractor with any other Division office of CPWD or in the Division office inviting tenders) and uploading the mandatory scanned documents such as demand draft or pay order or Banker's Cheque or deposit at call Receipt or Fixed deposit Receipts and Bank Guarantee of any Commercial Bank towards EMD in favour of Executive Engineer as mentioned in NIT, receipt for deposition of original EMD to division office any Executive Engineer, CPWD and other documents as specified.**

11. List of Documents to be scanned and uploaded within the period of tender submission:

(i) Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee (as prescribed) issued by any Commercial Bank, against EMD.

(ii) Valid Enlistment Order of the CPWD registered Contractor in appropriate class of composite (B&R) category.

(iii) Copy of receipt of deposition of original EMD to division office of any Executive Engineer, CPWD (including NIT issuing EE).

(iv) Certificate of Registration for GST, If already obtained by the bidder. If the bidder has not obtained GST registration as applicable, then he shall scan and upload following undertaking along with bid documents "if work is awarded to me, I/we shall obtain GST registration certificate, as applicable, within one month from the date of receipt of award letter or before release of any payment by CPWD, whichever is earlier, failing which I/we shall be responsible for any delay in payments which will be due towards me/us on account of the work executed and/or for any action taken by CPWD or GST department in this regard".

(v) Valid Certificate of ERP (Enterprise Resource Planning) training for enlisted contractors issued by the competent office/authority.

12 Information and instructions for contractors for e-tendering forming part of NIT and to be posted on website.

1 **Information and instructions for contractors will form part of NIT and to be uploaded on CPWD e-tendering website.**

2 **The intending bidder must have appropriate digital signature to submit the bid.**

3 **The contractor can deposit original EMD either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission. (The EMD document shall only be issued from the place in which the office of receiving division office is situated). However, is the EMD is issued from the place where Division Office of CPWD is not situated, then EMD can be deposited by the contractor with any other Division office of CPWD or in the Division office inviting tenders. The contractor shall obtain the receipt of EMD from the concerned Executive Engineer in the prescribed format uploaded by NIT issuing Executive Engineer. The bid document as uploaded can be viewed and downloaded free of cost by anyone including intending bidder. But the bid can only be submitted after uploading the mandatory scanned documents such as demand draft/pay order or Banker's Cheque/Bank Guarantee of any commercial bank towards EMD in favour of respective Executive Engineer, copy of receipt of original EMD and other documents specified in the press notice.**

13. The existing enlisted contractor either himself or his authorized representative himself or his authorized representative should have taken compulsory ERP (Enterprise Resource Planning) training through any of the CPWD Regional Training Institutes (RTIs) at Delhi, Mumbai, Chennai and Kolkata, National CPWD Academy (NCA) Ghaziabad, Training arranged by Graduates of ERP "Train the Trainers Programme" conducted by NCA, Ghaziabad or through any other special training arranged by ERP unit of CPWD. The enlisted contractor will not be allowed to participate in tendering process without uploading the certificate of ERP training. Training will be valid only when participants are registered in LMS (Learning Management System) of ERP and certificate is issued through LMS of ERP.

14. In case of non-enlisted contractor (if allowed in tendering process) being first lowest in any of the tender then either contractor himself or his authorized representative shall take compulsory ERP training through any of the CPWD Regional Training Institutes (RTIs) at Delhi, Mumbai, Chennai and Kolkata, National CPWD Academy (NCA) Ghaziabad, Training arranged by Graduates if ERP "Train the Trainers Programme" conducted by NCA Ghaziabad or through any other special training arranged by ERP unit of CPWD within two months from the date of issue of intent letter. Training will be valid only when non enlisted contractor is registered in LMS of ERP and certificate is issued through LMS of ERP. Failure to do so, a recovery of Rs. 10,000/- per week shall be made from the R/A bill without giving any show cause notice in this regard.

15 Information and instruction for Executive Engineer for e-tendering

1 **The Executive Engineer of all divisions of CPWD should receive the original EMD for tender of other division.**

2 **The NIT approving authority/EE at the time of issue of NIT shall also fill and uploaded the following prescribed format of receipt of deposition of original EMD alongwith NIT:**

Receipt of deposition of original EMD (Receipt No……..)

(i) Name of Work: M/R to DPRA at Bemloe, Chotta Shimla and Park Area during 2026-27. SH: Repair of broken doors, flooring, provision of M.S. covered entrance in Oatland Lodge (U/F) Shimla (H.P.).

(ii) NIT No. 168/2026-27/EE-1/AE-II/Shimla
(iii) Estimated Cost 8,63,943.00
(iv) Amount of earnest money deposit 17,279.00

(*To be filled by NIT approving authority/EE at the time of issue of NIT and uploaded alongwith NIT)

(i) Name of contractor……..#
(ii) Form of EMD ……#
(iii) Amount of earnest money deposit……#
(iv) Date of submission of EMD……#

Signature, Name and Designation of EMD receiving officer (EE//AE/AAO) alongwith Office stamp

(# To be filled by EMD receiving EE)

3 The Executive Engineer receiving EMD in original form shall examine the EMD deposited by the bidder and shall issue a receipt of deposition of earnest money to the agency in a given format uploaded by tender inviting EE. The receipt may be issued by the /AE/AAO.

4 The Executive Engineer receiving original EMD shall also intimate tender inviting Executive Engineer about deposition of EMD by the agency by email/fax/telephonically.

5 The original EMD receiving Executive Engineer shall release the EMD after verification from the e-tendering portal website (www.etender.cpwd.gov.in> that the particular contractor is not L-1 tenderer and work is awarded.

6 **The tender inviting Executive Engineer will call for original EMD of the L-1 tenderer from EMD receiving Executive Engineer immediately.**

Executive Engineer,
Shimla Division-1
Central PWD, Shimla

CHECK LIST FOR CONTRACTORS FOR SUBMISSION OF TENDERS ONLINE:

1. TENDER TO BE WITNESSED AT **Page NO. 13** OF TENDERED DOCUMENTS AT THE TIME OF DRAWING AGREEMENT WITH THE SUCCESSFUL BIDDER.

2. THE TENDER / TENDERS CONTAINING CONDITIONS CONTRARY TO THOSE SPECIFIED IN THIS DOCUMENT SHALL BE SUMMARILY REJECTED.

3. SCHEDULE OF QUANTITIES ARE APPENDED TO THE TENDER DOCUMENTS. THE RATES MUST BE FILLED IN PERCENTAGE BELOW OR ABOVE IN THE PROFORMA ATTACHED ON THE ESTIMATED COST PUT TO TENDER.

4. THE CONTRACTOR(S) SHALL QUOTE THE RATES KEEPING IN MIND, GENERAL CONDITIONS OF CONTRACT 2023 MAINTENANCE WORK AND CPWD WORKS MANUAL-2024 & SOP FOR CPWD WORKS MANUAL 2024 AS CORRECTED AND AMENDED UPTO DATE, SPECIAL CONDITIONS AND PARTICULAR SPECIFICATIONS, ANNEXURES ETC.

5. IT MAY BE NOTED THAT IN THE PRESENT CONTRACT 10C, 10 CA & 10CC ARE NOT APPLICABLE.

6. CRITERIA FOR ENGAGEMENT OF SPECIALIZED AGENCIES HAVE BEEN LAID AT TENDER/FORM WHICH MAY BE NOTED.

7. THE CONTRACTOR(S) SHALL QUOTE THE RATE OF TMT REINFORCEMENT BARS Fe 500D KEEPING IN MIND RATES OF PRIMARY PRODUCERS ONLY.

8. IT WILL BE MANDATORY TO CONSTITUTE DISPUTE REDRESSAL COMMITTEE (DRC) & CONTRACTOR OR DEPARTMENT CAN ONLY SEEK ARBITRATION IF NOT SATISFIED WITH THE DECISION OF DRC. DRC SHALL BE HEADED BY CHIEF ENGINEER WHEN TOTAL CLAIMS ARE MORE THAN Rs. 25.00 LACS & BY SUPERINTENDING ENGINEER WHEN TOTAL CLAIM ARE LESS THAN Rs. 25.00 LACS. THIS SHOULD BE READ ALONGWITH PROVISION OF CLAUSE 25 OF GCC 2023 (MAINTENANCE) DULY AMENDED & MODIFIED UPTO THE PREVIOUS DAY BEFORE SUBMISSION OF ONLINE TENDERS.

9. **SITE TEST REGISTERS & MAS REGISTERS TO BE MAINTAINED BY CONTRACTOR: -**
   ALL TEST REGISTERS AND MATERIAL AT SITE REGISTERS SHALL BE MAINTAINED BY THE CONTRACTOR WHICH WILL BE REVIEWED BY THE OFFICERS OF CPWD AT REGULAR INTERVALS

10. THE CONTRACTOR SHALL REFER AS PER NIT FOR TESTING OF MATERIALS/MAINTAINING OF TEST REGISTERS DURING EXECUTION OF THE WORK.

GOVERNMENT OF INDIA

CENTRAL PUBLIC WORKS DEPARTMENT

STATE:	**H.P**	**CIRCLE:**	**CPWD, Shimla.**
BRANCH:	**B&R**	**DIVISION:**	**Shimla Division-I, CPWD, Shimla.**
ZONE:	**Chandigarh, Region**	**SUB-DIV.:**	**II**

PERCENTAGE RATE TENDER & CONTRACT FOR WORKS

(A) Tender for the work of: -

Name of Work: **"M/R to DPRA at Bemloe, Chotta Shimla and Park Area during 2026-27. SH: Repair of broken doors, flooring, provision of M.S. covered entrance in Oatland Lodge (U/F) Shimla (H.P.)".**

(i) To be submitted online by 3:00 PM on **20-11-2026** through website www.etender.cpwd.gov.in to **Executive Engineer, Shimla Division-1, CPWD, Shimla**

(ii) The online Bid shall be opened in presence of tenderers who may be present at 3:30 PM on **20-11-2026** in the office of **Executive Engineer, Shimla Division-1, CPWD, Shimla.**

T E N D E R

I/We have read and examined the Notice Inviting Tender, Schedule A, B, C, D, E & F, Specifications applicable, Drawings & Designs, General Rules and Directions, Conditions of Contract, Clauses of Contract, Special Conditions, Schedule of Rate and other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work.
I/We hereby tender for the execution of the work specified for the President of India within the time specified in Schedule 'F', viz. Schedule of Quantities and in accordance in all respects with the Specifications, Designs, Drawings and instructions in writing referred to in Rule-1 of General Rules and Directions and in Clause 11 of the Conditions of Contract and with such materials as are provided for, by and in respects in accordance with, such conditions so far as applicable.

We agree to keep the tender open for **(30) Thirty days** from the date of opening of tender and not to make any modifications in its terms and conditions.

I/We have deposited EMD for the prescribed amount in the office of concerned Executive Engineer as per the bid document. A copy of earnest money deposit receipt of prescribed amount deposited in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee (as prescribed) issued by a Commercial Bank, is scanned and uploaded. If I/We, fail to furnish the prescribed performance guarantee within prescribed period, I/We agree that the said President of India or his successors, in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I/We fail to commence work as specified, I/ We agree that President of India or the successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said performance guarantee absolutely. The said Performance Guarantee shall be a guarantee to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to those in excess of that limit at the rates to be determined in accordance with the provision contained in Clause 12.2 and 12.3 of the tender form.

Further, I/We agree that in case of forfeiture of Earnest Money or Performance Guarantee as aforesaid, I/We shall be debarred for participation in the re-tendering process of the work.

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

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

Dated:

Witness: - .

Address: -

Occupation: -

Signature of Contractor .....

Postal Address: - .....

Telephone No.

Fax:-

E-Mail:-

ACCEPTANCE

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

The letters referred to below shall form part of this contract agreement.
For & on behalf of the President of India.

i) Signature
ii)
iii)
iv)

Dated: - .....

SCHEDULE 'A' TO 'F' (CIVIL) & MILE STONE

SCHEDULES (CIVIL WORK)

SCHEDULE 'A'

Schedule of quantities - **Page No. -73 to 78**

SCHEDULE 'D'

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

1	Special Conditions	-	As per NIT
2	Particular Specifications.	-	

SCHEDULE 'E'

Reference to General Conditions of Contract: **Applicable GCC is "General Conditions of Contract-Maintenance works 2023 as modified and corrected upto previous day of the last date of submission of the tender**

1.1 Name of Work: **M/R to DPRA at Bemloe, Chotta Shimla and Park Area during 2026-27. SH: Repair of broken doors, flooring, provision of M.S. covered entrance in Oatland Lodge (U/F) Shimla (H.P.).**

1.2 Estimated Cost of work: - Rs. 8,63,943.00

1.3 Earnest Money: - Rs. 17,279.00 (To be returned after receiving Performance Guarantee)

1.4 Performance Guarantee (Performance guarantee shall be 5% (Five Percent) of the estimate cost put to tender (ECPT) or contract amount whichever is higher).

Additional Performance Guarantee (APG): Additional Performance Guarantee (APG), in case of abnormally low bids (less than 80% amount of ECPT) the bidder shall be required to submitted APG in addition to the standard performance guarantee (PG). The amount of additional performance guarantee (APG) shall be equivalent to the difference between the A 80% amount of ECPT and quoted amount. (e.g. if ECPT is and quoted amount is 0.7A then the amount of APG shall be 0.8A-0.7A.). The Additional Performance Guarantee (APG) shall be in the prescribed format of Performance Guarantee and has to be submitted within the time frame prescribed for submission of Performance Guarantee. The other terms and conditions of release etc. of APG shall be same as that of PG.

1.5 Security Deposit **2.5% of the tendered value**

1.6 Sanitary installations/Water Supply/Drainage: N.A. Para 10.9.1, page No. 49

SCHEDULE 'F': -

General Rules & Directions: -

	Officer Inviting Tender	:	Executive Engineer, Shimla Division-1, CPWD, Shimla.
	Definitions: -		
2 (v)	Engineer-In-Charge	:	Executive Engineer, Shimla Division-1, CPWD, Shimla.
2 (viii)	Accepting Authority	:	Executive Engineer, Shimla Division-1, CPWD, Shimla.
2 (x)	Percentage on cost of materials and labour to cover all overheads and profits	:	15%
2 (xi)	Standard Schedule of Rates	:	Delhi Schedule of Rates **2023** with upto date correction slips

2 (xii)	Department	:	Central Public Works Department
9 (ii)	Standard CPWD Contract	:	Standard CPWD Contract form General Conditions of Contract **Maintenance works 2023,** CPWD Form 7 as modified and corrected up-to previous day of the last date of submission of the tender.
Clause-1:-			
(i)	Time allowed for submission of performance guarantee, Programme Chart (Time and progress) and applicable Labour licenses, registration with EPFO, ESIC and BOCW Welfare Board or proof of applying thereof from the date of letter of acceptance.		**7** days
(ii)	Maximum allowable extension with late fee @ **0.1 % per day** of performance guarantee amount beyond the period as provided in (i) above		**3** days
Clause-2:-			
I.	Authority for fixing compensation under clause-2.		Superintending Engineer, CPWD, Shimla or his successor
II.	Applicable clause-2/ Clause - 2A		Yes
Clause-5:-			
	Number of days from the date of issue of letter of acceptance for reckoning date of start	:	10 days
	Mile Stone.	:	Refer Para (A) Table of Milestones at **Page No.- 19**
	Time allowed for execution of work	:	**60 days**
Authority to decide			
(i)	Authority to convey the decision of shifting of milestone and extension of time.	:	Executive Engineer, Shimla Division-I, CPWD, Shimla.
(ii)	Authority to decide Re-scheduling of Mile stone and extension of time.	:	Superintending Engineer, CPWD, Shimla.
(iii)	Shifting of date of start in case of delay in handing over of site.	:	Superintending Engineer, CPWD, Shimla.
	Applicable Clause-5/ Clause-5A		Clause-5A
Clause-6: -	Mode of Measurement		**As per GCC with upto date correction slip.**
Clause-7:-	Gross work to be done together with net payment / adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment.		
Gross Bill amount for interim payment in form of R.A. bill			**Remarks**
1st and final bill shall be paid only. No interim payment shall be made.			
Clause-7A:-	Whether clause 7A shall be applicable.		**Yes**
Clause-10A: -	List of testing equipment to be provided by the contractor at site lab.		As mentioned in NIT
Clause-10-B (ii).	Whether clause 10-B (ii) shall be applicable		Not Applicable
Clause-	Component of labour expressed		**Clause 10 C is not Applicable. (Kindly note that Agency has to make payment**

10C:-	as percent of total value of work.		**as per minimum wages, enhanced wages as applicable/notified from time to time including payment of arrears of wages etc. However, no reimbursement on account of difference in enhancement in wages, arrears etc. shall be made by department to agency. Therefore, agency has to quote his rates keeping this aspect in mind)**

Clause-10-CC:- Clause 10CC to be applicable in contracts with stipulated period of completion **exceeding 12 months.** Not Applicable

Schedule of component of other materials, Labour POL etc. for price escalation: -		
Component of civil (Except materials covered under clause 10CA construction materials expressed as percent of total value of work.)		Not Applicable
Component of labour expressed as percent of total value of work.		
Component of P.O.L expressed as percent of total value of civil work.		

