Request for Proposal/Notice Inviting Tender

For

Experienced, Eligible and Reputed Specialized Contractor for Major Structural Repairs/Restoration, Renovation/Redesigning, Repainting, Plumbing Waterproofing and Allied Works required for Nandina, C-DAC Staff Quarters located at Bandra

Tender Notification No.: **CDACM/PS/CO23-034**

Tender Fee: Rs. 1000/- (plus 18% GST)

Issued By

Centre for Development of Advanced Computing

Gulmohar Cross Road No. 9, Juhu, Mumbai 400 049.

Telephone: +91 22 2620 1604, +91 22 2620 1574,

Fax: +91 22 2621 0139, +91 22 2623 2195

Website: www.cdac.in

Centre for Development of Advanced Computing (C-DAC), Mumbai, invites ***"Items rate tenders in two bid system (technical and financial bids based on LCS-Least Cost Selection- with technical scoring method) from Experienced, Eligible and Reputed Specialized Contractor for Major Structural Repairs/Restoration, Renovation/Redesigning, Repainting, Plumbing Waterproofing and Allied Works required for Nandina, C-DAC Staff Quarters located at Bandra, Mumbai".***

The Bidding Documents include the following

a) PART 1 - Invitation to Bid (ITB)
b) PART 2 - Disclaimer
c) PART 3 - Instructions for Online Bid Submissions
d) PART 4 - Instruction for Bidders (IFB)
e) PART 5 - Terms and Conditions of Contract (TCC)
f) PART 6 - Annexure, Bid Forms and other forms (BF)

The Bidder is expected to comply with all instructions, forms, terms and specifications in the Bidding Document. Failure to furnish all information required in the Bidding Document or to submit a Bid non-conforming to the Bidding Document in every respect will be at the Bidder's risk and may result in the rejection of the Bid.

The tenderer is bound to observe all the laws, rules, regulations, policies, procedures and guidelines of the Central Vigilance Commission (CVC) and Government of India as in force from time to time.

Contents

1. INVITATION TO BID

Centre for Development of Advanced Computing (C-DAC) is the premier R&D organization of the Ministry of Electronics and Information Technology (MEITY) for carrying out R&D in IT, Electronics and associated areas.

Centre for Development of Advanced Computing (hereinafter referred to as C-DAC) has its corporate office at Pune and other offices in various cities across the country.

C-DAC having one of its office located at Juhu, Mumbai invites e-Tenders through e-procurement portal on items rate in a two bid system based on LCS format from ***experienced, eligible and reputed Specialized Contractor for appointment of Major Structural Repairs/Restoration, Renovation/Redesigning, Repainting, Plumbing Waterproofing and Allied Works required for Nandina, C-DAC Staff Quarters located at Building Number-6, K.C. Marg, Reclamation, Bandra (West), Mumbai- 400050".*** The expected scope of work with necessary details is provided in ***Annexure-A.1***. Prices quoted should be inclusive of all levies and taxes etc.

Bid Document is available on CPP Portal Website http://eprocure.gov.in, for downloading purpose. An account payee Demand Draft/ Bankers' cheque of **INR 1000 plus 18% GST** from any Bank payable at Mumbai should be enclosed in favour of "**C-DAC Mumbai**" as RFP fee amount.

The Bank Details of C-DAC, Mumbai for the purpose of RTGS are given below :-

Name of Client **: CENTRE FOR DEVELOPMENT OF ADVANCE COMPUTING**

Name of Bank **: CENTRAL BANK OF INDIA**

Branch **: JVPD**

Account No. **: 31741200206**

IFSC Code **: CBIN0281621**

C-DAC does not bind itself to accept any or all the bids and reserve the right to reject any or all bids without assigning any reason.

1.1. Eligible Bidders

This invitation for bids is open to ***experienced, eligible and reputed Specialized Contractor /Firms*** of the tendered requirement as specified in ***Annexure-A.1***. The Bidder must also meet the prequalification criteria as specified in ***Annexure-B***.

1.2. Schedule of Events

1.	**RFP/Tender No.**	CDACM/PS/CO23-034
2.	**Nature Of Work**	Experienced, Eligible and Reputed Specialized Contractor for Major Structural Repairs/Restoration, Renovation/Redesigning, Repainting, Plumbing Waterproofing and Allied Works required for Nandina, C-DAC Staff Quarters located at Building Number-6, K.C. Marg, Reclamation, Bandra (West), Mumbai- 400050.
3.	**Estimated Cost of the Work**	Rs. 93 Lakhs. (Without GST) (Rupees Ninety Three Lakhs Only)
4.	**Period of Completion**	5 Calendar Months (150 days) from Date of issuance of work order or as mutually agreed upon between C-DAC and the successful bidder.
5.	**Period of Each Running Bill**	Minimum Rs. 15 Lakhs only & final Bill will be accepted of any value.
6.	**Date Of Commencement**	7 days from the date of issuance of work order or the date on which the contractor is instructed to take possession of the site whichever is later.
7.	**Cost of Tender Documents**	Rs. 1,000/- (Rupees. One Thousand Only) plus 18% GST. (To be deposited along with Tender Part-A by way of Demand Draft in favour of "C-DAC Mumbai" and payable in Mumbai.) Original DD/PO to be submitted to C-DAC office before the last date of tender submission & Xerox copy of the same to be uploaded with technical bid. The vendors are registered with DGS&D/ NSIC/ MC&IT/ MEITY/MSME irrespective of the stores for service activity in related to repairs maintenance works are exempted from payment of EMD & Tender Fee. Copy of Valid registration and documentary evidence to support the eligibility criteria for exemption should be attached with mentioning monetary limit of Rs. 100 Lakh or more are eligible to exempt for tender fees.
8.	**Earnest Money Deposit**	Rs. 93,000/- (Rupees. Ninety Three Thousand Only) By Means of Demand Draft / Pay Order (Valid for A Period Of 120 Days from The Last Date of Submission of The Tender) From Any Scheduled Nationalized Bank Drawn in Favour Of "C-DAC Mumbai" And Payable in Mumbai. Original DD/PO to be submitted to C-DAC office before the last date of tender submission & Xerox copy of the same to be uploaded with technical bid. The vendors are registered with DGS&D/ NSIC/ MC&IT/ MEITY/MSME irrespective

		of the stores for service activity in related to repairs maintenance works are exempted from payment of EMD & Tender Fee. Copy of Valid registration and documentary evidence to support the eligibility criteria for exemption should be attached with mentioning monetary limit of Rs. 100 Lakh or more are eligible to exempt to EMD
9.	**Bid Document Availability**	Bidding document can be downloaded from website eprocure.gov.in from 1400 hours on 21.03.2023 to 1730 hours on 20.04.2023
10.	**Last Date of Submission of Queries**	Date: 19.04.2023 Time: 1700 hours
11.	**Site Visit (Mandatory to upload in technical bid as per given in the RFP)**	**It is mandatory to do site visit to prospective bidders and the same should be upload in the Technical bid as per the format given in the RFP, who interested to participate in tendering process.** 1. Date of Site visit : 21/03/2023 to 20/04/2023 from 11.00AM to 04.00PM
12.	**Pre-Bid Meeting Date and Address**	The pre-bid meeting will be conducted offline as per the schedule given below: Date & Time: 28/03/2023 at 11:00 AM Address: C-DAC, Gulmohar Cross Road No. 9, Juhu, Andheri – 400049.
13.	**Last Date of Submission of Bids**	Date: 20.04.2023 Time: 1730 hours
14.	**Date and Time of Online Opening of Technical Bid**	Date: 21.04.2023 Time: 1730 hours
15.	**Opening of Financial Bid**	Will be intimated in due course of time.
16.	**Initial Security Deposit (ISD)**	The successful bidders to whom the contract is awarded shall deposit 1% (Who had submitted EMD in form of DD / PO) OR the bidder who had submitted MSME & NSIC certificate & taken exemption of EMD have to submit ISD of 2% of the accepted value of tender in form of security bank guarantee, validity of security bank guarantee shall be till the issue of work order. The said security bank guarantee will be released within 7 days from issue of work order, upon submission of PBG by the bidder
17.	**Additional Security Deposit (ASD)**	In case L-1 bidder quotes abnormally low rates then C-DAC reserves the right to seek appropriate justification along with additional security deposit (ASD) as required.
18.	**Solvency Certificate**	Latest Bank solvency certificate of Rs. 28 lakhs (30% of EC, excluding GST). From any bank only issued in current financial year shall be provided for pre-qualification along with Bank Confirmation letter. Solvency certificate to be issued on the

		name of C-DAC.
19.	**Tender Validity**	120 Days from Opening of Price Bid.
20.	**Water and Electricity**	Electricity required for the said purpose of work will be provided by the C-DAC And Contractor has to arrange water at their own cost. Water will not be provided by C-DAC.
21.	**GST**	Paid separately by the C-DAC as applicable.
22.	**Required Insurance Policies And Other Covid-19 Protocol For Proposed Repair Work.**	To Be Obtained & followed by The Contractor at His Own Cost.
23.	**Payment to Contractors** **1) R.A. Bill** **2) Final Bill** **3) ISD and ASD** **4) Retention Amount**	1) R.A Bills payment will be released by C-DAC within 10 working days of the certification of Bill by Consultant 2) Final Bill payment will be released by C-DAC within 30 working days of the certification of final Bill by Consultant. 3) ISD and ASD will be released along with final bill payment by C-DAC. 4) Release after completion of defect liability period i.e., 18 Months after work completion.
24.	**Work Warranty**	1) For Terrace waterproofing work:- 10 Years. 2) For Structural & Civil Repair work:- 10 Years. 3) For all Painting works:- 10 Years. Contractor shall give work warranty on Rs. 500/- stamp paper along with notary mentioning that if any type of defect noticed in warranty period on work done area and notified by C-DAC / Consultants, then immediately contractor must attend the same free of cost for all above-mentioned work. The Guarantee for the Terrace Waterproofing, Civil Structural repair works & Painting works is 10 years and hence, contractor has to provide Performance Bank Guarantee equivalent to 3% of value of executed said items for a period of 10 years.
25.	**Defect Liability Period**	18 Month (Eighteen Months) from the date of work completion as certified by the consultants.
26.	**Retention**	@5% retention amount will be deducted from every Bill and the same will be release after completion of defect liability period i.e. 18 Months after work completion. No interest shall be paid to the

		amount retained by the C-DAC as retention.
27.	**Liquidated Damages**	Rs. 5,000/- per day subject to maximum 5% of the contract value
28.	**Labour Stay At Site**	No labour will be allowed to stay at site during the execution of work.
29.	**Contact Details**	C-DAC OFFICE :- Gulmohar Cross road Number 9, Juhu, Mumbai- 400049 Mail id:- purchasem@cdac.in Landline: 022-26201604, Extn. 408, 401

2. DISCLAIMER

The information contained in this Request for Proposal (RFP) document or information provided subsequently to Bidder (s) or applicants through addendums/corrigendum through CPP portal on behalf of C-DAC is subject to the terms and conditions set out in this RFP document and all other terms and conditions subject to which such information is provided.

This RFP is neither an agreement nor an offer and is only an invitation by C-DAC to the interested Bidder (s) for submission of bids. The purpose of this RFP is to provide the Bidder (s) with information to assist the formulation of their proposals.

3. INSTRUCTIONS FOR ONLINE BID SUBMISSIONS

Bidder can refer to the Instructions provided at Central Public Procurement (CPP) Portal for e-Procurement at https://eprocure.gov.in/ for submission of their bids online.

All updates, corrigendum, addendum etc. Will published be on *https://eprocure.gov.in/*

Pre-BID MEETING is arranged Offline on 28/03/2023 at 1100 hours, C-DAC, Gulmohar Cross Road No. 9, Juhu, Andheri – 400049. All Interested bidders are requested to send their wish to raise any query in respect of this project, may do so, 2 days in advance by sending email on below mentioned email ID, prior to pre-bid meeting date. And also send the name of the representative attending the meeting.

Email to C-DAC	purchasem@cdac.in OR gracy@cdac.in / 022-26201604, Extn. 408, 401

Site Inspection Report:

This is to certify that M/s……visited C-DAC Staff Quarters Building located at Bandra., on…… and understood the general working condition and the mode of operations of the C-DAC Staff Quarters located at "Nandina", Building Number-6, K.C. Marg, Reclamation, Bandra (West), Mumbai-400050.

Name and Signature _____

Note: Site inspection report is mandatory to upload with Technical bid on e-procurement website along with tender, without which, the bid shall be rejected out rightly.

4. INSTRUCTIONS FOR BIDDERS (IFB)

4.1 Broad Scope of Work

C-DAC Mumbai (erstwhile NCST) has its Residential buildings in Bandra, Mumbai. The Residential building in Bandra is over 36 years old. The scopes of works to be executed by the contractors on award of work are as follows:-

1. Required all enabling work for the execution.
2. Removing loose/disintegrated concrete and Plaster (Wherever required).
3. Cleaning the affected rusted steel.
4. Adding steel, as required.
5. Applying Rust Remover & inhibitor coat to the steel.
6. Applying Bond Coat and doing Polymer Treatment.
7. Applying Micro Concrete / M: 30 Concrete for balcony Pardi casting, & lintel beam casting /repair work.
8. Separation gap filling.
9. External & Internal plaster (Wherever required).
10. Entire terrace slab re-casting with M-30 concrete.
11. Terrace / Chajja/ Headroom top & 08 Nos. WC/Bath waterproofing and renovation.
12. Plumbing work in patch.
13. Aluminium window removing & refixing as required.
14. Extension of Kitchen Platform with door shutters below platform.
15. External Painting Works as required
16. Internal Flat, Staircase & Common Passage Area Painting.

In order to carry out the required work, C-DAC Mumbai would like to avail the services from experienced, eligible and reputed Specialized Contractor Firms to perform the required scope of work as detailed out in ***Annexure-A-1*.**

4.2 Clarification / Amendment of Bidding Document

i. Bidder requiring any clarification of the Bidding Document shall notify C-DAC online as per the Date and time specified in the schedule of events. C-DAC may conduct a pre-bid meeting at their discretion to clarify the responses prepared and will also upload the responses online for clarification of the Bid Documents. No further queries and clarifications will be entertained after the last date of submission of queries.

ii. Clarification, if any, shall be issued by C-DAC through Corrigendum.

iii. Relaxation in any of the terms contained in the Bid, in general, will not be permitted, but if granted based upon the pre-bid queries, the same will be informed to all the bidders.

iv. In order to enable the bidders, reasonable time to take amendments into account while preparing the bids, C-DAC, at its discretion, may extend the deadline for submission of bids and same shall be informed to all the bidders through Corrigendum.

4.3 Pricing

i. Bidders are requested to quote rates for major structural repairs/restoration, renovation/redesigning, repainting, Plumbing waterproofing and allied works inclusive of all taxes and levies etc. including tax-break up for the requirement of the RFP in the BOQ format as per ***Annexure H***and prices must be quoted in INR (Indian Rupees) only.

4.4 Preparation of Bids

Online bids under two cover system comprising of **(1) The Technical Bid** and **(2) Financial Bid** should be submitted online on CPP Portal Website http://eprocure.gov.in/

4.4.1 Language of Bids

i. The Bid prepared by the Bidder, as well as all correspondence and documents relating to the Bid exchanged by the Bidder & C-DAC, and the supporting documents shall be in English only.

4.4.2 Documents Comprising of Bids

PART 1 Technical Bid

i. The technical bid should contain the signed soft copies of all documents specified in ***Annexure-C.***

ii. Any Technical Proposal not containing the above will be rejected.

iii. The Technical Proposal should NOT contain any price information. Such proposal, if received, will be rejected.

PART II Financial Bid

i. Financial Check List [as per ***Annexure–D***]

ii. Financial Bid Format [as per ***Annexure–E***] to be submitted online.

iii. Financial Bid [as per ***Annexure H***, BOQ] to be submitted online.

IMPORTANT

i. The bidders must carefully follow the instructions to submit the bids online through the Central Public Procurement Portal for e-Procurement at http://eprocure.gov.in/

ii. The bidder should bid for the required scope of work as provided in the Annexure A-1 services of this document. The bidders can inspect the site of work and acquaint about the work conditions before quoting the rates. For this, prior permission will have to be taken from CDAC before carrying out such visit.

iii. Bids received with selective or partial services will be disqualified.

iv. Tender Acceptance Letter (***Annexure-F***) should be filled, signed and stamped/certified properly.

4.4.3 Bid Form

i. The bidder shall complete the Financial Bid Format (***Annexure-E)*** and the appropriate Financial Bid [as per ***Annexure H***, BOQ] furnished in the Bid Documents, indicating the services to be rendered along with brief description of the services.