Clause-11:- Specifications to be followed for execution of work — C.P.W.D. Specifications 2019 Vol. I & II with upto date correction slips i/c special conditions & particular specifications as attached in NIT.

Clause-12:- Applicable as per DG/CON/Maintenance 2023/03 dated 18/12/2023

Type of work — **Maintenance Work**

Clause 12.3 — **All the deviated quantities shall be paid at agreement rates**

Note:

(i) Deviation upto 1.25 times of contract amount shall be approved by the Engineer-in-Charge with recorded reasons. Deviation beyond 1.25 times upto 1.50 times of contract amount shall be approved by SE/CE (as applicable) with recorded reasons.

Clause-16:- Competent Authority for deciding reduced rates. — The Superintending Engineer, CPWD Shimla or Successor thereof

Clause-18:- List of mandatory machinery tools & Plants to be deployed by the Contractor at site — As mentioned in NIT

Clause 25

(i) Conciliator — ADG(RCH)

(ii) Arbitrator Appointing Authority — SE, CPWD Shimla

(iii) Place of Arbitration — Shimla(HP)

Clause-32(i)

Sr No	Minimum Qualification of Technical Representative	Discipline	Designation (Principal Technical/ Technical Representative	Minimum Experience	Number	Rate at which recovery shall be made from contractor in the event of non-deployment.	
						Figures	Words
1.	Graduate Engineer Or Diploma Engineer	Civil Civil	Principle Technical Representative (Project planning/site /billing Engineer)	2 Years 5 Years	1 No. 1 No.	Rs 15,000/- per month Rs 15,000/- per month	Rupees Fifteen thousand only per month per person. Rupees Fifteen thousand only per month per person.

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

Diploma holder with minimum 10 years relevant experience with a reputed construction agency/firm can be treated at par with Graduate Engineers for the purpose of such deployment subject to the condition that such diploma holder should not exceed 50% of requirement of degree engineers

The contractor shall be submitted a certificate of such employment of the technical representative(s) (in the form of copy of Form-16 or CPF deduction issued to the Engineers employed by him). Along with every R/A bill/final bill and shall produce evidence any time so required by the Engineer-in-Charge.

Clause-38: -

i)	a)	Schedule / Statement for determining theoretical quantity of cement & bitumen	Delhi Schedule of Rates 2023 with up-to date correction slips
ii)		Variations permissible on theoretical quantities.	
	a)	Cement for works with estimated cost put to tender upto Rs. 25 Lacs.	3% plus / minus.
	b)	Cement for works with estimated cost put to tender for more than Rs. 25 Lacs.	2% plus / minus.
	c)	Steel Reinforcement and structural steel sections for each diameter, section and category.	2% plus / minus.
	d)	All other materials.	Nil.
	e)	Bitumen for all work.	2% Plus only.

Executive Engineer,
Shimla Division-1
Central PWD, Shimla

TABLE OF MILE STONE (S)

Name of work: **M/R to DPRA at Bemloe, Chotta Shimla and Park Area during 2026-27. SH: Repair of broken doors, flooring, provision of M.S. covered entrance in Oatland Lodge (U/F) Shimla (H.P.).**

Para(A) in Physical Terms.

Sl. No. of Mile Stone	Description of Milestone	Time Allowed (From date of start)	Amount to be withheld in case of non-achievement of milestone
1.	Work done of value 1/8th of tendered amount	¼th of the time period of completion	1.25 % of accepted tendered amount
2.	Work done of value 3/8th of tendered amount	1/2nd of the time period of completion	1.25 % of accepted tendered amount
3.	Work done of value 3/4th of tendered amount	3/4th of the time period of completion	1.25 % of accepted tendered amount
4.	Completion of work	Time Period of Completion	1.25 % of accepted tendered amount

SPECIAL CONDITIONS

1.0 General

1.1 Except for the items, for which Particular Specifications are given or where it is specifically mentioned otherwise in the description of the items in the schedule of quantities, the work shall generally be carried out in accordance with the "CPWD Specifications 2019 Vol. I & II" and as per instructions of Engineer-in-Charge. Wherever CPWD Specifications are silent, the latest IS Codes / Specifications shall be followed and the rates should be all inclusive.

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

(i) Nomenclature of item as per Schedule of Quantities
(ii) Special Conditions.
(iii) Particular Specifications.
(iv) CPWD Specifications.
(v) Architectural Drawings.
(vii) Indian Standard Specifications of B.I.S.
(viii) All non-schedule items shall be governed by manufacturer's specifications.

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

i. Preparation of structural drawing detailed SHOP drawings and AS BUILT drawings
ii. Obtaining of Statutory permissions where-ever applicable and required.
iii. Pre-commissioning tests as per relevant standard specifications, code of practice, Acts and Rules wherever required.
iv. Warranty obligation for the equipment supplied by the contractor.

Contractor shall provide all the shop drawings for all the co-ordinated services before starting any work or placing any order for any of the services MEP system etc. These shop drawings shall be got approved from engineer in-charge before implementation and this shall be binding on the contractor. The contractor shall submit material submittals along with material sample for site engineer approval prior to delivery of material at site.

1.2 Any reference made to any Indian Standard Specifications, shall imply to the latest version of that standard, including such revisions / amendments as issued by the Bureau of Indian Standards upto last date of receipt of tenders. **The Contractor shall keep at his own cost all such publications including relevant Indian Standard applicable to the work at site**.

1.3 The work shall be executed and measured as per metric dimensions given in the Schedule of Quantities, drawings etc. (FPS units wherever indicated are for guidelines only).

1.4 The work should be planned in a systematic manner so that chase cuttings in the walls, ceilings and floors is minimized. Wherever absolutely essential, the chase shall be cut using chase cutting machines. Chases will not be allowed to be cut using hammer / chisel. The electrical boxes should be fixed in walls simultaneously while raising the brick work. The contractor shall ensure proper co-ordination of various disciplines viz. sanitary & water supply, horticulture & electrical etc.

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

1.6 Samples including brand / quality of materials and fittings to be used in the work shall be got approved from the Engineer-in-Charge, well in advance of actual execution and shall be preserved till the completion of the work.

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

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

1.9 Contractor(s) shall study the soil investigation report for the site, available in the office of the Engineer-in-Charge and satisfy himself about complete characteristics of soil and other parameters at site. However, no claim on the alleged inadequacy or incorrectness of the soil data supplied by the department shall be entertained.

1.10 The tenderer shall see the approaches to the site. In case any approach from main road is required at site or existing approach is to be improved and maintained for cartage of materials by the contractor, the same shall be provided, improved and maintained by the contractor at his own cost.

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

1.12 The contractor shall take all precautions to avoid accidents by exhibiting necessary caution boards day and night, speed limit boards, red flags, red lights and providing barriers. He shall be responsible for all damages and accidents caused to work due to negligence on his part. No hindrances shall be caused to traffic, during the execution of the work.

1.13 The contractor shall take instructions from the Engineer-in-Charge regarding collection and stacking of materials at any place. No excavated earth or building rubbish shall be stacked on areas where other buildings, roads, compound wall, services etc are to be constructed.

1.14 The contractor shall provide at his own cost suitable weighing, surveying and leveling and measuring arrangements as may be necessary at site for checking. All such equipment's shall be got calibrated in advance from laboratory, approved by the Engineer-in-Charge. Nothing extra shall be payable on this account.

1.15 Contractor shall provide permanent bench marks, flag tops and other reference points for the proper execution of work and these shall be preserved till the end of work. All such reference points shall be in relation to the levels and locations, given in the Architectural and plumbing drawings.

1.16 Water tanks, taps, sanitary, water supply and drainage pipes, fittings and accessories should conform to byelaws and municipal body / corporation where CPWD Specifications are not applicable. The contractor should get the materials (fixtures/fittings) tested by the Municipal Body / Corporation authorities wherever required at his own cost.

1.17 The work shall be carried out in accordance with the Architectural drawings and Structural drawings, to be issued from time to time, by the Engineer-in-Charge. Before commencement of any item of work, the contractor shall correlate all the relevant architectural and structural drawings issued for the work, nomenclature of items, specifications etc. and satisfy himself

that the information available there from is complete and unambiguous. The figures & the written dimensions of the drawing shall supersede the measurement by scale. The discrepancy, if any, shall be brought to the notice of the Engineer-in-Charge for immediate decision before execution of the work. The contractor alone shall be responsible for any loss or damage occurring by the commencement of work on the basis of any erroneous and/ or incomplete information and no claim, whatsoever shall be entertained on this account.

1.18 The Architectural drawings other than those indicated in nomenclature of items are only indicative of the nature of the work and materials/fittings involved unless and otherwise specifically mentioned.

1.19 The contractor should submit the shop drawing of staging and shuttering for approval of Engineer-in-Charge before actually commencing the execution of work under the item. Nothing extra shall be payable on this account.

1.20 Other agencies may also simultaneously execute and install the works and the contractor shall afford necessary facilities for the same. The contractor shall leave such recesses, holes, openings, trenches etc. as may be required for such related works (for which inserts, sleeves, brackets, conduits, base plates, clamps etc. shall be available as specified elsewhere in the contract) and the contractor shall fix the same at the time of casting of concrete, stone work and brick work, if required, and nothing extra shall be payable on this account.

1.21 The contractor shall conduct his work, so as not to interfere with or hinder the progress or completion of the work being performed by other contractor(s) or by the Engineer-in-Charge and shall as far as possible arrange his work and shall place and dispose off the materials being used or removed so as not to interfere with the operations of other contractor or he shall arrange his work with that of the others in an acceptable and coordinated manner and shall perform it in proper sequence to the complete satisfaction of others.

1.22 All material shall only be brought at site as per program finalized with the Engineer-in-Charge. Any pre-delivery of the material not required for immediate consumption shall not be accepted and thus not paid for.

1.23 The contractor shall procure the required materials in advance so that there is sufficient time for testing of the materials and approval of the same before use in the work.

1.24 Existing drains, pipes, cables, over-head wires, sewer lines, water lines and similar services encountered in the course of the execution of work shall be protected against the damage by the contractor at his own expense. The contractor shall not store materials or otherwise occupy any part of the site in a manner likely to hinder the operation of such services. In case temporary supporting/shifting of such services is required to facilitate the work, the same shall be done by the contractor at no extra cost.
In case the existing services are to be shifted permanently, then before dismantling the existing services, alternate/diversion of service lines has to be laid by the contractor so that there is no interruption in use of existing services.

The contractor has to plan the alternate suitable route for diversion/shifting of service lines and get the same approved from the Engineer-in-Charge before starting shifting of services. Nothing extra shall be paid except the payment of dismantling and laying of new service lines as per conditions of contract.

1.25 The contractor shall be responsible for the watch and ward / guard of the buildings, safety of all fittings and fixtures including sanitary and water supply fittings and fixtures provided by

him against pilferage and breakage during the period of installations and thereafter till the building is physically handed over to the department. No extra payment shall be made on this account.

1.26 The contractor shall be fully responsible for the safe custody of materials brought by him/ issued to him even though the materials may be under double lock key system.

1.27 For construction works which are likely to generate malba / rubbish to the tune of more than a tempo / truck load, contractor shall dispose of malba, rubbish & other unserviceable materials and wastes at his own cost to the notified specified dumping ground and under no circumstances these shall be stacked/ dumped even temporarily, outside the construction premises.

1.28 If as per local Municipal regulations, huts for labour are not to be erected at the site of work, the contractor shall be required to provide such accommodation at a place as is acceptable to the local body and nothing extra shall be paid on this account.

1.29 The structural and architectural drawings shall at all times be properly co-related before executing any work. However, in case of any discrepancy in the item given in the schedule of quantities appended with the tender and Architectural drawings relating to the relevant item, the former shall prevail unless otherwise given in writing by the Engineer-in-charge.

1.30 The contractor shall bear all incidental charges for cartage, storage and safe custody of materials issued by department.

1.31 Any cement slurry added over base surface (or) for continuation of concreting for better bond is deemed to have been in-built in the items and nothing extra shall be payable (or) extra cement considered in consumption on this account.

1.32 For the purpose of recording measurements and preparing running account bills, the abbreviated nomenclature indicated in the publications Abbreviated Nomenclature of Items of DSR 2023 shall be accepted. The abbreviated nomenclature shall be taken to cover all the materials and operations as per the complete nomenclature of the relevant items in the agreement and relevant specifications.

1.33 In case of items for which abbreviated nomenclature is not available in the aforesaid publication and also in case of extra and substituted items for which abbreviated nomenclature are not provided for in the agreement, full nomenclature of item shall be reproduced in the measurement books and bill forms for running account bills. For the final bill, however, full nomenclature of all the items shall be adopted in preparing abstract in the measurement books and in the bill forms.

1.34 The contractor shall have to make approaches to the site, if so required and keep them in good condition for transportation of labour and materials as well as inspection of works by the Engineer in charge. Nothing extra shall be paid on this account.

1.35 No payment will be made to the contractor for damage caused by rains, or other natural calamities during the execution of the works and no such claim on this account will be entertained.

1.36 The contractor shall take instructions from the Engineer-in-charge for stacking of materials. No excavated earth or building materials etc. shall be stacked/collected in areas where other buildings, roads, services, compound walls etc. are to be constructed.

1.37 The contractor shall maintain in perfect condition, all portions executed till completion of the entire work allotted to him. Where however phased delivery of work is contemplated these provisions shall apply separately to each phase.

1.38 Wherever work is specified to be done or material procured through specialized agencies, their names shall be got approved well in advance from Engineer in charge. Failure to do so shall not justify delay in execution of work. It is suggested that immediately after award of work, contractor should negotiate with concerned specialist agencies and send their names for approval to Engineer in charge. Any material procured without prior approval of Engineer in charge in writing is liable to be rejected. Engineer in charge reserves right to get the materials tested in laboratories of his choice before final acceptance. Non standard materials shall not be accepted.

1.39 Doors and frames shall be procured from specialist firms and name of such agencies shall be got approved from the Engineer in charge well in advance.

1.40 The construction joints shall the provided in predetermined locations only as decided by Engineer in charge. The cost of shuttering for these construction joints shall be included in item of Concrete work / RCC work and nothing extra shall be payable on this account to the contractor.

1.41 The contractor shall take all precautions to avoid accidents by exhibiting necessary caution boards day and night speed limit boards red flags, red lights and providing barriers. He shall be responsible for all dangers and incidents caused to existing / new work due to negligence on his part. No hindrances shall be caused to traffic during the execution of the work.

1.42 The contractor shall provide at his own cost suitable weighing surveying and levelling and measuring arrangements as may be necessary at site for checking. All such equipment's shall be got calibrated in advance from laboratory, approved by the Engineer-in-Charge. Nothing extra shall be payable on this account.

1.43 Contractor shall provide permanent bench marks and other reference points for the proper execution of work and these shall be preserved till the end of work. All such reference points shall be in relation to the levels and locations, given in the Architectural and plumbing drawings

1.44 Other agencies will also simultaneously execute and install the works of electrification, air conditioning, lifts, fire-fighting etc. for this work and the contractor shall provide necessary facilities for the same. The contractor shall leave such recesses, holes openings etc. as may be required for the electric, air-conditioning and other related works (for which inserts, sleeves, brackets, conduits base pinion, clamps etc. shall be supplied free of cost by the department unless otherwise specifically mentioned) and the contractor shall fix the same at time of casting of concrete, stone work & brick work, if required and nothing extra shall be payable on this account.