4.4.4 Bid Prices

i. All the prices, including taxes and levies, should be in Indian Rupees (INR). The bidder shall indicate "Unit Price", break-up for all types of taxes being considered, and "Total Price" against each item of services it proposes to supply as per the BOQ [as per ***Annexure H***].

ii. Bidder should take into account taxes, levies, logistics, and operational requirements as applicable based on the location (C-DAC Mumbai) where service to be provided.

iii. The prices quoted shall remain valid for 120 days from the date of opening of Financial Bid and in respect of accepted Bid; the prices quoted shall remain valid during the entire period of contract.

4.4.5 Service and Work Execution Schedule & Penalty for Delayed Services

i. Expecting completion of the overall structural repair work of building should be 5 months from date of placing of order.

ii. In the event of the delay in the services penalty as defined for SLA in ***Annexure-L*** will be applicable.

iii. This amount of penalty so calculated shall be deducted at the time of making final payment.

iv. Failure to adhere to the above clauses will make the Successful Bidder liable to forfeit the Performance Bank Guarantee (PBG) submitted in favour of C-DAC.

4.4.6 Documentary Evidence Establishing Bidder's Eligibility and Qualifications

i. The bidder should submit the bid documents online, as per the checklist specified in ***Annexure-C*****.**

4.4.7 Earnest Money Deposit (EMD)

i. Bidders shall have to deposit EMD of **Rs.93,000/- (Rupees. Ninety Three Thousand Only)** in the form of a Demand Draft from a Nationalised bank in favour of C-DAC Mumbai payable at Mumbai.

ii. Any Bid not secured, as above, will be rejected by C-DAC.

iii. The EMD of the unsuccessful Bidders shall be returned latest on or before 30 working days after the award of the contract, without any interest.

iv. The successful Bidder's EMD will be returned to the Bidder on submission of the Security Bank Guarantee (SBG). SBG (ISD) is equivalent to 2% of total contract amount. The SBG will be returned to the bidder within 07 days after issuing of Purchase/Work order, upon submission of Performance Bank Guarantee.

v. After the Work-order is issued to the successful bidder and the same is accepted by the bidder. The bidder has to sign a contract agreement with C-DAC within 07 days from the acceptance of the work.

vi. Successful bidder has to submit Performance Bank Guarantee within 7 days after issue of Purchase/Work order @ 3% of the value of the Executed Work i.e., waterproofing, structural repair works & Painting Work for 10 Years, which will be refunded without any bank interest on completion of 60 days beyond the warranty period/contractual

obligations.

vii. Exemption from submission of EMD & Tender Fee: **The bidders who are registered with DGS&D/ NSIC/ MC&IT/ MEITY/MSME irrespective of the stores for service activity in related to repairs maintenance works are exempted from payment of EMD & Tender Fee. Copy of Valid registration and documentary evidence to support the eligibility criteria for exemption should be attached with mentioning monetary limit of Rs. 100 Lakh or more are eligible to exempt to EMD. Failing which Tender will be rejected.**

viii. The EMD may be forfeited:

a) If a Bidder withdraws his Bid during the period of Bid validity specified in this RFP; or

b) if a Bidder makes any statement or encloses any form which turns out to be false / incorrect at any time; or

c) in the case of a successful Bidder, if the Bidder fails;

i. to deliver as per the terms of the Purchase Order; or

ii. to furnish Performance Bank Guarantee (PBG)

4.4.8 Period of Validity of Bids

i. Bids shall remain valid for a period of 120 days from the date of opening of Financial Bid. Any Bid valid for a shorter period will be rejected by C-DAC.

ii. In exceptional circumstances, C-DAC may solicit the Bidders' consent to an extension of the period of validity. The request and the responses thereto shall be made in writing. The EMD provided shall also be suitably extended. A Bidder may refuse the request without forfeiting its EMD.

4.4.9 Format and Signing of Bid

i. The bidder shall prepare and submit (online) the Technical and Financial bids separately.

ii. The bid documents shall be digitally signed and submitted on the CPP portal.

4.5 Submission of Bids

4.5.1 Sealing and Marking of Bids

i. Bidder should log into the site http://eprocure.gov.inwell in advance for bid submission so that he/she uploads the bid in time i.e. on or before the last date and time for the bid submission.

ii. While submitting the bids online, the bidder shall read the terms & conditions (of CPP portal) and accept the same in order to proceed further to submit their bid.

iii. Bidder shall select the payment option as offline, submit the Tender Fee and EMD in the form of a Demand Draft (DD) from any bank in favour of C-DAC Mumbai payable at Mumbai and enter details of the relevant instrument online. Tender fee and EMD should reach C-DAC, Mumbai before the last date and time specified for submission of bids.

iv. Bidder shall follow the online bid submission process and upload the required bid documents one by one as indicated in the tender document.

v. Utmost care shall be taken for uploading Bill of Quantities (BOQ) [**as per *Annexure H***] & Price Bid and any change/ modification of the price schedule shall render it unfit for bidding. Bidder shall quote their rates, thereafter save and upload the file in financial bid cover (Price bid) only. The bidders are cautioned that uploading of financial bid elsewhere i.e., other than in cover 2 will result in rejection of the bid.

vi. Bidders shall submit their bids through online e-Tendering (CPP) system well before the last date and time for bid submission as per Server System Clock. C-DAC will not be held responsible for any sort of delay or difficulties faced during the submission of bids online by the bidders at the last moment.

vii. In case of any discrepancy between rates mentioned in figures & words, the latter shall prevail.

viii. Conditional tenders, on whatsoever ground, shall not be accepted and summarily rejected.

ix. After the bid submission (i.e. after Clicking "Freeze Bid Submission" in the portal), the bidders shall take print out of system generated acknowledgement number, and keep it as a record of evidence for online submission of bid, which will also act as an entry pass to participate in the bid opening.

x. Bidder should follow the server time being displayed on bidder's dash board at the top of the tender website, which shall be considered valid for all actions of the Bidder including bid submission, bid opening etc., in CPP Portal.

4.5.2 Late Bids

i. Bids submitted after due date as specified in this document will not be considered and will be rejected.

4.5.3 Modification and Withdrawal of Bids

i. No Bid may be modified / withdrawn after the due date and time specified in this RFP for submission of the Bid. Modification/Withdrawal of a Bid after the due date and time specified for submission of bid may result in the Bidder's forfeiture of his EMD.

4.5.4 Opening and Evaluation of Bids

4.5.4.1 Opening of Technical Bids by C-DAC

i. Bid Opening Committee will open the bids in the presence of bidders or their authorized representatives who choose to attend the same on the bid opening date and time. Technical Bids will be evaluated as per the criteria specified in ***Annexure-B.*** Also, the bidders can participate online during the bid opening process from their end through their dashboard on the tender website. Authority letter to this effect shall be submitted by the bidders before they are allowed to participate in bid opening.

ii. The date fixed for opening of bids, if subsequently declared as holiday by the Govt., the bids will be opened on the next working day, time and venue remaining unaltered.

4.5.4.2 Preliminary Examination

i. C-DAC will examine the Bids to determine whether they are complete, required formats have been furnished, the documents have been properly signed, and the bids are

generally in order.

ii. Prior to the detailed evaluation, C-DAC will determine the responsiveness of each Bid to the Bidding Document. For purposes of these Clauses, a responsive Bid is one, which conforms to all the terms and conditions of the Bidding Document without any deviations. Bids which do not conform to the terms and conditions of the RFP shall be rejected.

4.5.4.3 Bid Evaluation

C-DAC shall evaluate the technical bids in order to determine whether bidders are eligible and their bids are complete in all respects, required securities/ sureties have been furnished, the attached documents have been properly signed and qualified per as laid down qualification criteria in LCS. C-DAC would upload the result of evaluation online on CPP Portal. The technical score shall be out of a maximum of 100 marks. Minimum qualifying number will be **75 out of 100** to be treated as ***'technically eligible'*** for opening of financial bid. The technical bid evaluation marks will not be taken into consideration for final selection of L-1 bidder, for awarding of contract.

4.5.4.4 Financial Bid Opening

i. C-DAC shall shortlist bids of those bidders who are eligible, qualified per as laid down qualification criteria in LCS and have submitted technical responsive bid, for opening of financial bid. The bidders declared successful in technical bid evaluation would be considered for the opening of financial bids. The financial Bids of technically disqualified bidders would not be opened by C-DAC.

ii. The evaluation and comparison of responsive bids shall be done on the basis of of Least Cost Selection (LCS) method defined in the tender document.

iii. The evaluation shall be done to determine lowest bidder (L1) on the basis of Least Cost Selection (LCS) method. Also, the result of Financial Evaluation would be uploaded on CPP Portal.

iv. Everything else being equal, preference will be given to the bidder providing additional services etc. other than that of the scope specified in this document.

v. C-DAC may ask the bidder to correct any minor infirmity or non-conformity or irregularity in a bid which does not constitute a material deviation before opening of financial Bid, provided such waiver does not prejudice or affect the relative ranking interests of any other bidder and also the financial bid of the bidder is not changed.

vi. In case of Abnormally Low Bid, in which the Bid price, in combination with other elements of the Bid, appears so low that it raises material concerns as to the capability of the Bidder to perform the contract at the offered price. C-DAC may in such cases seek written clarifications and additional security apart from the one mentioned in the tender from the Bidder, including detailed price analyses of its Bid price in relation to scope, schedule, resource mobilization, allocation of risks and responsibilities, and any other requirements of the bids document. If, after evaluating the price analyses, procuring entity determines that the Bidder has substantially failed to demonstrate its capability to deliver the contract at the offered price, the Procuring Entity may reject the Bid/ Proposal and choose to go ahead with the next lowest bidder.

vii. Calculation of ASD:-

ASD amount= (X-10)% of the difference between estimated cost of the project (excluding GST) and the amount quoted by the bidder

Where 'X'= Percentage difference between estimated cost of the project (excluding GST) and the amount quoted by the bidder.

viii. In case the Bid price, in combination with other elements of the Bid, appears to be highly quoted with respect to the estimated cost. In such situation, C-DAC reserves the right to negotiate with the L-1 bidder with respect to their quoted rates. If the L-1 bidder rejects the offer after negotiation, then C-DAC may sit for further negotiations from the subsequent bidders in the list.

4.5.4.5 Contacting C-DAC

i. No Bidder shall contact C-DAC on any matter relating to their Bid, from the time of opening of Price Bid to the time the Contract is awarded.

ii. Any effort by a Bidder to influence C-DAC in its decisions on Bid evaluation, bid comparison or contract award may result in the rejection of the Bid.

4.5.4.6 Award Criteria

i. C-DAC will award the Contract to the successful Bidder who meets all the criteria listed in this RFP and qualifies to perform the contract satisfactorily based on high ranking in LCS marking.

ii. C-DAC reserves the right to award the order to the subsequent lowest next bidder, in case of non-acceptance by the L-1 bidder.

4.5.4.7 C-DAC's right to accept Any Bid and to reject any or All Bids

i. Notwithstanding anything said above, C-DAC reserves the right to accept or reject any Bid or cancel the entire process or modify the terms and conditions.

4.5.4.8 Notification of Award of Contract

i. The notification of award of contract will be in the form of Letter of Intent / Purchase Order issued to the Successful Bidder. The Successful Bidder should convey acceptance of the award of contract by returning duly signed and stamped duplicate copy of the Letter of Intent / Purchase Order within 3 working days of receipt of the communication.

ii. Upon notification of award of contract to the L1 Bidder, C-DAC will promptly notify each unsuccessful Bidder and will return their EMD.

iii. If L1 bidder refuses to accept the offer, then C-DAC reserves the right to award the contract to the next lowest bidder(s).

4.6 Security Bank Guarantee (SBG)

i. Security Bank Guarantee (SBG) equivalent to 2% of total contract amount shall be submitted by the successful bidder on receiving of EMD. The SBG will be returned to the

successful bidder with 7 days after issuing of the Purchase/work order, upon submission of PBG.

4.7 Performance Bank Guarantee (PBG)

i. Successful bidder will also have to submit PBG, on receiving of the SBG. PBG will be equivalent to 3% of the value of the work executed (Waterproofing, structural repair & Painting works) in the format (***Annexure-G***) is to be submitted by the Successful Bidder from a Nationalised/Scheduled Bank.

ii. The proceeds of the PBG shall be payable to C-DAC as compensation for any loss resulting from the successful bidder's failure to complete his obligations under the Contract.

iii. The validity of PBG shall be 60 days beyond the date of warranty period against Waterproofing, structural repair & Painting work for 10 years.

iv. The PBG will be discharged by C-DAC without any bank interest after a period of sixty (60) days beyond completion of the successful bidder's performance obligations, including any warranty obligations under the contract i.e. 10 years.

4.8 No Claim Certificate and Release of Contract Securities

i. The contractor shall submit a 'No-claim certificate' in the format (***Annexure-H)*** to the C-DAC in such form as shall be required by the C-DAC after the Services are finally admeasured and before the final payment/ performance securities are released. C-Dac shall release the contractual securities without any interest if no outstanding obligation, asset, or payments are due from the contractor. The contractor shall not be entitled to make any claim whatsoever against the C-DAC under or arising out of this Contract, nor shall the Procuring Entity entertain or consider any such claim, if made by the contractor, after he shall have signed a "No Claim" Certificate in favour of the Procuring Entity. The Contactor shall be debarred from disputing the correctness of the items covered by the "No Claim" Certificate or demanding a clearance to arbitration in respect thereof.

4.9 Signing of Contract

i. Failure of the Successful Bidder to comply with the requirement of this RFP shall constitute sufficient grounds for the annulment of the award of contract and forfeiture of the EMD.

ii. C-DAC reserves the right either to forfeit the EMD or to cancel the Purchase Order or both, if the Bidder fails to meet the terms of this RFP or contract entered into with them.

iii. Notwithstanding anything said above, C-DAC reserves the right to reject the RFP or cancel the entire process without assigning any reason whatsoever.

5. Payment to contractors

i. Payment in respect of services shall be made as per ***Annexure-*****N**. For claiming this payment, the following documents are to be submitted:

a. **R.A. Bill:-** R.A Bills payment will be released by C-DAC within 10 working days of the certification of Bill by Consultant
b. **Final Bill: -** Final Bill payment will be released by C-DAC within 30 working days of the certification of final Bill by Consultant.
c. **ISD and ASD: -** ISD and ASD will be released along with final bill payment by C-DAC.
d. **Retention Money: -** Release after completion of defect liability period i.e., 18 Months after work completion.

ii. All the bills will be certified by the PMC. And the same will be verified & accepted by C-DAC. C-DAC Engineer may also verify the same.

iii. No payment will be made without consultant's certificate.

6. Service Level Agreement (SLA)

6.1 Delays in the Successful Bidder's Performance

As per the SLA described in ***Annexure-L***

7. Terms and Conditions of the Contract

7.1 General

i. The amount quoted by the contractors includes all the expenses such as salaries of his staff, his fees, conveyance, for visiting the site, attending meetings, inspecting etc.

ii. Time of completion: 150 calendar days from the date of award of the work order or as mutually agreed upon between C-DAC and the successful bidder. Bidder shall follow the timelines as mentioned in ***Annexure A-2***

iii. Defect liability period shall be 18 months (Eighteen Months) after the completion of the said works as certified by consultants and accepted by C-DAC. The contractors shall be responsible for satisfactory rectification of the defects. It shall be the duty of the contractors to ensure that all such defects are rectified within 15 days without any further charge failing which CDAC shall be entitled to receive appropriate compensation as per the SLA.

iv. The Contractor shall exercise all reasonable skills, care and due diligence in the discharge of duties of the said works. The contractor shall visit the site and minutely go through each and every point on site as per the scope of work laid down and any query regarding the same may be raised in the pre-bid meeting on the date as mentioned in this tender document. No further site visit will be entertained by C-DAC apart from the one mentioned in this RFP.

v. The Contractor shall prepare a comprehensive programme of work in consultation with the contractors and have the work completed as scheduled in the programme.

vi. The whole of the works included in the contract shall be executed by the contractor and the contractor shall not directly or indirectly transfer, assign or underlet the contractor or any part, share or interest therein nor, shall take a new partner, without written consent of the C-DAC and no subletting shall relieve the contractor from the full and

entire responsibility of the contract or from active superintendence of the work during their progress.

i. The contractor shall give full time technical experienced competent personnel (minimum one Civil Engineer) for physical supervision and taking site measurements during execution and till successful completion of works. If required Minimum 02 number of personnel (1 Civil engineer and 1 senior technical persons/supervisors, should be deputed for ensuring smooth progress of the work.)

ii. The contractor shall completed works strictly on time. Delay in any works will invite penalty as per the SLA in ***Appendix-J.***

iii. The contractor shall inform in writing within 15 days after successful completion of work. After inspecting the work and if there is no defect, final completion certificate should be furnished.

iv. Termination of the contract /Agreement by C-DAC:

   a. CDAC reserves the right to cancel /withdraw / terminate the project at any stage in which case the contractor will be paid only for the actual work executed successfully. There is no binding on CDAC to give any reasons for the same.

   b. In (a) above, the contractor shall submit all the documents, reports, statements, bills, etc. to CDAC.