1.45 If the work is carried out in more than one shift or during night no claim on this accounts shall be entertained.

1.46 Existing drains, pipes, cables, over-head wires, sewer lines, water lines and similar services encountered in the course of the execution of work shall be protected against the damage by the contractor at his own expense. The contractor shall not store materials

or otherwise occupy any part of the site in a manner likely to hinder the operation of such services.

1.47 The contractor shall be responsible for the watch and ward/guard of the buildings, safety of all fittings and fixtures including sanitary and water supply fittings and fixtures provided by him against pilferage and breakage during the period of installations and thereafter till the building is physically handed over to the department. No extra payment shall be made on this account.

1.48 The contractor shall render all help and assistance in documenting the total sequence of this project by way of photography, slides, audio-video recording etc. Nothing extra shall be payable to the contractor on this account. However cost of photographs, slides, audio/ videography etc shall be born by the department.

1.49 The Plinth Level of Building is to be kept as per Architectural drawings. All the items of works such as PCC, RCC, Brickwork and shuttering etc. in foundation upto this plinth level with be measured and paid as the work done upto plinth level. Nothing extra due to higher plinth will be paid and contractors rates quoted for all these items shall, therefore, the deemed to cater for extra height of plinth.

1.50 The contractor shall establish a laboratory at site to test the coarse aggregate, fine aggregate, water, sand, cement etc.

1.51 With each Running Bill, the details of test carried out shall be submitted by the contractor as per proforma attached.

~~1.52 On completion of work, the contractor shall submit at his own cost four prints of "as built" drawings to the Engineer-in-Charge. These drawings shall have the following information.~~

~~a) Run off of all piping and their diameters including soil, waste pipes and vertical stacks.~~
~~b) Ground and invert level of all drainage pipes together with locations of all manholes and connections, upto out fall.~~
~~c) Run off of all water supply lines with diameters, location of control valves, access panels etc.~~

~~In case the contractor fails to supply "as built drawing" aforesaid within 30 days of the date of completion, then the recovery @ Rs.10, 000/- each for such set of drawings shall be made from the contractor's final bill.~~

1.53 In the item of providing and fixing precast reinforced cement concrete in shelves the cost of cutting chases and making good the same shall be inclusive in the item ad nothing extra shall be paid on this account.

1.54 In the item of finishing walls with water proofing ~~cement~~ paint, only the plain / flat area shall be measured for payment and nothing extra shall be paid on account of pointed wall surface.

1.55 Unless otherwise specified in the schedule of quantities or CPWD specifications, the rates for respective items shall be all inclusive and apply to the following: -

(i) All lifts & all heights, floors including terrace, leads and depths.

(ii) All labour, material, tools and plants and other inputs involved in the execution of the item.
(iii) Any of the conditions and specifications mentioned in the tender documents.
(iv) Pumping / bailing out surface water / rain water / sub soil water, if necessary for any reason.
(v) Providing sunk flooring in bath-rooms, kitchen, etc.
(vi) Any legal or financial implications resulting out of disposal of earth, if any.
(vii) Payment of Royalty at the prevailing rates, if any, on the boulders, metal, shingle, sand and bajri etc. or any other material collected by him for the work direct to revenue authorities.
(viii) Performance test of the entire installation(s) before the work is finally accepted.
(ix) Any cement slurry added over base surface (or) for continuation of concreting for better bond is deemed to have been built in the items.
(x) All incidental charges for cartage, storage and safe custody of materials brought to site.

QUALITY ASSURANCE OF THE WORK

1. The contractor shall ensure quality control measures on different aspects of construction including materials, workmanship and correct construction methodologies to be adopted. He shall have to submit quality assurance programme within two weeks of the award of work. The quality assurance programme should include method statement for various items of work to be executed along with check lists to enforce quality control.

2. The contractor shall get the source of all other materials, not specified elsewhere in the document, approved from the Engineer-in-Charge. The contractor shall stick to the approved source unless it is absolutely unavoidable. Any change shall be done with the prior approval of the Engineer-in-Charge for which tests etc. shall be done by the contractor at his own cost. Similarly, the contractor shall submit brand/ make of various materials not specified in the agreement, to be used for the approval of the Engineer-in-Charge along with samples and once approved, he shall stick to it.

3. The contractor shall submit shop drawings of staging and shuttering arrangement, aluminium work, and other works as desired by Engineer In Charge for his approval before execution. The contractor shall also submit bar bending schedule for approval of Engineer –in – charge before execution.

A). Laboratory at Site:

The contractor shall provide at site, the testing equipment and materials for the field tests mentioned in the list of mandatory tests given in CPWD specifications 2019 Vol. 1 & 2 at his own cost. Nothing extra shall be payable to him on this account. In all cases, cost of samples and to and fro carriage shall be borne by the contractor.

The representatives of the department shall be at liberty to inspect the testing facilities at site and conduct testing at random in consultation with Engineer in charge. The contractor shall provide all necessary facilities for the purpose. The laboratory shall be equipped as per lab details provided as per NIT.

All test which can be performed in the site lab with above equipments shall be done at site except that at least 10% testing of materials shall be got done from external laboratories. However, for the tests to be carried out by the external laboratories, the contractor shall supply free of charge all the materials required for testing, including transportation. The testing charges shall be born by the Contractor in the manner described in Para-B below.

B) Other Laboratories:

The contractor shall arrange carrying out of all tests required under the agreement through the laboratory as approved by the Engineer-in-Charge and shall bear all charges in connection therewith including fee for testing. The said cost of tests shall be borne by the contractor in the manner indicated below.

Samples of materials required for testing shall be provided free of cost by the contractor. All expenditure to be incurred for testing of samples of all materials e.g. packaging, sealing, transportation, loading, unloading etc. including testing charges shall be borne by the contractor.

If the tests, which were to be conducted in the site laboratory, are conducted in other laboratories for whatever the reasons, the cost of such tests shall be borne by the contractor.

5. **Sampling of Materials:**

Sample of building materials fittings and other articles required for execution of work shall be got approved from the Engineer-in-Charge. Articles manufactured by companies of repute and approved by the Engineer-in-Charge shall only be used. Articles bearing BIS certification mark shall be used in case the above are not available, the quality of samples brought by the contractor shall be judged by standards laid down in the relevant BIS specifications. All materials and articles brought by the contractor to the site for use shall conform to the samples approved by the Engineer-in-Charge which shall be preserved till the completion of the work.

6. The contractor shall ensure quality construction in a planned and time bound manner. Any sub-standard material/work beyond set out tolerance limit shall be summarily rejected by the Engineer-in-Charge.

7. BIS marked materials except otherwise specified shall be subjected to quality test at the discretion of the Engineer-in-Charge besides testing of other materials as per the specifications described for the item/materials. Wherever BIS marked materials are brought to the site of work, the contractor shall if required, by the Engineer-in-Charge furnish manufacturers test certificate or test certificate from approved testing laboratory to establish that the material produced by the contractor for incorporation in the work satisfies the provisions of BIS codes relevant to the material and/or the work done.

8. The contractor shall procure all the materials at least in advance so that there is sufficient time to testing and approving of the materials and clearance of the same before use in work.

9. All materials brought by the contractor for use in the work shall be got checked from the Engineer-in-Charge or his authorized representative of the work on receipt of the same at site before use.

10. The contractor shall be fully responsible for the safe custody of the materials issued to him even if the materials are in double lock and key system.

11. **QUALITY & QUARRIES OF STONE AGGREGATE & SAND**

The Stone aggregate/ stone/ coarse sand/ fine sand shall be brought by the contractor from any query legitimately authorized by the concerned local authorities and the materials brought at site should conform to relevant CPWD specifications.

12. The contractor shall provide approved type of supports for maintaining the bars in position and ensuring required spacing and correct cover of concrete to reinforcement as called for in the drawings. Spacer blocks of required shape and size, MS chairs and spacer bars shall be used in order to ensure accurate positioning of reinforcement. Spacer blocks shall be cast well in advance with approved proprietary pre-packed free flowing mortars (Conbextra as manufactured by M/s Fosroc Chemicals India Ltd. or approved equivalent) of high early strength. Blocks of polymer shall not be used as spacer blocks unless specially approved by the Engineer-in-Charge. Rate of item of steel reinforcement is inclusive of cost of such cover blocks.

3.0. **TESTING OF MATERIAL: -**

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

Samples of materials required for testing shall be provided free of cost by the contractor. All expenditure to be incurred for testing of samples of all materials e.g. packaging, sealing, transportation, loading, unloading etc. including testing charges shall be borne by the contractor.

All other expenditure required to be incurred for taking samples; conveyance, packing etc. shall be borne by the contractor himself.

c) All the test in field lab setup at construction site shall be carried out by the Engineering Staff deployed by the contractor which shall be 100% witnessed by JE & 50% of tests shall be witnessed by AE –in-charge. At least 10% of the tests are to be witnessed by the EE/ SE division office.

d) All the entries in the registers will be made by the designated Engineering staff of the contractor and same should be regularly reviewed by JE/AE/EE/SE division office.

e) Contractor shall be responsible for safe custody of all the test registers.

f) Submission of copy of all test registers, materials at site Register and hindrance register along with each alternate Running Account Bill and Final Bill shall be mandatory. These registers should be duly checked by AE(P) in Division Office & receipts of registers should also be acknowledged by Accounts Officer by signing the copies and register to confirm receipt in division office.

g) Extensive testing of the materials used for construction is a pre-requisite for attaining high quality of the work. This shall also require specialized tests, physical, chemical, ultrasonic, x-ray and various other types of tests which cannot possibly be carried out in a site laboratory. These tests also require specialized personnal who regularly deal

in such testing. Therefore the need arises for carrying out the tests in outside laboratories.

These laboratories may be in the Govt. sector, Semi Govt. or Private sector. The outside private laboratories shall be short listed before handed by EE and approval obtained from SE. In case of laboratories in the private sector, the past record and reputation of the laboratory must invariably be given due consideration. The infrastructure in these laboratories can also be inspected before they are short listed.

However, testing of material in any Govt., Lab / Public Undertaking Lab / IIT or NIT Lab / Govt. Engineering College may be allowed by Executive Engineer without prior approval of Superintending Engineer or higher officers provided these labs have all necessary facility to carry out the required tests.

3.5. The contractor shall ensure quality construction in a planned and time bound manner. Any sub-standard material / work beyond set-out tolerance limit shall be summarily rejected by the Engineer-in-Charge & contractor shall be bound to replace / remove such sub-standard / defective work immediately.

3.6 The list of Field equipment referred above are to be arranged and maintained by the contractor at the site of work. In case the equipment required for any test is not available at site, the department shall get the test conducted from the third party. However in that event, besides providing free materials of sample, the cost of taking of sample, packing, transportation, testing charges etc. shall be borne by the contractor irrespective of the results.

3.7 Maintenance of Register of Tests -

(i) All the registers of tests carried out at Construction Site or in outside laboratories shall be maintained by the contractor which shall be issued to the contractor by Engineer-in-charge in the same manner as being issued to CPWD field staff.

(ii) All Samples of materials including Cement Concrete Cubes shall be taken jointly with Contractor by JE and out of this at least 50% samples shall be taken in presence of AE in charge. If there is no JE, all Samples of materials including Cement Concrete Cubes shall be taken by AE jointly with Contractor. All the necessary assistance shall be provided by the contractor. Cost of sample materials is to be borne by the contractor and he shall be responsible for safe custody of samples to be tested at site.

(iii) All the tests to be conducted at Construction Site shall be carried out by the Engineering Staff deployed by the contractor which shall be 100% witnessed by JE and 50% of tests shall be witnessed by AE-in-charge. At least 10% of the tests are to be witnessed by the Executive Engineer. For outstations the percentage of tests to be witnessed by JE, AE & EE are to be decided by NIT Approving Authority and should form part of QA Plan.

(iv) All the entries in the registers will be made by the designated Engineering Staff of the contractor and same should be regularly reviewed by JE/AE/EE.

(v) Contractor shall be responsible for safe custody of all the test registers.

3.8 Maintenance of Material at Site (MAS) Register -

(i) All the MAS Registers including Cement and Steel Registers shall be maintained by Contractor which shall be issued to the contractor by Engineer-in-charge in the same manner as being issued to CPWD field staff.

(ii) Each of the entry of receipt of material at site shall be 100% test checked by JE or by AE if there is no JE.

(iii) Each MAS Register shall be checked by JE at least twice a week and at least once a week by AE. If There is no JE then MAS registers will be checked by AE at least twice a week.

(iv) Cement Register shall be reviewed by EE at least one in a month. For outstations the frequency of checking the Registers by JE, AE & EE is to be decided by NIT Approving Authority and should form part of QA plan

4.0 SECRECY

4.1 The contractor shall take all steps necessary that all persons employed on any work in connection with the contract have notice that the Indian Official Secrets Act 1923 applies to them & will continue so to apply even after the execution of such works under the contract.

4.2 The contract is confidential and must be strictly confined to the contractor's own use (except so far as confidential disclosure to sub-contractors or suppliers as necessary) and to the purpose of the contract.

4.3 All documents, copies thereof & extracts there from furnished to the contractor shall be returned to the Engineer-in-Charge on the completion of the work / works or the earlier determination of the contract.

5.0 LABOUR AND SECURITY

5.1 Contractor should provide his plan for labour huts as per his requirement and get it approved from the Engineer-in-Charge. The contractor will be provided space for labour huts etc. inside the campus but the space requirement and location, as assessed by Engineer-in-Charge shall be final and binding.

5.2 Contractor has to follow the security requirement of the campus and obtain necessary entry passes for the labour and vehicles and follow security checks at entry / exit gates, restriction on movement of vehicle, restricted timings of working etc. The Department however shall assist the contractor in obtaining such passes for movement of vehicles and labour. No claim whatsoever shall be entertained on account of delay in entry of vehicles and labour including restrictions in working hours, if there is any.

5.3 The contractor shall employ only Indian Nationals after verifying their antecedents and loyalty. The contractor shall, on demand submit list of his agents, employees and work people concerned & shall satisfy as to the bonafides of such people.

5.4 The contractor & his work people shall observe all relevant rules regarding security promulgated in which work is to be carried out by the Controlling Administrative Authority of the campus/area (hereinafter referred to as "Administrator").

5.5 The contractor, his representative, workman shall be allowed to enter through specified gates & timing as laid down by the controlling authority. They shall be issued an identity card or an individual pass in accordance with the standing rules & regulations & they should possess the same while working. The contractor shall be responsible for the conduct & actions of his workman, agents / representatives.

5.6 Normally contractor shall be allowed to carryout work between 7 AM to 6 PM. However, he may also be allowed to carryout the work beyond 6 PM & upto 7 AM if

the site conditions / circumstances so demand with prior written permission from the "Administrator". However, if the work is carried out in more than one shift or at night, no claim on this account shall be entertained.

5.7 Normally contractor's material / vehicles etc shall be allowed to move in / go-out between 7 AM to 7 PM only & no movement of material / vehicles out of site of work shall be allowed during night hours unless specific permission is obtained from the "Administrator".

5.8 In case if a separate entry has been allowed, the contractor has to make all arrangement for making a separate entry gate and barricading of the working area to segregate/separate the same from other areas. All these have to be done by the contractor at his own cost including safeguarding any untoward incident in the restricted area due to separate entry gate and barricading arranged by the contractor. No extra amount on this account shall be payable by the department.

6.0 TRANSPORTATION AND OFFICE INFRASTRUCTURE:

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

6.2 For Quality Control Measures, Preparation of Bills and Monitoring the Quality, the contractor shall provide (min. one number) Computer having MS-Windows XP, A-3 Coloured Inkjet & A-4 Laserjet Printers, Scanners, UPS etc. with required number of data entry operator in the site office of Engineer-in-Charge.

7.0 **PROGRAM CHART: -**

7.1 The Contractor shall prepare an integrated program chart for the execution of work, showing clearly all activities from the start of work to completion, with details of manpower, equipment and machinery required for the fulfillment of the program within the stipulated period or earlier and submit the same for approval of the Engineer-in-Charge within **15 days** of the issue of letter of acceptance for the contract.

7.2 The work has to be completed in stages as indicated in the **Milestones under Schedule 'F'** and the program should be prepared in such a manner to achieve these Milestones as indicated therein or earlier.