7.2 Sub-contracts

i. The successful bidder shall not subcontract the work awarded to him under this RFP. If it is found at any stage that the Successful Bidder has sub-contracted the work, all his pending payments and Bank Guarantee shall be forfeited to C-DAC and contract shall be terminated.

7.3 Force Majeure

i. Notwithstanding the provisions of Terms and Conditions of Contract (TCC), the successful bidder shall not be liable for forfeiture of his PBG, liquidated damages, or termination for default if and to the extent that the delay in performance or other failure to perform its obligations under the Contract, is the result of an event of Force Majeure.

ii. For purposes of this clause, “Force Majeure” means an event beyond the control of the successful bidder and not involving the successful bidder’s fault or negligence and not foreseeable. Such events may include, but are not restricted to, acts of C-DAC in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.

iii. If a Force Majeure situation arises, successful bidder shall promptly notify C-DAC in writing of such condition and the cause thereof. Unless otherwise directed by C-DAC in writing, the successful bidder shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

7.4 Resolution of Disputes

i. C-DAC and the successful bidder shall make every effort to resolve amicably by direct informal negotiation, any disagreement or dispute arising between them under or in

connection with the Contract.

ii. If the parties fail to resolve their differences by mutual agreement then the dispute shall be settled as follows:

a. In accordance with the Indian Arbitration & Conciliation Act, 1996

b. Arbitration proceedings shall be held at Mumbai, and the language of the arbitration proceedings and that of all documents and communications between the parties shall be English.

7.5 Governing Language

i. The governing language shall be English.

7.6 Applicable Law

i. The Contract shall be interpreted in accordance with the laws of the Union of India and shall be subject to the exclusive jurisdiction of courts at Mumbai.

7.7 Addresses for Notices

i. The following shall be the address of C-DAC and the successful bidder.

C-DAC's address for notice purposes:

The Executive Director,
C-DAC
Gulmohar Cross Road No. 9, Juhu
Mumbai - 400049

Successful Bidder's address for notice purposes

<To be filled in by the Successful Bidder)>

ii. A notice shall be effective when delivered or on effective date of the notice, whichever is later.

7.8 Liquidated Damages

i. Should the work be not completed to the satisfaction of the C-DAC / Consultants within the stipulated period, the contractor shall be bound to pay to the C-DAC a sum calculated as given below by way of liquidated damages and not as penalty during which the work remains uncommented or unfinished after the expiry of the completion date.

The work should complete on time or as mentioned elsewhere. If the contractor fails to complete the job within the stipulated time, he will bear the cost of penalty at Rs. 5000/- per day till completion of work after the scheduled time period. The maximum limit of the penalty amount is restricted to 5% of the total value of the work.

7.9 Limitation of Liability

If the contractor or his working people or servants shall break, deface, injure or destroy any part of building in which they may be working, or any building, road, road kerb, fence, enclosure, water pipe, cables, drains, electric or telephone post or wires, trees, grass or grassland, or cultivated ground contiguous to the premises on which the work or any part is being executed, or if any damage shall happen to the work while in progress, from any cause whatever or if any defect, shrinkage or other faults appear in the work within 18 months i.e. till defect liability period, after a certificate final or

otherwise of its completion shall have been given by the C-DAC as aforesaid arising out of defect or improper materials or workmanship the contractor shall upon receipt of a notice in writing on that behalf make the same good at his own expense or C-DAC may make the same good by other workmen and deduct the expense from any sums that may be due or at any time thereafter may become due to the contractor, or from his security deposit or the proceeds of sale thereof or of a sufficient portion thereof. The security deposit of the contractor shall not be refunded before the expiry of 18 months after the issue of the certificate final or otherwise, of completion of work, or till the final bill has been prepared and passed whichever is later.

8. SPECIAL INSTRUCTIONS

8.1 GENERAL

i. The scope of work covers execution and completion of the Proposed **Tender for Experienced, Eligible and Reputed Specialized Contractor for Major Structural Repairs / Restoration, Renovation / Redesigning, Waterproofing and related works required for Nandina, C-DAC Staff Quarters located at Building Number-6, K.C. Marg, Reclamation, Bandra (West), Mumbai- 400050,** With Technical specifications prepared by and under the direction and to the satisfaction of the Consultant / C-DAC.

ii. **Contract:** The form of Contract shall be according to the Conditions of Contract. The following clauses shall be considered as an extension and not in limitation of obligation of the Contractor.

iii. **Dimensions:** Figured dimensions are in all cases to be accepted in preference to scaled sizes. Large scale details take precedence over small scale drawings. In case of any discrepancy the Contractor shall ask for clarification before proceeding with the work. The Contractor shall include in his rates for all the items listed in this section.

iv. **Contractor to inspect site :** The Contractor shall visit and examine the site and satisfy himself at his own cost as to the nature of the existing roads or other means of communications, the character of the Consultant, the extent and magnitude of the work and facilities for obtaining materials and shall obtain generally his own information. Any misunderstanding or incorrect information on any of these points or on the grounds of insufficient description, will not be allowed.

v. **Access to site**: The Contractor is to include in his rates for forming access to site, with all temporary roads gangways required for the works.

vi. **Access for inspection:** The Contractor is to provide at his own cost all times during the progress of the works and the maintenance period proper means of access, with ladders, gangways etc. and the necessary attendance to move and adapt as directed for the inspection of measurement of the works by the Consultant or their representatives.

vii. **Attendance upon all trades :** The general Contractors shall be required to attend on all the tradesmen or sub-contractors appointed by the C-DAC for water supply and sanitary, electrical installation, security, equipment, hardware, telephone and other specialist Contractors. The rates quoted shall be inclusive of all attendance and also allow the other Contractors, appointed by the C-DAC, use of his scaffolding and retain until such time the relevant sub-contract works are completed.

viii. **Stores and watchmen:** The Contractor shall provide at his own cost for necessary stores of adequate dimension for storage and protection of materials etc. if required. All such

stores shall be cleared away and then left in good order on completion of the Contract to the satisfaction of the Consultant. All materials which are stored such as ply, wood, Laminates or any other matter shall be stacked in such a manner as to facilitate rapid and easy checking of quantities of such materials. The Contractor shall nominate a person who would take instruction from the Consultant/ C-DAC.

ix. **Cost of transporting:** The Contractor shall allow at his cost for all transporting unloading, stacking and storing of supplies of goods and materials for this work on the site and in the places approved from time to time by the Consultant. The Contractor shall allow at his price for transport of all materials controlled or otherwise to the site.

x. **Office accessories and accommodation:** The Contractor shall also provide at his own expense office furniture with drawing accessories for the official use of the controller and at all times maintain in good working order Necessary instruments at site to enable the Consultant/ C-DAC to check the lines and levels of the work.

xi. **Materials workmanship & samples:** Materials shall be of approved quality and the best of their kind available and shall generally conform to relevant I.S. specifications. The Contractor shall order all the materials required for the execution of work as early as necessary and ensure that such materials are on site well ahead of requirement for use in the work. The work involved calls for high standard of workmanship combined with speed and to the entire satisfaction of the Consultant. Before ordering materials, the Contractor shall get the samples approved from the Consultant well in advance.

xii. **Rates for non-tender items:** Rates of items not included in schedule of specification shall be settled after submission the contractor's analysis of rates adopting the principles required, after scrutinizing the analysis and other person furnished will allow such rates as he considers reasonable after obtaining C-DAC sanction / approved. As per engineer's practice profit & overheads @ of 15% shall be given.

xiii. **Rates to include:** The rates quoted shall be for all heights and depths and for finished works, in any shape. The Contractor shall ascertain from all particulars relating to the work with regard to the order of its execution and the position in which chases, holes and similar items will be required, before the work is taken in hand as no claims for extra will be allowed for cutting away work already executed in consequence of any neglect by the Contractors to ascertain these particulars beforehand.

xiv. **Testing of work and material:** The Contractors shall, if required by the Consultant/ C-DAC, arrange to test materials and/or portions of the work at his own cost in order to prove their soundness and efficiency. If after any such test the work or portion of work is found in the opinion of the Consultant to be defective or unsound, the Contractor shall pull down and redo the same at his own cost, defective materials and the debris shall immediately be removed from the site. Following test to be conducted for every fresh batch of the material received at site :

1. Compressive Strengths of Polymer Mortar cube: (07 & 28 Days)
2. Compressive Strengths of MICRO CONCRETE cube: (07 & 28 Days)
3. Compressive Strengths of M-20/25/30 CONCRETE cube: (07 & 28 Days)
4. Compressive Strengths & Water Absorption Test of Bricks
5. Silt Content Checking of Sand at site.
6. Following Tests Of CEMENT

a) Fineness Test.
b) Consistency Test.
c) Setting Time Test.
d) Strength Test.
e) Soundness Test.
f) Heat of Hydration Test.
g) Tensile Strength Test.
h) Chemical Composition Test.

Above listed items shall be tested at any NABL approved material test laboratory by the contractor and his own cost as and when required by C-DAC and guidance by the consultants.

xv. **Foreman and Tradesmen:** All tradesmen shall be experienced men properly equipped with suitable tools for carrying out all the work of carpentry and joinery and other special trades in a first class manner and where the Consultant deem necessary, the Contractor shall provide any such tools, special or ordinary which are considered necessary for carrying out the work in a proper manner. All such tradesmen shall work under an experienced and properly trained Forman, who shall be capable of reading and understanding all drawings pertaining to this work.

xvi. **Work program weekly progress report:** The Contractor shall prepare and submit to Consultant/ C-DAC for approval, a bar chart showing the program of Repairs works of various items, fitted within the period stipulated for completion, along with submission of the tender. The Contractor shall also furnish necessary particulars to the Consultant for compiling weekly progress reports in the form furnished by the Consultant/ C-DAC.

xvii. **Clearing of site:** The Contractor shall after completion of the work clear the site of all debris and left over material at his own expense to the entire satisfaction of the Consultant and municipal or other public authorities.

xviii. **Photographs:** The Contractor shall at his own expense supply to the Consultant with duplicate copies of large colour photographs not less than 25 x 20 cm. (10" x 8") of the works of all the buildings from all sides such as at beginning of the work, at completion of work and at every 15th & 30th of the month when works are in progress without fail.

xvix. **Preparation of Premises for occupation and use on completion:** The whole of the work shall be thoroughly inspected by the Contractors and all deficiencies and defects put right. On completion of such inspection, the Contractor shall inform the Consultant in writing that he has finished the work and it is ready for the inspection of Consultant/C DAC.

The Contractor shall provide his qualified Site Engineer having at least Diploma in Civil Engineering with minimum 08 years or B.Tech with 5 years relevant experience in building repair/ construction and experience with supporting staff such as licensed plumber, Supervisors. The contractor shall not transfer the said Engineer from the said site before completion of work. Absence from the site of such qualified site engineer shall be penalized with Rs. 2000 per day.

The Contractor shall provide vertical barrier, protection with proper and stable framing, supports etc. with tarpaulin, G.I. sheet panelling, barricades, fences, guards etc. as directed by consultant without any additional cost to ensure public safety and health during Repairs

works and to avoid any disturbances in the working and functioning of the Staff residing in C-DAC residential quarters.

The curing must be done properly. In case, it is not done properly the work will not be Accepted and paid. Water for curing purpose will have to be arranged by contractor.

The contractor shall provide without any extra cost, helmet to each worker on site.

8.2 LABOUR REGULATIONS

i. The Contractor shall be wholly and solely responsible for full compliance with the Provision under all labour laws and / or regulations such as payments of Wages Act, 1936; Minimum Wages Act, 1948; Employees Liability Act, 1938, Workmen Compensation Act, 1923, Industrial Dispute Act, 1947 and the Maternity Benefit Act, 1961 and any modifications thereof or any law relating thereto and rules made there under from time to time.
ii. The Contractor shall at his own expense comply with or cause to be complied with Model Rules for labour welfare framed by Government or other local bodies from time to time for the protection of health.

If female labour is employed, the Contractor shall make necessary provision at his own expense, for safeguarding and care of small children and keeping them clear of the site of operations. No labour shall reside within the site except authorized guards.

8.3 SAFETY MEASURES

i. All Personnel of the contractor working within the plant site shall be provided with safety helmets. All welders shall wear welding goggles while doing welding work and all metal workers shall be provided with safety gloves. Persons employed on metal cutting and grinding shall wear safety glasses.

ii. Adequate precaution shall be taken to prevent danger from electrical equipment. No materials on any of the sites of work shall be so stacked or placed as to cause danger or inconvenience to any person or the public.

Annexure-A-1: Scope of Work for contracting firm

C-DAC Staff Quarters located at Building Number-6, K.C. Marg, Reclamation, Bandra (West), Mumbai- 400050". The scope of works to be executed by the contractors on award of work is as follows.

- Major Structural Repairs / Restoration, Renovation / Redesigning, Waterproofing and related works required for Nandina, C-DAC Staff Quarters located at Building Number-6, K.C. Marg, Reclamation, Bandra (West), Mumbai- 400050.The Building is a R.C.C. framed structure with Pre-casted RCC walls having Stilt + 07 + Terrace.

The time of completion is within 05 (Five) Calendar Months (150 days) from the date of work order or as mutually agreed upon between C-DAC and the successful bidder.

Since the work also is to be carried out in a building which is occupied by the C-DAC officials, it has to be ensured by the contractor that during execution of work, the residents are not disturbed unnecessarily. The work shall be carried out as per C-DAC appointed Consultant under their supervision and under C-DAC's instructions from time to time. Due care should be taken while handling of materials and its management within the C-DAC residential building premises both for internal and external works before, during and after work execution. All arrangements for internal partition/sealing of a particular area is the sole responsibility of the contractor so as to limit the disturbance to residents.

Other Terms & Conditions:

i. The Applicant must obtain for himself/ themselves on his/their own responsibility and at his/their own Expenses all the information that may be necessary for the purpose of filling of this application. Before submitting the tender & after pre- qualification applicant must scrutinize the details and inspect the site of work and acquaint himself/themselves with all local conditions & matter pertaining thereto.

ii. Conditional Tenders will be rejected.

iii. Joint ventures shall not be permitted.

iv. COST OF TENDER DOCUMENTS: Rs. 1,000/- (Rupees. One Thousand Only). (To be deposited along with Tender Part-A by way of Demand Draft in favour of "C-DAC Mumbai" and payable in Mumbai.) Original DD/PO to be submitted to C-DAC office before the last date of tender submission & Xerox copy of the same to be uploaded with technical bid. The vendors are registered with DGS&D/ NSIC/ MC&IT/ MEITY/MSME irrespective of the stores for service activity in related to repairs maintenance works are exempted from payment of EMD & Tender Fee. Copy of Valid registration and documentary evidence to support the eligibility criteria for exemption should be attached with mentioning monetary limit of Rs. 100 Lakhs or more are eligible to exempt for tender fees.

v. Earnest money deposit (EMD):-

a. **Rs. 93,000/- (Rupees. Ninety Three Thousand Only)** By Means of Demand Draft / Pay Order (Valid for A Period Of 120 Days from The Last Date of Submission of The Tender) From Any Scheduled Nationalized Bank Drawn in Favour Of "C-DAC Mumbai" And Payable in Mumbai. Original DD/PO to be submitted to C-DAC office before the last date of tender submission & Xerox copy of the same to be uploaded with technical bid. The vendors are registered with DGS&D/ NSIC/ MC&IT/ MEITY/MSME irrespective

of the stores for service activity in related to repairs maintenance works are exempted from payment of EMD & Tender Fee. Copy of Valid registration and documentary evidence to support the eligibility criteria for exemption should be attached with mentioning monetary limit of Rs. 100 Lakhs or more are eligible to exempt to EMD

b. **Initial Security Deposit:** The successful bidders to whom the contract is awarded shall deposit 1% (Who had submitted EMD) OR the bidder who had submitted MSME & NSIC certificate & taken exemption of EMD have to submit ISD of 2% of the accepted value of tender in form of bank guarantee, validity of bank guarantee shall be till completion of work. The said bank guarantee will be released after completion of work along with final bill payment.

c. **Retention Money:** @5% retention amount will deduct from every bill paid and the same will be release after completion of defect liability period i.e. 18 Months after work completion. No interest shall be paid to the amount retained by the C-DAC as Retention.

d. **Additional Security Deposit:** In case L-1 bidder quotes abnormally low rates, C-DAC reserves the right to seek proper justifications and ASD from the bidder. Such ASD in the form of Bank guarantee with the validity till completion of work. The said bank guarantee will be released after completion of work along with final bill payment.

vi. **Minimum billing**: R.A. Bill Minimum 15 Lakhs only & final bill will be accepted of any value.

vii. **Water & Electricity supply for work execution:** all the water and their arrangement for work execution shall be provided by contractor at own cost, only required electricity provided by C-DAC free of cost, all the necessary arrangement for electricity point i.e. cable, switch etc. shall be provided by contractor.

viii. **Labour stay at site:** No labour will allow to stay at site during the execution of work.