7.3 The program chart should include the following: -

a) Descriptive note explaining sequence of various activities.

b) Network (PERT / CPM / BAR CHART) which will indicate resources in financial terms, manpower and specialized equipment for every important stage.

c) Program for procurement of materials by the contractor.

d) Program of procurement of machinery/equipments having adequate capacity, commensurate with the quantum of work to be done within the stipulated period, by the contractor.

7.4 If at any time, it appears to the Engineer-in-Charge that the actual progress of work does not conform to the approved program referred above, the contractor shall produce a revised program showing the modifications to the approved program by additional inputs to ensure completion of the work within the stipulated time.

7.5 The submission of revised program or approval by the Engineer-in-Charge of such program or the furnishing of such particulars shall not relieve the contractor of any of his duties or responsibilities under the contract. This is without prejudice to the right of Engineer-in-Charge to take action against the contractor as per terms and conditions of the agreement.

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

8.0 PROGRESS AND MONITORING OF WORK:

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

9.0 **SAMPLE OF MATERIALS: -**

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

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

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

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

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

10.0 **CEMENT & STEEL REINFORCEMENT (IF NOT STIPULATED, TO BE PROCURED BY THE CONTRACTOR).**

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

10.2 **CEMENT:-**

10.2.1 The contractor shall procure 43 Grade Ordinary Portland Cement confirming to IS: 8112/ Portland Pozzolona Cement confirming to IS: 1489 Part -I as required in the work from reputed manufacturers of cement such as ACC, Ultratec, Vikram, Shree Cement, Ambuja, JP Cement, Century Cement and JK Cement Or from any other reputed cement manufacturer having a production capacity not less than one million tonnes per annum as approved by the ADG for that sub region, in 50 kg. bags bearing manufacturer's name and ISI marking, along with manufacturers test certificate for each lot. Portland Pozzolona Cement is to be used for RCC works only subject to fulfillment of conditions of circular number CDO / SE (RR) / fly ash (MAN) 02 dated 09.04.09. In case contractor / firm uses OPC only nothing extra shall be paid.

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

Samples of materials required for testing shall be provided free of cost by the contractor. All expenditure to be incurred for testing of samples of all materials e.g. packaging, sealing, transportation, loading, unloading etc. including testing charges shall be borne by the contractor.

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

10.2.4 OPC/ PPC bags shall be stored in separate godowns. Separate godowns for tested cement and fresh cement (under testing) to be constructed by the contractor at his own cost as per sketches given in C.P.W.D Specifications having weather-proof roofs and walls. The size of the cement godown is indicated in the sketches for guidance. The actual size of godown shall be as per site requirements and nothing extra shall be paid for the same. Each godown shall be provided with a single door with two locks. The keys of one lock shall remain with Engineer-in-Charge of the work and that of other lock with the authorized agent of the contractor at the site of

work so that the cement is issued from godown according to the daily requirement with the knowledge of both parties. The account of daily receipt and issue of cement shall be maintained in a register in the prescribed proforma and signed daily by the contractor or his authorized agent and Engineer-in-Charge or his authorized representative in token of its correctness. The day to day receipt and issue accounts of different grade/brand of cement shall be maintained separately in the standard proforma by the contractor or his authorized representative which shall be duly signed by the authorized representative of the Engineer-in-Charge before issue to the work on day to day basis.

The capacity of each cement go-down shall be 300 bags of cement or more as decided by the Engineer-in-Charge and shall be constructed by the contractor at site of work and at the site of batching plant for which no extra payment shall be made. The contractor shall be responsible for the watch and ward and safety of the cement go-downs. The contractor shall facilitate the inspection of the cement go-downs by the Engineer-in-Charge at any time.

10.2.5 The actual issue and consumption of cement on work shall be regulated and proper accounts maintained as provided in the contract. The theoretical consumption of cement shall be worked out as per procedure prescribed in Clause-42 of the contract and shall be governed by the conditions laid therein.

10.2.6 If the quantity of cement actually used in the work is found to be more than the theoretical quantity of cement including authorized variation, nothing extra shall be payable to the contractor on this account. In the event of it being discovered that after the completion of the work, the quantity of cement used is less than the quantity ascertained as herein before provided (allowing variation on the minus side as stipulated in Clause - 42), the cost of quantity of cement not so used shall be recovered from the contractor as specified in schedule. Decision of the Engineer-in-Charge in regard to theoretical quantity of cement which should have been actually used as per the schedule and recovered at the rate specified, shall be final and binding on the contractor.
For non-scheduled items, the decision of the Superintending Engineer regarding theoretical quantity of the cement, which should have been actually used, shall be final and binding on the contractor.

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

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

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

10.3 **STEEL REINFORCEMENT: -**

10.3.1 The contractor shall procure Thermo Mechanical Treated (TMT) Steel Reinforcement bars of Fe 500D from Primary producers such as SAIL, Tata Steel Ltd., RINL, Jindal Steel and Power Ltd. & JSW Steel Ltd. or any other producer as approved by the CPWD who are using iron ore as the basic raw material / input and having Crude Steel Capacity of 2.00 million tonnes per annum and above.

a) The grade of the steel shall be Fe 500 D as per BIS 1786-2008.
b) The TMT bars procured shall conform to manufacture's specifications.
c) The TMT bars producers shall conform to the specifications as laid by Tempcore, Thermax, Evcon Turbo & Turbo Quench as the case may be.
d) The specifications of TMT bars procured shall meet the following provisions of IS 1786: 2008 pertaining to Fe500D grade of steel:

Mechanical Properties

Parameter	**Minimum Value**
Yield Strength	500 N/ sq.mm.
Tensile Strength, Min	**10 percent** more than the actual 0.2 percent proof stress/ yield stress but not less than **500** N/ sq.mm.
Elongation Percentage, Min. on gauge length 5.65√A, where A is the cross-sectional area of the test piece	16.0

Chemical Properties

Chemical Constituents	**Maximum % as per BIS 1786: 2008 for Fe 500D grade of steel**
Carbon	0.30
Sulphur	0.055
Phosphours	0.055
Sulphur + Phosphorus	0.105

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

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

10.3.4 The steel reinforcement shall be brought in bulk supply as decided by the Engineer-in-Charge along with manufacturer test certificate for each lot.

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

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

SIZE OF BAR	FOR CONSIGNMENT BELOW 100 TONNES	FOR CONSIGNMENT OVER 100 TONNES
Under 10 mm dia	One sample for each 25 tonnes or part thereof.	One sample for each 40 tonnes or part thereof
10 mm to 16 mm dia	One sample for each 35 tonnes or part thereof.	One sample for each 45 tonnes or part thereof
Over 16 mm dia	One sample for each 45 tonnes or part thereof	One sample for each 50 tonnes or part thereof

Tolerances on Nominal Mass

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

\+ For individual sample plus tolerance is not specified.
* For coils batch tolerance is not specified.

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

10.3.8 The Actual issue and consumption of steel on work shall be regulated and proper account maintained as provided in clause 10 of the contract. The theoretical consumption of steel shall be worked out as per procedure prescribed in Clause 42 of the contract and shall be governed by conditions laid therein. In case the consumption is less than theoretical consumption including permissible variation, recovery at the rate so prescribed shall be made. In case of excess consumption no adjustment need to be made.

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

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

10.3.11 Reinforcement including authorized spacer bars and lappages shall be measured in length of different diameters as actually (not more than as specified in the drawings) used in the work nearest to a centimeter. Wastage and unauthorized overlaps shall not be measured.

10.3.12 The standard sectional weights referred to as in Table 5.4 in para 5.3.4 in CPWD Specifications will be considered for conversion of length of various sizes of M.S. Bars, T or Steel Bars and T.M.T. bars into Standard Weight.

10.3.13 Records of actual Sectional weights shall also be kept dia-wise and lot-wise. The average sectional weight for each diameter shall be arrived at from samples from each lot of steel received at site. The decision of the Engineer-in-Charge shall be

final for the procedure to be followed for determining the average sectional weight of each lot. Quantity of each diameter of steel received at site of work each day will constitute one single lot for the purpose. The weight of steel by conversion of length of various sizes of bars based on the actual weighted average sectional weight shall be termed as Derived Actual Weight. However for the stipulated issue of steel reinforcement up to and including 10mm diameter bars, the actual weight of steel issued shall be modified to take into account the variation between the actual and the standard coefficients and the contractors' accounts will be debited by the cost of modified quantity.

10.3.14 a) If the Derived Weight as in sub-para (10.3.14) above is less than the Standard Weight as in Sub-para (10.3.13) above then the Derived Actual Weight shall be taken for payment provided, if it is within the tolerances specified in IS 1786-2008, otherwise whole lot will be rejected.

b) If the Derived Actual Weight is found more than the Standard Weight, the Standard Weight as per in sub-para (10.3.13) above shall be taken for payment. In such case nothing extra shall be paid for the difference between the Derived Actual Weight and the Standard Weight.

11.0 **ENGAGING SPECIALIZED AGENCIES FOR WORKS**: -

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

i) Anti-Termite treatment work.
ii) Factory made Wooden Shutters of all types except Flush Doors.
iii) Water proofing treatment work of all types.
iv) Tubewell installations
v) Overhead Tank.
vi) Aluminum Work.

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

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

11.3.2 If the main contractor fails to associate agency/agencies for execution of minor components of work within prescribed time or furnishes incomplete details or

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

11.3.3 Same milestones shall be applicable for all components of work.

11.4 For the specialized item of Polypropylene Pipes the contractor shall engage such vendors as approved by the manufacturer. Provisions mentioned under Sr. No. 11.1 above not applicable for Polypropylene Pipes.

12.0 SAMPLE QUARTER/ ROOM: -

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

13.0 Defect liability:

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

Sl. No.	**Description**	**Defect Liability**
(i)	Anti-termite treatment	(a) Termites found if any till guarantee period to be rectified through post ATT
(ii)	Concrete	(a) Rectification of structural / superficial / non-structural cracks. (b) Rectification of dampness / seepage in roof slab / junctions & sunken portion. (c) Rectification of cracks in beam, shade, column.
(iii)	Brick work	(a) Rectification of cracks in panel wall / portion. (b) Cracks / settlement of dwarf walls. (c) Rectification of efflorescence.
(iv)	Joinery	(a) Replacement of warped joinery. (b) Cracks in panels, rails / styles etc.
(v)	Builders Hardware	(a) Repairs / Replacement of loosened / pre-mature failure of fittings. (b) Tightening / Replacement of sag in mosquito proofing.
(vi)	Steel & Iron work	(a) Rectification / Replacement of defective part of rolling shutter. (b) Redoing of defective portion in fabrication / welding including painting. (c) Steel windows, grills, gates etc. – defects to be rectified.
(vii)	Roof treatment	(a) Rectification of leakage / seepage of roof slab including covering at junction till guarantee period.
(viii)	Plastering	(a) Rectification of structural / superficial cracks if any. (b) Rectification of protruding / peeling off plaster if any. (c) Rectification of efflorescence
(ix)	Flooring	(a) Rectification of sinking portion of plinth protection including saucer drain.

Sl. No.	Description	Defect Liability
		(b) Settlement of foundation & floors.
(x)	Plumbing / Sanitary fittings	(a) Making good of leakage through soil / waste pipe joints. (b) Replacement of looking mirror if found wavy. (c) Rectification of leakage of over head tanks. (d) Leakage / seepage of sunken floor, blockage of taps / pipes, non-functioning of cistern.
(xi)	Finishes	(a) Making good of defective / dissimilar patches of painting to match with remaining surfaces.
(xii)	Internal Water Supply	(a) Repairs / Replacement of defective taps / fittings. (b) Repair to leakage of GI water pipe lines including joints. (c) Removal of blockage of GI pipe lines.
(xiii)	Roads	(a) Repair of sinking portion of road & potholes, if any
(xiv)	Sewage	(a) Rectification of slope / system if found defective during use. (b) Rectification of major blockage in Sewer lines. (c) Cracks & settlement of sewage lines.
(xv)	Drains	(a) Repair to Drains. (b) Settlement of Drains
(xvi)	External Water Supply	(a) Repairs to installations & fittings.
(xvii)	General	(a) All manufacturing defects of structures / fixtures / fittings / equipment's other than listed above.

Special Conditions

1. Existing cement plaster where any skirting or cladding work is to be executed shall be dismantled before fixing tile/ granite stone to the wall surface to ensure proper bond with base and planarity.

2. Wherever cladding is to be provided on the existing non plastered surface, adequate hacking, wire brushing clearing etc. after removing existing paint, shall be done by the agency so as to ensure proper bond of cladding to the existing surface.

3. Any internal / external damage caused to the building during execution of work shall be made good by the contractor at his own cost to the satisfaction of Engineer –in-charge.

4. Work includes fixing of door, window frames after demolishing / removing existing frames. In all such cases jambs and existing masonry shall be made good including plastering the jamb. The rate quoted by the contractor shall include all such operations.

5. Contractor shall remove from site the rubbish / malba generated during course of execution of work from time to time before exceeding 2 truck loads (say 12 Cum), failing which the contractor shall be liable to pay Rs. 500/- per day which shall be recovered from the payment due to the contractor.

6 (a) Work is to be executed in occupied quarters . The contractor shall execute the work in a phased manner after getting the work plan approved by the Engineer-in-charge so as to cause minimum in convince to the occupants.

6 (b) Quarters should be handed over to the contactor in lots as decided by Engineer-in-charge as per feasibility. Next lot of quarters shall be given to the contractor for execution only after the work has been completed in previous lot of quarters in all respect by the contactor and handed over to the Executive Engineer.

7. All repair / retrofitting items shall be executed first. Detail sequence of work activities to be executed in quarters shall be finalized and got approved by the Engineer-in-charge before starting the work.

8. Wire gauze shall be bent at right angle in the rebate, double folder and fixed tight without any furling with the help of MS / wooden beading. Space between the beading and rebate, where the wire gauze is bent shall be neatly finished with the putty so that end of the wire gauze is not visible.

9. The works of renovation/Upgradation are to be executed mostly in old colonies/ premises, where space availability for erection of temporary sheds for storage of construction materials is a real constraint. As per site feasibility and availability of storage space, Engineer-in-charge may provide some storage space on as-is-where-is basis to the contractor agency exclusively for storage of construction materials required for this work and for storage of dismantled materials retrieved from this work. However, all responsibilities regarding safety and upkeep of materials stored shall lie on the contractor. This storage space shall be used exclusively for this work and contractor shall be responsible to hand it over back to the Engineer-in-charge before completion of work, in its original condition without causing any damage to it in any shape. The contractor shall also be required to pay storage charges @Rs. 10/- per sqft per month, calculated on per day basis for the area of such storage space actually provided to him. In case, no such space is available for making available to the contractor, the contractor shall make his own arrangement, and no claim shall be entertained, whatsoever in this regard. In respect of any type of dispute, and/or damage to the storage space provided, decision of Engineer-in-charge shall be final and binding on the contractor.

10. Size, design and pattern of the floor tiles & wall tiles shall be got approved by the Engineer-in-charge before execution the items.

11. BOQ, deviation on plus side and deviation on minus side in respect of each agreement item and for execution of extra items etc. Also, total value of work including all; that can be done and based on agreement amount, for deviation, for extra items etc. is well defined as per financial powers delegated to Engineer in Charge. Agency has to get acquainted himself with these financial powers. If any deviation in quantities and extra items is required to be done at site, the same shall be carried out/ be executed as per procedure laid down in agreement and only on written permission of Engineer- in-charge i.e. Executive Engineer concerned. During execution of work/item(s),it is for agency to keep a close watch on BOQ quantities, extra items, deviation in quantities on plus side and deviation in quantity on minus side, amount and total value of work done. Engineer in Charge be kept always informed by agency in writing from time to time and on crucial timings on all such issues. Financial implications if any; on instructions given by CPWD Officials including that of field officials/unit during progress of work etc.; shall be immediately worked out by agency and be submitted to Engineer in Charge in writing for its approval. All such instructions shall be implemented/executed on ground by agency only when written approval is conveyed to agency by Engineer in Charge. During progress of work, user may also request for execution of certain work/items. Agency has to convey all such requests in writing to Engineer in charge. No such request is to be attended/executed by agency without taking written approval from Engineer in charge. In case agency carry on work/item(s) etc. at his own without following laid down procedure and without taking written permission/approval from Engineer in Charge; then it will be assumed that agency is willing to execute all such components/works/items; free of cost and shall not claim anything from Government for work done by agency. If agency does not follow laid down procedure, then works/item(s) which is instructed/asked by department; shall only be measured and paid. Excess work done by agency; shall **NOT AT ALL BE MEASURED AND PAID**. Agency to submit ARs of items well in advance as per agreement provisions for approval. Incase no ARs are submitted, then rate(s) finalized by department shall only be payable to agency. All statements and any proposal submitted by agency must be supported by cash memos, bills etc. Just submission of case by agency without proper supporting documents; shall not be processed and delay in this account shall be on part of agency. Agency has to ensure uploading of measurements on day-to-day basis on ERP portal for verification by field staff. No claims of any type from Agency shall be entertained on left out measurements. Agency will have to quote his rates so as to make payment as per minimum wages, enhanced wages including its arrears etc. (as notified time to time by Govt. of India/concerned deptt. and as applicable from time to time for a station) to workers engaged. While quoting rates, agency has to load/add in his rate all such components including enhancement of wages by concerned Govt. department of wages. Reimbursement of such enhanced rates/wages will be done to agency only if it is applicable in respective clause of agreement. No reimbursement will be made to agency; if it is not applicable in agreement. But minimum wages, enhanced wages including its arrears etc. has to be paid by agency to workers engaged. If required, Agency have to execute work in other sub divisions at Shimla under Shimla Division 1 with in municipal limit of Shimla for which nothing extra shall be paid to agency. Approach to site, storage space for materials and working space is very limited/confined and site of work is typical. During execution of work, additional supporting arrangements and safety measures will be required. Safety of all structures, land, soil etc. has to be ensured by agency and path/access is to be kept functional with adequate measures for movement of Officials, staff and public etc. Agency has to quote rates considering all such aspects of inputs required including mechanical input etc.to complete item/work. Nothing extra on any account like limited working space, lifting of materials/items from lower level to higher level by any means, bringing of materials/ items from higher level to lower level, wastage of labour, material and leads, head leads of any magnitude etc. shall be payable. Welding in full length of members be required as per site requirements and as directed by Engineer in Charge for which nothing extra shall be paid. Further, agency shall provide a user satisfactory certificate of work done in respective houses/bunglows/areas of defence in each R.A bill & final bill duly signed by concerned.

PARTICULAR SPECIFICATIONS

1.0 **EARTH WORK:-**

1.1 Anti Termite Treatment: -

1.2.1 The work shall be executed by specialized agency to be approved by the Engineer in Charge.

1.2.2 The Chemical shall strictly conform to Specifications & shall be as per BIS covered by ISI marking. Chemical has to be of approved quality out of preferred make. 100% material has to be procured of preferred make before start of work. The chemical shall be used only after due testing & if found conforming to the Specifications. Proper account has to be kept for day to day use of Chemical.

2.0 R C C WORK (ORDINARY)

2. 1 The work shall be done in accordance with CPWD Specifications.

2.1.2 Water Cement ratio for Ordinary RCC work shall not be more than 0.5. Contractor shall use concrete mixture of proper design having arrangement for measuring water for mixing of concrete.

2.3 FORM WORK

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

2.3.2 Only M.S. centring / shuttering and scaffolding material unless & otherwise specified shall be used for all R.C.C. work to give an even finish of concrete surface. However, marine-ply shuttering in exceptional cases as per site requirement may be used on specific request from contractor to be approved by the **Engineer-in-Charge**.

2.3.3 Nothing extra shall be paid for the centring and shuttering, circular in shape whenever the formwork is having a mean radius exceeding 6m in plan.

2.3.4 Nothing extra shall be paid for grid beams and the corresponding slabs having clear span more than 1.20 metres.

2.3.5 In order to keep the floor finish as per architectural drawings and to provide required thickness of the flooring as per specifications, the level of top surface of R.C.C. shall be accordingly adjusted at the time of its centring, shuttering and casting for which nothing extra shall be paid to the Contractor.

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

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

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

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

2.4 **REINFORCEMENT: -**

2.4.1 The reinforcement shall be done as per CPWD Specifications.

2.4.2 The rate of item of reinforcement of RCC work includes all operations including straightening, cutting, bending, welding, binding with annealed steel or welding and placing in position at all the floors with all leads and lift complete as per CPWD Specifications.

2.4.3 The contractor shall provide approved type of support for maintaining the bars in position and ensuring required spacing and correct cover of concrete to reinforcement as called for in the drawings, spacer blocks of required shape and size. Chairs and spacer bars shall be used in order to ensure accurate positioning of reinforcement. **Spacer blocks shall be cast well in advance with approved proprietary pre-packed free flowing mortars (Conbextra as manufactured by M/S Fosroc Chemicals India Ltd. or approved equivalent)** of high early strength and same colour as surrounding concrete, Pre-cast cement mortar/concrete blocks/blocks of polymer shall not be used as spacer blocks unless specially approved by the Engineer-in-charge, rate of RCC items is inclusive of cost of such cover blocks.

2.5 PRE-CAST RCC WORK

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

2.5.2 Pre-cast reinforced concrete units shall be of grade or mix as specified. Provision shall be made in the mould to accommodate fixing devices such as hooks etc. and forming of notches and holes. Each unit shall be cast in one operation. A sample of the unit shall be got approved from Engineer-in-charge before taking up the work.

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

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

2.5.5 The compaction of the concrete shall be done by vibrating, table or external vibrator, as approved by Engineer-in-charge. The rate quoted for the item shall include the element for framework and mechanical vibration.

2.5.6 Rate for item includes cost of all materials. labour, and all operations involved. Cost of M.S. frames, lugs including their welding, lifting hooks is also included.

3.0 **BRICK WORK:-**

3.1 The brickwork shall be carried out with good quality well common burnt clay machine moulded modular bricks of class designation 12.5 as per CPWD Specifications.

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

3.3 Brick work provided around shaft or lift walls or around slab cutouts shall be measured in the brick for corresponding floor level. Nothing extra shall be paid on this account.

3.4 M.S. bars provided at every third course of half brick masonry shall be in single piece. If required, welding joint can be used without overlaps. Nothing extra shall be paid for welding and overlaps.

4.0 STONE / MARBLE WORK :-

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

4.2 SAMPLES FOR STONE WORK:-

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

5.0 WOOD WORK:-

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

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

5.3 Glazing for toilets shall be of translucent type.

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

5.5 Timber shall be of specified species, good quality and well seasoned. It shall have uniform colour, reasonably straight grains and shall be free from knots, cracks, shakes and sapwood. It shall be close grained. The contractor shall deposit the samples of species of timber to be used with the Engineer-in-Charge for testing before commencement of the work.

5.6 Wood work shall not be painted, oiled or otherwise treated before it has been approved by the Engineer-in-charge. All portion of timber including architrave abutting against masonry, concrete, stone or embedded in ground shall be painted with approved wood preservative or with boiling coaltar.

5.7 The contractor(s) shall produce cash voucher and certificates from approved Kiln Seasoning Plants about the timber used on the work having been kiln seasoned and chemically treated by them, falling which it would not be so accepted as kiln seasoned and/or chemically treated.

5.8 Transparent sheet glass conforming to IS: 2835 – 1977 shall be used. Thickness being governed as under unless otherwise specified in the item in wood work/steel work:

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

5.9 Factory made panelled / wire gauge door shutters

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

5.11 The shutters should be fabricated in factories & fabrication should conform to CPWD Specifications Para 9.6.6 & IS 1003 Part-I.

5.12 The contractor shall propose well in advance to Engineer-in-Charge, the names and address of the factory where from the contractor intends to get the shutters manufactured along with the credential of the firm. The contractor shall place the order for manufacturing of shutters only after obtaining approval of the Engineer in Charge whose decision in this case shall be final & binding. In case the firm is not found suitable he shall propose another factory. The factory may also be inspected by a group of officers before granting approval; shutters shall however he accepted only if these meet the specified test.

5.13 Contractor will arrange stage wise inspection of the shutters at factory by the Engineer-in-Charge or his authorized representative. The contractor will have no claim if the shutters brought at site in part or full lot are rejected by the Engineer-in-Charge due to bad workmanship / quality. Such defective shutters will not be measured and paid. The contractor shall remove the same from the site of work with in 7 days after the written instruction in this regard are issued by the Engineer-in-Charge.

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

5.15 Inspection of shutters shall be carried out for dimensions & tolerances, size & type general construction & workmanship, finish & glazing at the following frequency:

Lot Size	Sample Size.	Permissible number of defectiveness.
Upto 25	2	0
26 to 50	5	0
51 to 100	8	0
101 to 150	13	1
151 to 300	20	2
301 to 500	32	3
501 to 1000	50	5
1001 & above	80	7

Criteria for conformity

Any sample shutter failing in any one or more of the requirements inspected for as above shall be considered as defective. A lot shall be considered as having satisfied the requirements of the standard if the number of defective shutters in the sample does not exceed the corresponding permissible number of **defectiveness** given above.

5.16 Testing – The shutters shall be tested for species, seasoning & treatment, defects in the timber, panel material, construction & workmanship in the approved Govt. Laboratory at the following frequency:

Lot Size	Sample Size
Upto 50	1
51 to 100	2
101 to 150	3
301 to 500	4
500 to 1000	6
1001 & above in multiple of 1000	10

If shutters are found defective in any one of the criterion, double the shutter shall be tested & if found permissible, can be accepted. If shutter is found defective in more than one criterion, the whole lot shall be rejected.

6.0 **STEEL WORK:-**

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

6.2 **Pressed Steel Frame / T Iron Frames**: - The work shall be done as per CPWD Specifications. The frames shall be fabricated in approved workshops as at ~~**Page 89.**~~ The angle and flat iron frames for cupboard shall also be fabricated from the approved workshops.

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

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

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

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

The fixing lug shall be as per IS 1038 with adjustable slot & fixed to window frames by screws & nuts.
The fixing of unit shall be done as per IS 1081.

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

7.0 FLOORING:-

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

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

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

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

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

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

7.7 **PVC& Wooden Flooring**

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

7.8 **Ceramic/ Vitrified Tiles Flooring**

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

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

Size and sample of tiles in respect of each type of quarters shall be approved by Engineer-in-charge for kitchen and toilet prior to execution of work.

Tiles for flooring shall be 300 mm x 300 mm (minimum size) and for dado 300mmx450mm (minimum size) as approved by the Engineer-in-charge.

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

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

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

8.0 WATER PROOFING FOR SUNKEN FLOORS:-

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

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

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

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

8.5 **GUARANTEE BOND:-**

Ten years Guarantee bond in prescribed proforma as per NIT shall be submitted by the contractor which shall also be signed by both the specialized agency and the contractor to meet their liability / liabilities under the guarantee bond. However, the sole responsibility about efficiency of water proofing treatment shall rest with the building contractor. **10 %(Ten per cent) of the cost of water-proofing work shall be retained as Security Deposit and the amount so deducted would be released after ten years from the date of completion of the entire work under the agreement, if the performance of the treatment is found satisfactory**. If any defect is noticed during the guarantee period, the contractor shall rectify it within 15 days of receipt of intimation of defects in the work. If the defects pointed out are not attended to within the specified period, the same will be got done from another agency at the risk and cost of contractor.

9.0. FINISHING:-

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

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

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

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

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

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

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

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

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

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

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

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

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

10.9.1 ~~The entire responsibility for the quality of work will however rest with the building contractor only and he shall submit a Guarantee Bond as per Proforma as per NIT~~**. 5% (Five percent) of the cost of these items would be retained as security deposit and the amount so deducted would be released after two years from the date of completion of the entire work under the agreement, if the performance of the items is found satisfactory**~~. If any defect is noticed during the guarantee period, the contractor should rectify it within seven days and if not attended to the same will be got done from another agency at the risk and cost of contractor. However, this security deposit can be released in full if bank guarantee of equivalent amount is produced and deposited with the department.~~

11.0 Aluminum Work

Aluminum work under SH: "aluminum work" of tender document shall be got executed from specialized agency. The specialized agency for the aluminum work shall be got approved from the Engineer - in - Charge, well before actual commencement of the item of work. Necessary performance certificates in respect of agencies proposed to be engaged shall be submitted within 30 days from the date of issue of acceptance letter to substantiate technical capability and experience of the agency for prior approval of the Chief Engineer.

Specifications for Aluminum Door, Window, Ventilator:

11.1 : Extent and Intent:
The work shall be carried out through an approved specialist contractor who shall furnish all materials, labour, accessories equipment tool & plant, incidental. Required for providing and installing anodized aluminum door, windows, claddings, louvers and other items as called for on the drawings. The drawings and specifications cover the major requirement only. The supplying of additional fastenings, accessory features and mentioned specifically herein but which are necessary to make a complete installation shall be a part of the contract.

11.2 : General:
Aluminum doors, windows etc. shall be of sizes, section detail as shown on the drawings. The details shown on the drawings indicate generally the sizes of the components parts and general standards. These may be varied slightly to suit the standards adopted by the manufacture. Before proceeding with any manufacturing, the contractor shall prepare and submit complete manufacturing and installation drawings for approval of Engineer-in-Charge and no work shall be performed until the approval of these drawings is obtained.

11.3 : Shop Drawings:
The contractor shall submit the shop drawings of doors, windows louvers cladding and other aluminum work, based on architectural drawings to Engineer-in-charge for his approval. The drawings shall show full size sections of door, window etc. thickness of metal (i.e. wall thickness) details of construction, sub frame / rough ground profile anchoring details, hardware as well as connection of windows doors, and other metal work to adjacent work. Samples of all joints and methods of fastening and joining shall be submitted to the Engineer-in-Charge for approval well in advance of commencing the work.

11.4 : Samples:
Samples of doors, windows, louvers etc. shall be fabricated assembled and submitted to the Engineer-in-Charge for his approval. They shall be of sizes, types etc. as decided by Engineer-in-Charge. All samples shall be provided the cost of the contractor.

11.5 : Sections:
Aluminum doors and windows shall be fabricated from extruded section of profiles as detailed on drawings. The sections shall be extruded by the manufacturers approved by the Engineer-in-Charge. The aluminum extruded section shall conform to IS designation 63400-WP(HV9WP old designation) with chemical composition and technical properties as per IS : 733 and 1285. The permissible dimensional tolerance of the extruded sections shall be such as not to impair the proper and smooth function / operation and appearance of doors and windows.

11.6 : Fabrications:
Doors, window etc. shall be fabricated to sizes as shown at factory and shall be of section, sizes combinations and details as shown in the Architectural drawings, all doors, windows etc. shall have mechanical joints. The joints shall be designed to withstand a wind load of 150 kgs. per sqm. the design shall also ensure that the maximum deflection of any member shall be accurately machined and fitted to form hairline joints prior to assembly. The joint and accessories such as cleats brackets, etc. shall be of such materials as not to cause any bi-metallic action, the design of the joints and accessories shall be such that the accessories are fully concealed. The fabrication of doors, windows etc. shall be done in suitable sections to facilitate easy transportation, handing and installation. Adequate provision shall be made in the door and windows members for anchoring to support and fixing of hardware and other fixture as approved by the Engineer-in-Charge.

11.7 Anodizing:
All aluminum sections shall be anodized as per IS: 7088 and to required colour as specified in the item as per IS: 1868 grading, after cutting the members to requisite sizes. Anodizing shall be to the specified grade with minimum average thickness of 15 microns when measured as per IS :

6012. The anodic coating shall be properly sealed by steams or by boiling in deionized water or cold sealing process as per IS : 1868 / IS : 6057. Polythene tape protection shall be applied on the anodized sections before they are brought to site. All care shall be taken to ensure surface protection during transportation, storage at site and installation. The tape protection shall be removed on installation. The sample will be tested in the approved laboratory and cost of samples, cost of testing shall be borne by the contractor.

11.7.1 Powder Coating:
The powder used for powder coating shall be polyester powder made by Berger or Jenson & Nicholson or equivalent. The thickness of powder coating shall not be less than 60 micron at any point measured with micrometer.

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

11.7.3 Handling and Stacking:

11.7.3.1 Fabricated materials shall be carted in an approved manner to protect the material against any damage during transportation. The loading and unloading shall be carried out with utmost care. On receipt of materials at site, they shall be carefully examined to detect any damaged pieces. Arrangements shall be made for expeditious replacement of damaged pieces / parts. Materials found to be acceptable on inspections shall be repacked in crates and stored safely.