ix. Unless otherwise agreed or stipulated in this tender, C-DAC are not concerned with any rise or fall in the prices of any materials or labour. The rates quoted shall include all costs, only GST shall be paid by C-DAC.

x. The tenderer should thoroughly study works, conditions of contract, relevant specifications and rates quoted should cover cost of executing the items as per the relevant specification

xi. The tender shall remain valid for acceptance for a period of 120 days from date of opening of the Price-Bid;

xii. Tender document in which tender is submitted by a tenderer shall become the property of C-DAC and C-DAC's shall have no obligation to return the same to the tenderer.

xiii. Tenderers not giving the full particulars as mentioned above or as called for in the special Conditions or not complying with any of the conditions set forth above or therein are liable to be summarily rejected.

xiv. Regarding location and inspection of the project site the Tenderers / Bidder may contact Office of Executive Director, C-DAC, Gulmohar Cross Road No. 9, Juhu, Mumbai – 400049.

xv. The C-DAC reserves the right to select / reject any / all Bid application without assigning any reason thereof.

xvi. The list of responsibilities mentioned above is only indicative and the contractor will have to assume full responsibility for completion of the project both qualitatively and quantitatively as per accepted contract conditions in the best possible workman like manner in all respects till its handover within the agreed time schedule and cost by following laid down norms / procedure of CVC in an open and transparent manner to the satisfaction of the C-DAC and towards achieving this goal whatever is required to be done will have to be arranged by the contractor with the approval of C-DAC.

Work Envisaged

i. The work shall involve Internal and External structural repair/ restoration /renovation work. Structural repairs includes works in columns, slabs, beams etc., waterproofing work of terrace, toilets, water tanks, plumbing ducts, changing pipelines/sanitary, boundary walls, all civil work besides disposal of debris, erecting scaffoldings, painting, plastering etc. including removal, re-fixing, repairs (if any while carrying out the civil work) of false ceilings, necessary repairs to electrical installations, and any other damages/work resulting from the civil work, common spaces development.

ii. Use of latest technology /methods for all repair, restoration and renovation work, drainage and sewage systems, rain water harvesting, energy saving plants etc.

iii. The Contractor shall submit a brief write up on the a) Technical Approach & Methodology, Explaining the understanding of the assignment and proposed methodology to carry out the assignment with emphasis on the expected problems and adoption of approach to solve them. b) A Work Plan containing details of main activities, duration of different activities and milestones to deliver the output consistent with the Technical Approach & Methodology. c) Organisation & Staffing: Should contain the details of the technical & supervisory team to be deployed on the job including their qualifications and domain experience. Also a list to be submitted detailing the documents, reports etc. proposed to be delivered considering feasibility of the final output.

Work responsibility

i. Assuming full responsibility for supervision including day-to-day supervision, compliance and observance of all labour and safety regulations, checking and inspection of samples that will be used in the repair /restoration/renovation work, monitoring and compliance, quality control, co-ordination with C-DAC and the contractors and reporting daily progress by posting sufficient number of qualified technical staff (preferably graduate in Civil Engineering having minimum 10 years' experience along with site supervisor preferably diploma in civil engineering having minimum 05 years experience in similar type of works) as necessary to ensure proper and timely execution of the said works as per drawings and specifications.

ii. Bio-data of above technical staff shall be furnished to C-DAC. Site Engineers shall be engaged full time during the progress of work on daily basis throughout the entire period of the Project for day-to-day supervision, ensuring smooth progress by prompt supply of drawings and giving proper directions and also co-ordination with all the agencies engaged in the design engineering and execution of various items of work as required. The technical staff will invariably report to the department every day and keep C-DAC officers involved updated. The Graduate civil engineer shall have to coordinate his work with the works of all other trades.

iii. C-DAC reserves the right to judge the capability of supervising staff and advise for change in case not found suitable or delay in assigned work.

iv. The measurements shall be generally recorded by the Site Engineer of the contractor and the same will be verified and certified by PMC and C-DAC from time to time.

v. The Site Engineer of the contractor and the representative of PMC shall take joint measurements of the work as it progress and record them directly in the Measurement sheet. The measurements will be verified by C-DAC from time to time.

vi. The contractor shall quote the rate as per BOQ Specification. Refer technical specification for reference only.

vii. It shall be ensured that the method of measurement is in accordance with IS: 1200. The precision in measurements shall be as laid down in IS-1200 and as per actual measurement at site. Any points of disagreement with the contractor pertaining to measurements shall be promptly referred to the decision of the Competent Authority/ Consultants.

viii. Extra/deviated items, as claimed by the contractor, shall not be recorded in Measurement Book until they are approved by the Competent Authority/ Consultants.

ix. In case some allegedly extra/deviated item is carried out by the contractor while complying with approved drawings and specifications and the same is to be covered up, the Site Engineer or Project Management Consultant shall check the item and its specification and record its measurements but simultaneously enter up the proviso that their admittance is subject to the approval by the Competent Authority. Both the measurements and the provision shall be got signed by the contractor.

x. The measurement book shall not be handed over to the contractor at any time. The contractor or his representative may be permitted by the Site Engineer or Project Management Consultant to see it in his presence and /or make a (concurrent) copy of his own. The contractor shall, however, be warned that his copy shall be regarded as an unofficial copy of the C-DAC's Measurement Book. This is the only authorized document in the matter.

xi. The measurement shall be signed at the end of each session of measurement of the day's work, as the case may be, by both the parties (i.e. Measurer/Site Engineer of the PMC and the contractor). The same will be checked and verified by C-DAC engineer too.

Annexure-A-2: Timelines

Sr. No.	Deliverables	Timelines
1	Issue of Work order	D1 (Date of award of work)
2	Submission of Work Plan	D2 (7 Days from D1)
3	Commissioning and execution of the work	D3 (5 days from D2)
4	Submission of progress report of the work	D4 (Weekly from D3)
5	Review meetings of the work with Consultant and C-DAC	D5 (Every 15 days or 30 days as per the requirement of CDAC from D3)
6	Completion of work in all respects	D6(150) days from D3
7	Submission of final bills, various reports and statements, all documents	D7 (15 days from D6)
8	Maintenance activities during the defect liability /warranty period	D8 (18 months from D6)

Annexure-B: Pre-qualification Criteria

Sr. No.	Eligibility Criteria	Document to be Submitted	Compliance (Y/N)
1.	The bidder should be a company registered under Indian Companies Act, 1956 or Indian Companies Act, 2013 **or** a Partnership Firm registered under Indian Partnership Act, 1932 or a Proprietorship firm or Limited Liability Partnership Firm under Limited Liability Partnership Firm Act 2008.	Copy of Certificate of Registration/ Incorporation or Certified copy of Partnership Deed.	
2.	The Company should have professionally qualified Engineer/key personnel having BE/ B tech Civil degree with minimum of 5 years of relevant experience.	Supporting authentic documents to be provided along with CV, Experience certificate.	
3.	The bidder should have an average annual turnover of INR 28 lakhs over the last three financial years. (Average annual turnover should be around 30% of the estimated cost during the last 3 financial years ending march 31, 2023).	Copy of the audited Profit and Loss Statement of the company and Certificate from the Chartered Accountant clearly stating the turnover from specified areas of business.	
4.	Bidder should have minimum 5 Years of experience in Structural Repair & Renovation Work, successful completion and maintenance of the similar works as Contractor.	Documentary proof detailing years of experience, CV.	
5.	Experience of having successfully completed similar works in only MMR region during last 7 years ending last day of month previous to the one in which tenders are invited should be either of the following: a. One similar completed work costing not less than the amount equal to 80% of the estimated cost, i.e. Rs. 74 Lakhs. (Excluding taxes) or b. Two similar completed works costing not less than the amount equal to 50% of the estimated cost, i.e. Rs. 47 Lakhs. (Excluding taxes) or c. Three similar completed works costing not less than the amount equal to 40% of the estimated cost, i.e. Rs. 37 Lakhs. (Excluding taxes). Similar work shall mean major building structural repairs / restoration, renovation / redesigning, re-painting, Plumbing waterproofing and allied works executed in MMR region only on occupied high rise	Documentary proof such as PO/Work Order and successful completion Report from PMC/Client.	