11.7.3.2 In the case of composite windows, and doors the different units are to be assembled first. The assembled composite units should be checked for line, level and plumb before final fixing is done. Unit may be serial numbered and identified as how to be assembled in their final location of situation so warrants.

11.7.3.3 Where aluminum comes into contact with masonry brick work / concrete / plaster or dissimilar metals, it shall be coated with approved insulation lacquer paint or plastic tape to ensure that electro chemical corrosion is avoided. Insulation materials shall be trimmed off to clear flush line on completion.

11.7.3.4 Silicon Sealant:
The peripheral gaps between plastered faces / RCC and aluminum sections shall be sealed both from inside and outside to make the windows watertight. Gaps up to 10mm between the peripheral aluminum member and masonry / RCC / Stone shall be sealed by inserting. Backer Rod manufactured by HT TROPLAST or Supreme Industries and by application of weather silicon / sealant of DOW corning / GE silicon make.

11.7.3.5 The contractor shall be responsible for assembling composite, bedding set straight plumb, level and for their satisfactory operation after fixing is complete.

11.8 : Installation:

11.8.1 Just prior to installation the doors, windows etc. shall be uncrated and stacked on edge on level bearers and supported evenly. The frame shall be fixed into position true to line and level using adequate number of expansion machine bolts, anchor fasteners of approved size and manufacture and in an approved manner. The holes in concrete / masonry members for housing anchor bolts shall be drilled with an electrical drill.

11.8.2 The doors windows assembled as shown on drawings shall be placed in correct final position in this opening and marks made on concrete members at jambs, sills and heads against the holes provided in frames for anchoring. The frame shall then be removed then the opening and laid aside. Neat holes with parattle sides of appropriate size shall then be drilled in the concrete members with an electric drill at the marking to house the expansion bolts. The expansion bolts shall then be inserted in the holes, struck with a light hammer till the nut is forced into the anchor shall. The frame shall then be placed in final position. In the opening and anchored to the support through cadmium plated machine screws of required sized threaded to expansion bolts. The

frame shall be set in the opening by using wooden wedges at supports and be plumbed in position. the wedges shall invariably be placed at meeting points of glazing bars and frames.

11.8.3 Neoprene Gaskets:
The E.P.D.M. gasket of suitable profile as manufactured by HANU INDUSTRIES, ANNAND LESCUYER make shall be provided at all required positions to make the glazing airtight. The contractor shall provide and install Neoprene Gaskets of approved size and profile at all locations as shown and as called for to render the doors windows etc. absolutely air tight and weather tight. The contractor shall submit samples of the gaskets for approval and procure after approval only.

11.8.4 Fittings:
The contractor shall cut the floor properly with stone cutting machine to exact size and shape. The spindle of suitable length to accommodate the floor finish shall be used. The contractor shall give the guarantee duly supported by the company for proper functioning of floor springs at least for 10 years.
Hinges, stays handles, tower bolts, locks and other fittings shall be of quality and manufacturer as approved by the Engineer – in – Charge.

11.9 : Manufacture's Attendances:
The manufacture immediately proper to the commencement of glazing shall adjust and set all windows and doors and accept responsibility for the satisfactory working of the opening frames.

11.10 : Details of Test:

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

11.10.2 The minimum number of each unit of doors / windows shall be selected at random by Engineer-in-Charge as such that all the aluminum section shall be got tested.

S. No.	Details	No. of Tests
1.	Doors, Windows & Ventilators	5% of Nos. manufactured.

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

11.10.4 The cost of sample, carriage of the samples shall be borne by the contractor.

11.11 : Acceptance Criterion:
The aluminum sections shall conform to the provisions of the relevant items. For payment purpose only actual weight of sections shall be taken into account. If however, the sectional weight of any aluminum section is higher than the permissible variation then the weight payable shall be restricted to the weight of the section including permissible variation.

11.12 : Measurement:
Payment by weight shall be made for aluminum sections including beading only and all fixing angles cleats fittings and fixtures such as handles and hinges etc., shall not be included in the weight to be paid.

11.13 : Rates:
The rates of the items shall include the cost of all materials, labors and inputs required in all the above operations.

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

12.1.0 **SCOPE**:

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

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

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

12.2.0 **REFERENCES:**

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

12.3.0 **TERMINOLOGY**:

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

12.3.1.1

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

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

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

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

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

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

(vii) Pin holes: Pores of size less than 1mm appearing on the surface.

(viii) Small Pores: Pores of size more than 1mm but less than 2mm appearing on the surface.

(ix) Wrinkling: A slight ridge or furrow on surface.

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

12.4.0 **HANDLING**:

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

12.5.0 **MATERIAL**:

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

12.6.0 **PROCESS**:

12.6.1 MIXING: The PVC material so formulated with the addition of chemicals, fillers & additives shall be mixed dry powder form in a high speed hot mixer at a temperature of 110^0 C to 125^0 C. The heated dry blend is then to be cooled at room temperature. However, the temperature has to be determined keeping in view the climatic conditions and the process requirements.

12.6.2 EXTRUSION: The cooled dry blend is off loaded into the hopper of the extruder, and then is fed to the screw & barrel of the extruder, where it is melted and kneaded at varying temperatures upto 205^0 C by rotating screws. The thick paste of PVC material is then passed through a hot die to make the sheet of required thickness.

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

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

12.7.0 RANGE OF PVC PANELLED DOOR SHUTTERS:

12.7.1 For the purpose of this specification, solid panelled door shutter of thickness 30/32mm has been considered to meet the requirements of various users. The different components required for the door shutters are given in table No. 1 in annexure.

12.8.0 CONSTRUCTION/FABRICATION:

12.8.1 GENERAL:

12.8.1.1 The door shutters shall be manufactured under controlled conditions in factories having adequate facilities for working with PVC cellular sheet including moulding, cutting and jointing, fabrication etc.

12.8.1.2 While manufacturing door shutters, only components indicated in Table No. 1 shall be used for the shutter.

12.8.1.3 PVC door shutter shall be made out of the extruded PVC cellular sheets for styles, top rail, middle and bottom rail and panelling as given in Table No. 1

12.8.1.4 All the members of the door shutter shall be straight, smooth and well planned at right angles to each other. Any warp or bow shall not be more than 1.50mm.

12.8.2 FABRICATION OF SHUTTER**:**

12.8.2.1 **Steel frame**: Mild Steel square tube of specified size shall be cut to required size and welded at the corners to form steel door frames. It should be painted with red oxide anticorrosive paint.

12.8.2.2 **PVC Styles**: Styles made of PVC Cellular sheet shall be cut to required length and width, which shall be then "V" grooved in parallel to the required thickness of the doors. The "V" grooves are heated by hot air under controlled temperature and moulded to form "C" sections.

12.8.2.3 **PVC Rails**: Top Rail, Bottom Rail and Lock Rail are made of PVC Cellular sheets by cutting the sheets to the required size.

12.8.2.4 **PVC Panel**: Panel made of PVC cellular sheet of 5mm thickness shall be cut to required size in length and width.

12.8.2.5 The PVC Panel shall be inserted in between the MS Frame, then the PVC Styles and Rails shall be bonded on the length and width sides of frames. The gap between the Panel and the "C" section of styles and rails shall be filled up with PVC beading and bonded. Lock rail at the centre shall be bonded on the either sides of PVC. The gap between the top and bottom surface is filled by PVC sheet strips called gap inserts to completely seal the door.

12.8.3 FIXING OF THE SHUTTER:

12.8.3.1 The PVC door shutter as fabricated above should be fixed to the door frame of M.S. T-iron long counter sunk fully threaded parallel shank steel screws. In case the PVC shutter is to be fixed to wooden frame/PVC frame, the screws to be used in the butt hinge shall be No. 10-40mm counter sunk fully threaded parallel shank steel screws. For fixing butt hinges to PVC shutter, use No. 10-40mm long counter sunk fully threaded parallel shank steel screws. All the screws should be screwed in by screwdriver and in no case these shall be hammered.

12.8.3.2 Each door shutter shall be fixed to the frame with 4 hinges of required size unless otherwise specified by the purchaser. The top and bottom hinges shall be fixed at location 200mm below top and 200mm above bottom of shutter. The remaining two hinges shall be places at one-third distance between top and bottom hinges.

12.8.3.3 For cupboard shutters, side hung of height upto 1.20metre, each leaf shall be hung on piano hinges and for shutter of height more than 1.2 metre, each leaf shall be hung on three M.S. butt hinges of required size at quarter points. On shutter side the screws to be used in butt hinges shall be No. 10x25mm long counter sunk fully threaded parallel shank steel screws. On door frame side screws to be used in the butt hinges shall be No. 10-12mm counter sunk fully threaded parallel shank steel screws in case T-iron frame is used. And in case of wooden door frames, screws shall be No. 10-25mm long counter sunk fully threaded parallel shank steel screws.

12.8.3.4 All screws shall be counter sunk fully threaded parallel shank steel screws only, unless otherwise specified. All the screws shall be screwed in with screw driver only and in no circumstances screws shall be hammered in.

12.8.4 FITTINGS AND ACCESSORIES:

12.8.4.1 Door stoppers aluminum/brass: These shall be fixed to the door shutter as required by the purchaser as per size and shape approved by him. Cleats and blocks of wood should not be used in any circumstances.

Fittings other than hinges like pull bolt lock, mortice lock, latch floor door stoppers etc. confirming to CPWD specification 2019 Vol. I & II shall be provided as per the schedule of fitting decided by the purchaser.

12.8.4.2 Mortice lock or latches: Shutter shall be shop prepared for taking mortice locks or latches as may be ordered. Shop preparing the door with morticed holes for lock fixing shall be done when desired by the purchaser.

12.9.0 DIMENSIONS, SIZES AND TOLERANCES:

TABLE 1 : -Dimension of door Shutters

S.No	Type of Shutter	Sizes (mm)	Thick ness	PVC Sheet Section Used							
				Styles		Beading		Rails		Panel Thick Ness	M.S. Sq. Tube
				T	W	T	W	T	W		
1.	Panel door shutter DS1(A)	730W – 2060 H	30mm	5	50	5	25	5	t=75 l=75 b=75	5	19x19
2.	Panel door shutter DS2(A)	830W – 2060 H	30mm	5	75	5	50	5	t=100 l=100 b=100	5	19x19
3.	Panel door shutter DS3(A)	930W – 2060 H	30mm	5	75	5	50	5	t=100 l=100 b=100	5	19x19
4.	Panel door shutter DS1(B)	700W – 2045 H	30mm	5	50	5	25	5	t=75 l=75 b=75	5	19x19
5.	Panel door shutter DS2(B)	800W – 2045 H	30mm	5	75	5	50	5	t=100 l=100 b=100	5	20x20
6.	Panel door shutter DS3(B)	900W – 2045 H	30mm	5	75	5	50	5	t=100 l=100 b=100	5	19x19

Note:

T = Thickness t = top rail
W = Width l = lock rail
b = bottom rail

12.10.2 PVC foam sheet shall not exceed the tolerances given below:

Sheet thickness (mm)	Tolerance (mm)
1	+ 0.15
2	+ 0.20
3	+ 0.25
4	+ 0.30
5	+ 0.35
6	+ 0.40
8	+ 0.50
10	+ 0.60
13	+ 0.75
19	+ 1.05

Note: - Generally the PVC sheet used for the panel door shutter is of 5 mm thickness.

Tolerance

(i) On weight of PVC section + 10 percent.

(ii) On weight of galvanized M.S. square tubes, M.S. rods + 5 percent (M.S. square/rectangular tubes to conform IS: 4923-1986).

(iii) On width and height of shutter + 3mm.

(iv) The tolerance in the thickness of door shutter shall be + 1mm. The thickness of door shutter shall be uniform through out with a permissible variation of not more than 0.8mm when measured between any two points.

Sizes and Types of Door Shutters

Sizes and types of door shutters shall generally conform to the modular sizes specified in Table-2.

TABLE-2 DIMENSION OF DOOR SHUTTERS

S. No.	**Designation**	**Size: A**		**Size: B**	Height (mm)
		Width (mm)	Height (mm)	Width (mm)	
1	DS 1	730	2060	700	2045
2	DS 2	830	2060	800	2045
3	DS 3	930	2060	900	2045

Note 1 D = Door, S = Single Shutter

Note 2 The designation indicates the size of door opening, the first number referring to width in modules of 10cm and the last number the height in modules of 10cm above finished floor level.

Note 3 Standard sizes of pressed steel and T-iron door frames are covered in CPWD Specification 2019 Vol. I & II.

Note 4 Manufactures may supply non-modular size by mutual agreement, if so specifically ordered by the purchaser.

Note 5(i) Shutters used with frames of T-iron or pressed steel conforming to CPWD Specifications 2019 Vol. I & II.

12.10.3 Shutters used with frames of timber or precast reinforced concrete conforming to IS: 4021-1983 and IS: 6523-1983 respectively shall be of size B.

Sizes of the Cup Board shutters shall be as required by the purchaser.

12.11 **WORKMANSHIP AND FINISH**

12.11.1 The surface of the shutters shall be free from any visible defects such as small pores, crazing, blistering, wrinkling, impurities, defective impregnation and colour blots.

12.11.2 Panels of the door shutters shall be flat and shall have smooth and level surface.

12.11.3 All the four edge of the door shutter shall be square. The shutter shall be free from Twist or Wrap in its plane.

12.11.4 The colour of the door shall be as mutually agreed between the purchaser and the manufacturer, which would be selected by the purchaser from the available range of colours being manufactured before placing order.

12.11.5 Scattered pin holes duly repaired and finished by applying resin and not noticeable shall be accepted.

12.11.6 No painting, primer is to be applied on the PVC door shutter.

12.12 TEST

12.12.1 TEST ON SHUTTERS

12.12.1.1 The tests as per Table – 3 shall be carried out by the manufacturer on door shutters. The method of carrying out the tests shall be as per IS: 4020-1994. Acceptability criteria shall be as mentioned against each test.

TABLE NO. 3 TEST ON DOOR SHUTTER

S.No.	Test	Acceptable criteria
1.	Dimensions and defects of squareness Test	As per IS: 4020-1994
2.	General Flatness Test	--do--
3.	Local Planeness Test*	--do--
4.	Impact Indentation Test	--do--
5.	Edge loading Test	--do--
6.	Buckling Test	--do--
7.	Misuse Test	--do--
8.	Slamming Test	--do--
9.	Shock Resistance Test	--do--
10.	Screw Holding Power Test	--do--

* Local planeness test shall be carried out on the rails, styles and panels separately.

12.12.2 Test on Material

12.12.2.1 Test as per Table – 4 shall be conducted on PVC sheet cut form the door shutter. The method of carrying out the test shall be as per reference code mentioned against each test. Acceptance Criteria shall be as given against each test.

TABLE – 4 TEST ON PVC MATERIALS

S.No.	Test	Test Method as per	Acceptable Value
1.	Density (at 27^0 C)	DIN 53479	Not less than 0.50 gm/cc
2.	Tensile strength at yield	DIN 53455	10 Mpa
3.	Elongation at Break	DIN 53455	Not less than 30%
4.	Impact Strength (IZOD) (Charpy unotched)	DIN 53453	Not less than 15 kg/m^3
5.	Hardness	DIN 53456	Not less than 25 N/mm^2
6.	Compressive strength at 10% strain	ASTMD – 695	Not less than 8.83 kg/ cm^2
7.	Flexural stress	DIN 53452	Not less than 20 Mpa
8.	Thermal Conductivity	DIN 52612	0.059 W/mk
9.	Water absorption after 96 hrs.	DIN 53495	Below 1 %
10.	Fire Rating	BS 476	Bl

12.13 LIST OF REFERRED INDIAN & OTHER STANDARDS

IS No.	TITLE
IS: 707-1976	Glossary of terms applicable to timber technology and utilization.
IS: 4020-1994	Door shutters – Methods of tests
IS:4043-1969	Recommendations for symbolic designation of direction closing and faces of doors, windows and shutters
IS: 10428-1983	Glossary of terms applicable to doors.
ISI	Specifications for testing of PVC materials 3360 (Pt-3/Sec.1) Density 3360 (Pt-5/Sec.3) Tensile Strength 3360 (Pt-5/Sec.3) Elongation at break 3360 (Pt-5/Sec.4) Impact Strength 3360 (Pt-5/Sec.12) Hardness 3360 (Pt-5/Sec.8) Compressive Strength 3360 (Pt-5/Sec.7) Flexural Strength 3360 (Pt-8/Sec.1) Water Absorption Fire Retardancy

12.14 SAMPLING AND CRITERIA FOR CONFORMITY

12.14.1 Lot in any consignment, all shutters of the same grade and type and manufactured under similar conditions of production shall be grouped together to form a lot.

12.14.2 The number of shutters to be selected at random from a lot shall depend upon its size and shall be in accordance with table (given below). Column 2 & 3 pertain to tests for Dimensions and defects of squareness test, general flatness test and local planeness test.

Column 4 & 5 pertain to all other tests as per Para 11.11.1 & 11.11.2.

TABLE – SAMPLE SIZE AND CRITERIA FOR CONFORMITY				
Lot Size	**Sample Size**	**Permissible No. of Defects**	**Sample size**	**Permissible No. of Defects**
1	2	3	4	5
26 to 50	5	0	1	0
51 to 100	8	0	1	0

101 to 150	13	1	2	0
151 to 300	20	2	3	0
301 to 500	32	3	5	0
501 to 1000	50	5	10	1
1001 and above	80	7	15	2

Note: For lot size 25 or less, number of samples to be taken for testing shall be as agreed to between the purchaser and the seller/ manufacturer.

12.15 PVC RIGID PANEL DOOR SHUTTER

12.15.1 SPECIFICATIONS: - Providing and fixing of factory made 30mm thick PVC rigid foam PANEL DOOR SHUTTER made from M S tubular frame of 19 gauge of size 19 x 19mm for styles and 15 x15mm for top and bottom tails and covered with 5mm thick heat moulded PVC 'C' channel having width of 50mm to form styles and PVC sheet of width 75mm to form lock rail, bottom rail and top rail on either side. The inner panel should be inserted with 5mm thick PVC sheet sealed with solvent cement adhesive to the styles and rails with 5mm x 25mm PVC sheet beading on either side.

12.15.2 WIREMESH: - To make wiremesh door instead of panel insert of 5mm PVC sheet, wiremesh of suitable gauge can be inserted & and sealed to the styles and rails using PVC beading.

12.15.3 LOUVERS : -The door shutters can be provided with louvers for the clear opening of 450x300mm at the bottom including one additional horizontal rail of size 50mm x 30mm and two vertical styles of size 50x30mm to accommodate the 5mm thick, 40mm wide PVC sheet louvers (eight Nos.) along with side 25mmx5mm size PVC sheet lapping with slant slots of 5mm width for fixing the louvers in position with PVC cement solvent adhesive and then providing 10mmx5mm size PVC sheet beading on two vertical sides with self tapping sheet metal screws etc. complete.

Note: Width of styles and rails will vary with the size of door; Recommended size of styles and rails is given in the table.

TABLE OF STYLES AND RAILS

Door width	**Styles Size**	**Rails Size**
600mm to 750mm	50mm	75mm
750mm to 900mm	75mm	100mm
900mm and above	100mm	125mm

13.0 **SPECIFICATION FOR STONE MASONRY**

13.1 The stone shall be sound hard free and decay and weathering, they shall be approved quality. Discolored or distorted stone with boulder skin or earthy or porous matter of stones with round surface shall not be used. The face stone shall be procured from the approved quarry and other stone also should be procured from approved quarry.

13.2 The stone shall be hammer dressed on all head joints. Faces shall be accurately squared and all face joints shall be dressed at right angle. The face of the stone shall be dressed and bushing shall not project more than 40mm.

13.3 MORTAR:- The mortar used for joining shall be as specific.

13.4 LAYING:- All stones shall be thoroughly wetted before use. No more than two stones shall be used in the height of course.

13.5 The wall shall be carried up truly in plumb. All courses shall be laid truly horizontal and all join shall be truly vertical. The stones shall break joints at least half the height of the course. No pinning shall be allowed on the face.

13.6 The depth of each course shall not be less then 13cm. and more that 23 cm. No course shall be of greater depth than any course below the height shall not exceeded the breadth of stones of the face. No stone shall tail into the walls lass than twice their height.

13.7 The masonry shall be carried up regularly. When the masonry of the part has to be delayed, the work shall be raked back at angle not exceeding 45 degree, toothing shall not be allowed.

13.8 BOND STONES:- Bond or through stone running right through walls shall be provided in each course at 152 cm. intervals. If the wall is more than 60 cm laid from face to back. These stones (or lines or stones) shall break joints by overlapping at least 15 cm. header or thought stone shall not be less than 45 cm long for walls upto 152 cm thick and at least 50 cm for thicker walls.

13.8.1 In case proper size of bond stone are not available bonds cements concrete 1:3:6(1 cement: 3 sand: 6 hard stone ballast 20mm and down gauge) right through the walls may be provided in each course at 5 feet interval with the special permission of the Engineer-in-charge but nothing extra shall be paid for this substitution.

13.9 JOINTS:- Stone shall be laid that all joint are full of mortar joints shall not be more than 20mm thick. No punning shall allowed on the face.

13.10 Where plastering or pointing is not required to be done, the joints shall be struck flush and finished at the time of laying.

13.11 Quoins shall be from stones at least 45 cm. long laid stretcher and alternatively.

13.12 INTERIOR FACE:- The work on the interior face shall be precisely the same as on the other face and backing at no stage shall be leveled up with chips. The hearting or backing shall be carried up simultaneously with facing.

13.13 HEARTING:- Hearting shall consist of flat bedded stones carefully laid on their proper beds and solidly bedded in mortar chips and spells of stones being wedged in wherever necessary so as to avoid thick beds on joints or mortar, care being taken that no dry work or hollow space shall be left anywhere in masonry. The percentage of stones chips for filling of interstices between the adjacent stones shall not exceed 10% of the quantity of stone masonry.

13.14 Suitable sizes of weep holes shall be left in the Retaining wall at suitable places as per direction of Engineer-in-charge and nothing extra shall be paid for the same.

13.15 CURING:- Green work shall be protection from the effects of sun, rain etc. by suitable covering. It shall be kept consequently moist of on all the faces for a period of at least 7 days. The top of masonry of the work shall be left flooded at the end of each work.

13.16 **RETAINING WALLS IN COURSED RUBBLE DRY MASONRY WITH BANDS OF COURSED RUBBLE MASONRY LAID MORTAR**

The specification of retaining wall in hammer dressed masonry will similar to the specification for coursed rubble masonry in cement except for:-

13.16.1 Mortar will be used only in bands as per drawing. Rest masonry will be dry. The space in hearting will be thoroughly packed with sprawls.

13.16.2 The back space in hearting will be kept vertical unless otherwise ordered and from face given required better.

13.16.3 Courses will be laid perpendicular to front face.

13.16.4 The stone used for Retaining walls at face shall be procured from the approved quarry. The rates of stone masonry for the items of retaining walls/ breast walls in dry and cement mortar masonry will be for all heights and depths. Nothing extra shall be payable beyond the quoted rates.

GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF WATER-PROOFING WORKS (All Water - Proofing Items).

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

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

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

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

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

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

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

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

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

1. ..... 2. .....

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

1. ..... 2. .....

GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF SANITARY INSTALLATIONS / WATER SUPPLY / DRAINAGE WORK.

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

WHEREAS THIS agreement is supplementary to a contract (Hereinafter called the Contract) dated ..... and made between the GUARANTOR OF THE ONE PART AND the Government of the other part, whereby the contractor inter alia, undertook to render the work in the said contract recited structurally stable, leak proof and sound material, workmanship, anodizing, colouring, sealing.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the affect that the said work will remain structurally stable, leak proof and guaranteed against faulty material and workmanship, and finishing for two years from the date of completion of work.

NOW THE GUARANTOR hereby guarantee that work executed by him will be free from any leakage, seepage, cracks in pipes and guaranteed against faulty material and workmanship, defective galvanizing for two years to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

The decision of the Engineer-In-Charge with regard to nature and cause of defect shall be final.

During this period of guarantee, the guarantor shall make good all defects and in case of any defect to satisfaction of Engineer-in-charge at his cost and shall commence the work for such rectification within seven days from the date of issue of the notice from the Engineer-in-charge calling upon him to rectify the defects failing which the work shall be got done by the Department by some other contractor at the guarantor's cost and risk. The decision of the Engineer-in-Charge as to the cost payable by the Guarantor shall be final and binding.

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

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

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

1. ..... 2. .....

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

1. ..... 2. .....

LIST OF FIELD TESTS

i) Particle size and shape.

ii) Slump test.

iii) Bulking of sand.

iv) Silt content of sand.

v) Temperature measuring with thermometer with brass protected end 0-200° C.

FIELD TESTING EQUIPMENT AND INSTRUMENTS

A. **Testing Equipment at Field Laboratories**

i) Balances
   a) 7kg to 10 kg. Capacity, Semi-self indicating type-Accuracy 10 gm
   b) 500 gm. Capacity, Semi-self indicating type Accuracy 1 gm
   c) Pan Balance – 5 Kg. Capacity, accuracy 10 gm.

ii) Sieves: as per IS 460-1962.
   a) I.S. Sieves – 450 mm internal dia of sizes 100 mm, 80 mm, 63 mm, 50mm, 40 mm, 25 mm, 20 mm, 12.5 mm, 10 mm, 6.3 mm, 4.75 mm complete with lid and pan.
   b) IS Sieves – 200 mm internal dia(brass frame) consisting of 2.36 mm, 1.18 mm, 600 microns, 425 microns, 300 microns, 212 microns, 150 microns, 90 microns, 75 microns with lid and pan.

iii) Equipment for slump test – Slump Cone, Steel Plate, tamping rod, steel scale, scoop.

v) Graduated measuring cylinders 200 ml capacity

vi) Enamel trays (for efflorescence test for bricks and other tests)
   a. 300 mm X 250 mm X 40 mm
   b. Circular plates of 250 mm dia
   c. 600 mm X 450 mm X 500 mm
   d. 450 mm X 300 mm X 40 mm.

B. **Field Testing Instruments**

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

C. **T&P Required**

Sr. no.	**Detail of T&P**	
1	Concrete mixer with hopper (Full bag)	1 No.
2	Steel props	------
3	Steel Shuttering	10 Sqm.
4	Needle Vibrator	1 No.
5	Floor grinding machine	1 No.
6	Welding machine	1 No.
7	Water pump	1 No.
8	Steel scaffolding	40 Sqm.

PROFORMA FOR TESTS CARRIED OUT

NAME OF THE WORK : DIVISION/

AGREEMENT NO. & DATE : SUB-DIVISION

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

Signature of Contractor

CEMENT/PAINT REGISTER

NAME OF WORK: DIVISION
AGREEMENT NO. SUB-DIVISION

Particulars of Receipt

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

Particulars of Issue

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

LIST OF PREFERRED MAKES FOR CIVIL WORKS LIST OF PREFERRED MAKES FOR CIVIL WORKS

S.No.	Material	PREFERRED Makes
1	(i) 43 Grade Ordinary Portland Cement / Portland Pozzolona Cement.	ACC, Ultratech, Vikram, Shree Cement, Ambuja, Jaypee Cement, Century Cement, J.K.Cement.
	(ii) White Cement	Birla White , J. K.White
2	Reinforcement Steel (TMT-Fe500)	SAIL, Tata Steel, Rashtriya Ispat Nigam Ltd (RINL), Jindal Steel & Power Ltd. and JSW Steel Ltd.
3	Water Proofing Compounds, Plasticizer, Super Plasticizer, Grouts, Polymers, Polyexpanse, Other construction chemicals	Weber, Fosroc, Pidilite, CICO, Sika, Huntsman (CibaGeigy),Ferrous Crete
4	Tubular Truss / Structural Steel in Truss	SAIL, Tata Steel, Rashtriya Ispat Nigam Ltd (RINL), Jindal Steel & Power Ltd. and JSW Steel Ltd., APL Apollo.
5	Poly carbonate Sheet	GE Plastic, LEXAN
6	Decking steel sheet	Ezydeck of TATA / Lloyd Superdeck
7	Admixtures	Fosroc, MBT, Sika, CICO, Asian
8	Particle Board	Kitply, Action TESA, Greenlam, Merino, Century.
9	Laminated Particle Board/ Laminates	Kitply, Action TESA, Greenlam, Century Ply, Merino, Sunmic, Archid ply
10	Flush door shutters/Factory made paneled door shutters	Duro, Kutty, Century, Green, Jayna, Merino, Jain Door Pvt. Ltd.
11	Fire Rated Doors	Signum Fire Protection, Kutty Doors, Shakti Metdoor, NAVAIR, ROMAT, Synergy Thrislington, Promat International, Jain Door Pvt. Ltd.
12	Wall panels, Sound absorbing ceiling & tiles, Acoustic Systems & Puff Panels	Armstrong, Himalyan Acoustics, Synergy Anakon, Gyptech, Bollard, MCRA Pacific, Anutone.
13	False Ceiling System along with supporting grid and metallic tiles	Armstrong, Hunter Douglas, Saint Gobain, Hi-Steel, Gyptech.
14	Plywood/Veneer	Green, Century, Merino, Kitply, Duro, Archid ply, Vivgo
15	Melamine Polish	Asian Paints Melamine Gold, Wudfin of Pidilite, Timbertone of ICI Dulux.
16	Floor Spring	HARDWYN, Godrej, Dorma, Dorset
17	Anodised Aluminium Hardware (Heavy Duty)	Kilong, Alualpha, Sigma, Classic, Hardima
18	Clear/Float/Frosted Glass	Saint Gobain, AIS, Pilkington
19	Stainless Steel Railing, Accessories etc.	JINDAL, Dorma, GEZE
20	Hermitically sealed performance glass &Toughened Glass	Saint Gobain, MODI, ASAHI
21	Fire rated vision Panels	Pilkington, SCHOTT, FERILITE, Saint Gobain.
22	Skylight –Thermoform	Mccoy Architectural System,Vergola, Abucob
23	G.I. Steel doorframe	Kutty Doors, Shakti Metdoor, NAVAIR,ROMAT, Synergy Thrislington.
24	Friction Stay Hinges	Earl-Bihari,Ebco, Rotto, Cotswold, GU, Dorset
25	EPDM Gasket	Hanu, Osaka, Avigiri, Alps, Anand
26	Glass processor for making DGU/Toughening	AIS, Art N Glass (Chandigarh), Kochar Glass Pvt. Ltd. (Bhopal), Kaenal Glass (Bhiwadi), GSE (Noida)
27	Polyester Powder Coating Shades	NEROLAC, BERGER,J&N

28	Silicon based water repellant /Weather Sealant	G.E. Plastics, Dow Corning, BECKER
29	Poly-Sulphide Sealant	Fosroc, Pidilite,Sika
30	Mosaic tiles/ Chequered Tiles	Ultra Tiles, Unitile, NITCO, NTC
31	Ceramic Tiles / Glazedtiles	Somany, RAK,Kajaria,Orient bell, Sunhearrt Ceramik,
32	Vitrified Tiles (Antiskid/Matt/Glazed)	Somany, RAK, Kajaria,Orient bell, Sunhearrt Ceramik
33	PVC Flooring	Armstrong, Unitex, LG Houses
34	Paver block & Kerb Stone	NITCO, Unitile, NTC, Ultra, Pooja concrete Fabricators.
35	Tile/ Stone Adhesive	Pidilite, Bal Endura, Fosroc,Ferrous Crete, Ultratech
36	Grouting Compound	BalEndura,Pidilite,Fosroc,FerrousCrete
37	Dash / Anchoring Fasteners	HILTI, Fischer, Bosch, Wurth.
38	Nuts / Bolts &Screws	GKW, Hilti,
39	Wall putty	Birla wall care, JK White
40	Curing compound	Fosroc, Sika, Cico
41	Oil Bound Washable Distemper	Asian Paints(Tractor acrylic distemper),ICI (Maxilite), Burger
42	Acrylic Distemper	Bison(Berger), Tractor(Asian), Maxilite (ICI)
43	Premium Acrylic Emulsion Paints	ICI(Supersmooth),Nerolac(Beautygold),AsianPaints(Premiumemulsion/professional interior emulsion), Burger
44	Cement Primer	BP White(Berger), Decoprime WT(Asian), White primer (ICI)
45	Steel Primer	ICI, Nerolac, Asian Paints
46	Wood Primer	ICI, Nerolac, Asian Paints (White)
47	Textured Exterior Paint	Asian paints (Apex with honeycomb roller finish) ICI (Weather shield with honeycomb roller finish, Kansai Nerolac(Excel with honeycomb roller finish)
48	Synthetic Enamel Paint	Asian (Apcolite Premium gloss enamel),ICI (Dulux gloss synthetic enamel), Kansai Nerolac (Synthetic enamel)
49	Epoxy Paint	Asian, ICI, Kansai Nerolac,
50	Fire Paint	Akzo Nobel Coatings India Ltd., PROMAT, Jotun, Asian Paints
51	G.I. / M.S. Pipe	Tata, Jindal (Hisar)
52	G.I.Fittings	Unik, AVR,Zoloto, SANT
53	HDPE Pipes	Reliance, JainPipes, ORIPLAST
54	DIPIPES	Electro steel, Jindal, TATADUCTURA
55	DI Fittings	Kartar ,Electro steel
56	CI Fittings	Neel , Kartar ,Sarkar
57	CI Double flanged sluice valve	Kirloskar, Sondhi, Kejriwal, Leader Zoloto
58	Float Valve	L&K, Leader, Zoloto,
59	UPVC pipe and Fittings	Astral, Supreme, Finolex
60	Centrifugally Cast(spun) Iron Pipes & Fittings	NECO, Kapilansh, SKF , BIC
61	Centrifugally Cast (spun)Iron(Class LA) Pipes	Neco, Electro Steel, Kapilansh
62	C.I. Manhole covers, frames & GI Gratings	NECO, RAJ Iron Foundary Agra,BIC, SKF
63	SFRC Manhole covers & gratings	KK, JAIN,PARGATI
64	Gun metal Valves ,globes	Sant, Leader,Zoloto
65	CP Brass Fittings	Jaquar, Kohler, Parryware, Hindware, SOMANY
66	Sanitary Fittings & accessories	Jaquar, Kohler, Parryware, Hindware, SOMANY

67	Water Meter	Prima, Kranti, Leader, Zoloto, Dashmesh
68	Brass stop & Bib Cock	Zoloto,Sant, L&K, Leader,
69	Mirror Glass	Atul, Modi Guard, GoldenFish
70	U-PVC Pipe	Astral, Supreme, Finolex
71	PVC Pipe &Fittings	Supreme, Finolex, Kisan
72	Non Return valve (Check valve) ½" to 1¼"	Zoloto, Sant, Leader
73	Brass Ferrules	Dhawan Sanitary Udyog (PRIMA), Kalsi, Annapurna
74	Insulation for hot water pipes	KAIFLEX , ARMAFLEX,CAREFLEX
75	Insulation for external / exposed hot water pipes	KAIFLEX , ARMAFLEX,CAREFLEX
76	Pipe protection for external water supply pipes	PYPKOTE, ARMAFLEX, AKPOLYKOTE,
77	Toilet Cubicles	Merino Industries Ltd (Titan Series), Green Sturdo, Green Ply Industries Ltd (Green lam Sturdo Classic),Trespa, Dorma
78	Hardware & Door fittings	Dorma, Kich, Ozone, Dorset
79	Door closer	Dorma, Kich, Godrej
80	Stainless Steel Sink (Out of Salem steel)	Neelkanth, Niralli, Jyna
81	European WC	Hindware, Parryware, Kohler, Jaquar, SOMANY
82	Washbasin	Hindware, Parryware,Kohler, Jaquar, SOMANY
83	Urinals	Hindware, Parryware, Jaquar, Kohler, SOMANY
84	CPVC Pipes & Fittings	Finolex, Supreme, Ashirwad, Astra
85	Stone ware pipes	Perfect, Taya
86	Gully Traps	Perfect, Parry
87	RCC Pipes (NP-2)	Lakshmi, Sood & Sood, Jain & Co.
88	Atactic Polypropylene	STP, HTL, Hydro Tech Ltd., Pidilite
89	UPVC Doors & Windows	Fenesta, Prizma Winsol Pvt. Ltd., ENCRAFT, PROMINANCE, VEKA
90	Extruded Polystrene Insulation Board	Dowcorning, Supreme, Texas, Analco
91	Heat Resistant Tiles	Swastik, Thermax
92	Gypsum Plaster	Ferrous Crete, Gyproc Saint Gobain, Boral
93	Floor hardener	Ironite, Ferrok, Hardonate
94	Modular Expansion Joint	Herculus, CS, Vexcolt. Devin.
95	SMC panel tank	Sovisy, DEVI polymers, Sintax
96	PVC Water storage tank	Sintex, Frontline Super, Vectus, Kaveri, Sheetal
97	AAC BLOCKS ISI Marked	EMMKAY GREENS AAC BLOCKS,RS Green
98	PVC Foam sheet/PVC False ceiling/wall panelling/Partition Kitchen Cabinet & Cupboard/Door & Frame	Rajshri Plastiwood (Division of rajshri Production Pvt. Ltd)

Note: - The Executive Engineer, Shimla Central Division-I, CPWD Shimla reserves the right to add or delete any materials and Brands in the list of preferred materials/brands.

SCHEDULE OF QUANTITIES (मात्रा अनुसूची)

Name of work: M/R to DPRA at Bemloe, Chotta Shimla and Park Area during 2026-27. SH: Repair of broken doors, flooring, provision of M.S. covered entrance in Oatland Lodge (U/F) Shimla (H.P.)

Sr. No	Description	Qty	Unit	Rate i/c C.I @ 25.23% except M/R and GST Correction factor	Amount	DSR No.	
1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :					4.1	
1.1	1:5:10 (1 cement : 5 coarse sand (zone-III) derived from natural sources : 10 graded stone aggregate 40 mm nominal size derived from natural sources)	7.00	cum	7,942.84	55,600.00	4.1.10	SR
2	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level in all shapes and sizes in :					6.4	
2.1	Cement mortar 1:4(1 cement :4 coarse sand)	1.00	cum	11,385.97	11,386.00	6.4.1	SR
3	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundations and plinth in :					6.12	
3.1	cement mortar 1:4(1 cement :4 coarse sand)	10.00	sqm	1,102.79	11,028.00	6.12.2	SR
4	Providing and fixing aluminium sliding door bolts, ISI marked anodised (anodic coating not less than grade AC 10 as per IS: 1868), transparent or dyed to required colour or shade, with nuts and screws etc. complete :					9.96	
4.1	250x16 mm	2.00	each	317.53	635.00	9.96.2	SR
5	Providing and fixing aluminium tower bolts, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete :					9.97	
5.1	150x10 mm	12.00	each	100.58	1,207.00	9.97.4	SR

6	Providing and fixing aluminium handles, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete :					9.100	
6.1	125 mm	12.00	each	80.72	969.00	9.100.1	SR
7	Providing and fixing wooden moulded corner beading of triangular shape to the junction of panelling etc. with iron screws, plugs and priming coat on unexposed surface etc. complete 2nd class teak wood.					9.111	
7.1	50x50 mm (base and height)	20.00	metre	431.77	8,635.00	9.111.1	SR
8	Providing wood work in frames of false ceiling, partitions etc. sawn and fixed in position :						
8.1	Second class deodar wood.	0.20	Cum	1,29,502.60	25,901.00	MR	MR
9	Providing and fixing panelled or panelled and glazed shutters for doors, windows and clerestory windows, fixing with butt hinges of required size with necessary screws, excluding panelling which will be paid for separately, all complete as per direction of Engineer-in-charge. (Note: Butt hinges and necessary screws shall be paid separately)						
9.1	Second class deodar wood 35mm thick shutters.	6.00	Sqm	3,921.09	23,527.00	MR	MR
10	Providing and fixing 9mm thick Optima Gold moisture resistance plywood of Green Ply or equivalent make with nails or screws on floor/wall etc. complete as per directions of Engineer-in-charge.	25.00	Sqm	2,403.16	60,079.00	MR	MR
11	Providing and fixing panelling or panelling and glazing in panelled or panelled and glazed shutters for doors, windows and clerestory windows (Area of opening for panel inserts excluding portion inside grooves or rebates to be measured). Panelling for panelled or panelled and glazed shutters 25 mm to 40 mm thick :						
11.1	Water Proof ply 12mm thick	4.00	Sqm	2,288.84	9,155.00	MR	MR
12	Providing and fixing phenol bonded type block board 19mm thick with commercial veneering on both faces in cup board shelves, sides, tables, panelling flooring etc. complete as per direction of the Engineer-in-Charge. (a) 19mm thick BWP Block Board of Greenply, Centuryply, archidply, kitply or equivalent make.	10.00	Sqm	2,269.33	22,693.00	MR	MR

13	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	1200.00	kg	162.91	1,95,492.00	10.2	SR
14	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.					10.25	
14.1	In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	500.00	kg	210.31	1,05,155.00	10.25.2	SR
15	Chequerred precast cement concrete tiles 22 mm thick in footpath & courtyard, jointed with neat cement slurry mixed with pigment to match the shade of tiles, including rubbing and cleaning etc. complete, on 20 mm thick bed of cement mortar 1:4 (1 cement: 4 coarse sand).					11.20	
15.1	Dark shade pigment using ordinary cement	20.00	sqm	1,364.09	27,282.00	11.20.3	SR
15.2	Ordinary cement without any pigment	20.00	sqm	1,287.15	25,743.00	11.20.4	SR
16	Providing and laying vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS: 15622, of approved make, in all colours and shades, laid on 20 mm thick cement mortar 1:4 (1 cement : 4 coarse sand), jointing with grey cement slurry @ 3.3 kg/ sqm including grouting the joints with white cement and matching pigments etc., complete.					11.41	
16.1	Size of Tile 600x600 mm	25.00	sqm	1,892.86	47,322.00	11.41.2	SR
17	Providing and fixing wooden laminated flooring 8 mm thick AC-4 grade of Greenply, Armstrong, BVG krono, Action Tesa, Vista or equivalent brand with 0.10mm thick polythene sheet as moisture barrier and 2mm thick foam for hush factor as per approved colour, shade and design for all pattern complete as per direction of Engineer-in-charge.	25.00	Sqm	1,443.64	36,091.00	MR	MR

18	Providing and fixing precoated galvanised iron profile sheets (size, shape and pitch of corrugation as approved by Engineer-in-Charge) of total coated thickness 0.50 mm (base metal of minimum 0.45 mm thickness with total coating thickness of 0.05mm) with zinc coating 120 grams per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns. Sheet should have protective guard film of 25 microns minimum to avoid scratches during transportation and should be supplied in single length upto 12 metre or as desired by Engineer-in-charge. The sheet shall be fixed using self drilling /self tapping screws of size (5.5x 55 mm) with EPDM seal, complete upto any pitch in horizontal/ vertical or curved surfaces, excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required.	30.00	sqm	900.04	27,001.00	12.50	SR
19	Providing and fixing precoated galvanised steel sheet roofing accessories of total coated thickness 0.50 mm (base metal of minimum 0.45 mm thickness with total coating thickness of 0.05 mm) with Zinc coating 120 gram per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns using self drilling/ self tapping screws complete :					12.51	
19.1	Ridges plain (500- 600mm)	10.00	metre	648.67	6,487.00	12.51.1	SR
19.2	Gutter (600 mm over all girth)	20.00	metre	1,600.73	32,015.00	12.51.6	SR
20	Providing and fixing IInd class deodar wood eaves board 200x25mm thick weather board and beading 50x25mm including PGI sheet line 0.63mm thick with zinc coating not less than 120gm/Sqm 150mm wide on top including fixing in position complete.	10.00	Metre	1,661.40	16,614.00	MR	MR
21	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade :					13.61	
21.1	Two or more coats on new work	60.00	sqm	189.96	11,398.00	13.61.1	SR
22	Demolishing cement concrete manually/ by mechanical means including disposal of material within 50 metres lead as per direction of Engineer - in - charge.					15.2	
22.1	Nominal concrete 1:3:6 or richer mix	5.00	cum	2,966.11	14,831.00	15.2.1	SR

	(including equivalent design mix)						
23	Taking out doors, windows and clerestory window shutters (steel or wood) including stacking within 50 metres lead :					15.13	
23.1	Of area 3 sq. metres and below	4.00	each	174.86	699.00	15.13.1	SR
24	Dismantling wooden boardings in lining of walls and partitions, excluding supporting members but including stacking within 50 metres lead :					15.39	
24.1	Up to 10 mm thick	25.00	sqm	74.32	1,858.00	15.39.1	SR
25	Dismantling old plaster or skirting raking out joints and cleaning the surface for plaster including disposal of rubbish to the dumping ground within 50 metres lead.	50.00	sqm	66.58	3,329.00	15.56	SR
26	Deduct for taking away CP pillar cock, brass bib cock, brass stop cock etc. and the like received from this dismantling. The material so received shall be the property of contractor after dismantling duly weighed/measured before removing from the site in presence of Engineer-in-Charge or his representative etc. all complete as per direction of Engineer-in-Charge.	5.00	Kg	-300.00	-1,500.00	MR	MR
27	Deduct for taking away doors, windows and clerestory windows architrave etc. and the like received from dismantling etc. all complete as per direction of Engineer-in-Charge. The dismantling material shall be the property of the contractor and nothing extra shall be paid for dismantling. (The doors/windows of area upto 3.0 sqm shall be considered as one number and above 3.0 Sqm upto 6.0 Sqm as two numbers and part thereof). (a) Wooden door shutter with chowkhat.	6.00	Each	-350.80	-2,105.00	MR	MR

28	Providing and fixing concertina coil fencing with punched tape concertina coil 600 mm dia 10 metre openable length (total length 90 m), having 50 nos rounds per 6 metre length, upto 3 m height of wall with existing angle iron 'Y' shaped placed 2.4m or 3.00 m apart and with 9 horizontal R.B.T. reinforced barbed wire, stud tied with G.I. staples and G.I. clips to retain horizontal, including necessary bolts or G.I. barbed wire tied to angle iron, all complete as per direction of Engineer-in-charge, with reinforced barbed tape(R.B.T.) / Spring core (2.5 mm thick) wire of high tensile strength of 165 kg/ sq. mm with tape (0.52 mm thick) and weight 43.478 gm/ metre (cost of M.S. angle, C.C. blocks shall be paid separately)	100.00	metre	457.90	45,790.00	16.53	SR
29	Providing and fixing C.P. Brass health faucet with 1 metre long easy flex tube in chrome finish and wall hook of Jaquar make CAT No ALD-565 or equivalent complete as per direction of Engineer in charge.	3.00	Each	1,215.62	3,647.00	MR	MR
30	Providing and fixing Double piece vanity counter basin of size 32 inch HDHMR full cabinet set including (Basin 810x475mm, Mirror cabinet 700x150x750mm, Floor mounted 770x451x680mm) of Somany make or equivalent make etc. complete as per direction of Engineer-in-Charge.	1.00	Each	31,780.42	31,780.00	MR	MR
31	Providing and fixing C.P. brass angle valve for basin mixer and geyser points of approved quality conforming to IS:8931					18.53	
31.1	15 mm nominal bore	6.00	each	699.77	4,199.00	18.53.1	SR
	Total				**8,63,943.00**		

NOTE:

(1) Refer Clause 7.

(2) Refer for Performance Guarantee and Additional Performance Guarantee as per DG Circular No. DG/Manual-2024/20 dated 27/02/2026 in Tender document.

(3) The contractor shall be responsible for the watch and ward/guard of the buildings, safety of all fittings and fixtures including sanitary and water supply fittings and fixtures provided by him against pilferage and breakage during the period of installations and thereafter till the building is physically handed over to the department. No extra payment shall be made on this account.

Asstt. Engineer (P)
सहायक अभियन्ता (योO)
Shimla Division-1
शिमला मण्डल-1
Central P.W.D, Shimla
केOलोOनिOविO, शिमला

Executive Engineer,
कार्यपालक अभियन्ता
Shimla Division-1
शिमला मण्डल-1
Central P.W.D, Shimla
केOलोOनिOविO, शिमला