	building which have more than 36 years old structure. No other type of work which is not mentioned in tender and BOQ will not considered for pre-qualification criteria.		
6.	Copy of Audited Balance Sheets and Profit & Loss Statements for last three years (2019-2020, 2020-2021, 2021-2022). Evidence of successful completion of at least 3 (three) projects Letters of reference from the previous organizations with regard to work done with complete contact details of concerned officials in those projects with telephone numbers, address, email, etc. along with scope of work.	Copy of the audited Profit and Loss Statement of the company and Certificate from the Chartered Accountant clearly stating the turnover from specified areas of business.	
7.	The bidder must have qualified and experienced technical and supervisory team in the domain and on its payroll to be deployed for the work.	Detail to be furnished as per format given in ***Annexure-N***.	
8.	The bidder must have in-house arrangement of tools/ machinery for specialized works like plumbing, structural repairing, water proofing, waste management, external services like drains, electrical work etc.	Documentary proof with details of such persons or tie up agencies.	
9.	The bidder should not have been blacklisted by any Central/ State Govt. Organization/C-DAC/DGS&D/NICSI/ PSU/GeM during last three years.	Self-declaration Certificate in following format (signed and stamped by the authorized signatory): **"It is certified that the firm M/s…….. and the owner of the firms has not been blacklisted by any Central/State Govt. Organization/ DGS&D/ NICSI/PSU/C-DAC/GeM during last three years."**	
10.	The Bidder / contractor must have their fully functional office in Mumbai Metropolitan Region (MMR).	Self-declaration certificate along with office address proof and details of contact person.	
11.	The Bidder must have valid GSTIN, PAN, ESIC & PF documents.	Proof of valid documents to be submitted.	
12.	The Bidder/Contractor must have latest SOLVENCY CETIFICATE (min. 30% of Estimated cost, excluding GST)	Copy of Latest Bank solvency certificate of INR Rs. 28 lakhs, (30% of EC, excluding GST) from any bank only issued in current financial year shall be provided for pre- qualification along with Bank Confirmation letter.	

Annexure-C: List of Docs-Technical

Please check whether all the below mentioned documents have been supplied for participating in the **e-Tender number .....** issued by C-DAC, Mumbai. The documents are to be submitted in descending order with item No. 1 on top of all. Please also mention page no. of the Technical bid where these documents are given.

Sr.No.	Documents	Page No.
1.	Check list as per Annexure C (this sheet with page nos. of annexure)	
2.	Scanned copy of EMD in the form of Demand Draft of **Rs.93,000/-(Rupees. Ninety Three Thousand Only)**	
3.	Letter of authorization from the Competent Authority, if **bidder himself is not signing the tender document.**	
4.	Pre-Qualification Criteria and supporting documents in a sequence as mentioned in ***Annexure B*]**	
5.	Scanned copy of Tender Fee in the form of crossed Demand Draft (DD) / Bankers' cheque **of INR 1000/- plus 18% GST**	
6.	Tender Acceptance Letter (as per ***Annexure F***)	
7.	Detailed BAR-CHART for the Work	
8.	Exemption of EMD and Tender Fees (if applicable)	
9.	Additional Information as per ***Annexure-M***	

9. BID EVALUATION CRITERIA & SCORING MODEL: (LCS-Least Cost Selection)

The Bidder shall necessarily submit in Cover 1 of the Bid Document, the Technical Bid detailing his credentials for executing this project and the highlights of the equipment & services offered by him with respect to scope of work defined in the Bid Document and the benefits that would accrue to C-DAC. The Project Consultant/Tender Evaluation Committee for this purpose will do this evaluation. The Technical Bid will contain all the information required to evaluate the bidder's suitability to C-DAC for the purpose of this project.

The guidelines for evaluation have been designed to facilitate the objective evaluation of the Technical Bid submitted by the bidder. The information furnished by the bidders in the technical bid shall be the basis for this evaluation. In case any of the information is not made available, the Committee will assign zero (0) marks to that item.

While evaluating the Technical Bid, C-DAC reserves the right to seek clarifications from the Bidders. Bidders shall be required to furnish such clarifications in a timely manner.

C-DAC also reserves the right to seek additions, modifications and other changes to the submitted Bid. Bidders shall be required to furnish such additions / modifications / other changes in a timely manner.

9.1 Evaluation of Technical Bid

The technical evaluation of the bidders will be done by the Project Consultant/Tender Evaluation Committee based on the criteria and marking system as specified as follows:

Sr. No	Criteria	Graded Marks	Max. Marks	Testimonials to be presented
1	**Repair works executed during the last 7 years for Government/Semi-Government/PSU and Private Sector in India (Note: The weightage of costing for private works executed shall be considered 50% i.e. If the party has executed private work worth INR 100 lacs, then the same shall be considered as INR 50 lacs for the purpose of evaluation)**			
a	PAST EXPERIENCE OF THE BIDDER: Building Structural Repairs, Civil Repairs & Waterproofing jobs executed in last 07 years.			
i.	Value between INR Rs. 37 Lakhs to 93 Lakhs or more in each case (Excluding GST)		**20**	Copies of the Work-orders & Completion Certificate from client/PMC (If client has authorized PMC to issue, should submit with relevant supporting docs)
	1-2 nos. of works	10		
	3-4 nos. of works	15		
	5 or more nos. of works	20		
2.	**FINANCIAL CAPABILITY OF THE BIDDER: Average Annual Turn Over in Last 03 financial Year (in INR) (min. 30% of Estimated cost, excluding GST)**		**20**	Copies of Audited Balance Sheet , ITR & CA certificate for all financial years. for last three financial years
	For Minimum Eligibility Criteria of Rs.28 Lacs	05		
	From 28 Lacs to 93 Lacs	10		
	More Than 93 lacs	20		
3.	**Establishment of the firm in Mumbai**			

	Metropolitan Region (MMR).			
	Upto 10 years	05	**10**	Documentary evidence to be attached like:- Registration certificate etc
	More than 10 years	10		
4.	**Solvency Certificate (in INR) (min. 30% of EC, excluding GST)**			Solvency certificate from authorised banks
	28-50 Lakhs	5	**10**	
	More than 50 Lakhs	10		
5.	**Relevant experience (in years) of the site engineer/key personnel associated with the firm in Building Structural Repairs, Civil Repairs & Waterproofing, painting jobs (highest relevant work experience post awarding of degree is to be taken into consideration for arriving at the score)**		**20**	Employee experience letter, CVs clearly mentioning the area and tenure of relevant work experience to be submitted.
	5-7.5 years	10		
	7.5-10 years	15		
	10 years or more	20		
6.	**Constitution of the Firm**		**10**	
	PVT. Ltd Company	10		Documentary evidence to be attached like:- Registration certificate etc
	Partnership Firm	7.5		
	Proprietorship Firm	5		
7	**Whether Building Structural Repairs, Civil Repairs & Waterproofing jobs executed in last 07 years in Government/Semi-Government/PSU or private office staff high rise buildings in India of value not less than INR 37 Lakhs.**		**10**	Copies of the Work-orders & Completion Certificate from client/PMC (If client has authorized PMC to issue, should submit with relevant supporting docs)
	No	0		
	Yes (1-2 nos. of work executed)	5		
	Yes (3 or more nos. of work executed)	10		

The technical score shall be out of a maximum of 100 marks. Minimum qualifying number will be **75 out of 100** to be treated as *'technically eligible'* for opening of financial bid.
Each responsive Bid will be attributed a technical score denoted by symbol "T(s)".

After technical evaluation, C-DAC/Consultant will open the financial bid for technically eligible bidders, i.e. if the technical marks are lower than 75%, then that bidder's bid would be deemed technically ineligible for further evaluation and would not be considered further for the bidding process.

If in case, after technical evaluation, only one bidder is found to be responsive & eligible, i.e., if the technical marks of only one bidder are more than or equal to 75%, the subsequent steps to be followed will be at the discretion of C-DAC.

9.2 EVALUATION OF PRICE BID : COVER 2

The Financial Bids will be opened only of those bidders who secure 75% marks and above in technical bid (Stage–I). The Cost indicated in the Financial Bid shall be Deemed as final and reflecting the total cost of services and should be stated in Rs. Only. The Financial bid is excluding GST under the Applicable Law of the land.

Please note, should there be any increase in the scope of work arising out of any act omission or commission on the part of the Consultant, the fees quoted in the price bid will remain the same.

9.3 Award of Contract:

Selection of Bidder for Award of Work: The final selection of the bidder for the award of work will be based on the quoted rates by the bidders secured by it in the financial bid (Stage-II) as detailed below:

Bidders will be ranked accordingly based on their quoted rates and will be listed in the order of merit as L1, L2, and L3 and so on. The lowest financial bidder (L-1) would be eligible for award of work.

Annexure-D: Financial Bid Format

Sr.No	Documents	Page No.
1.	Check list as per ***Annexure D*** (this sheet with page nos. of annexure)	
2.	Financial Bid Format as per ***Annexure E***	
3.	Price schedule (price bid/BoQ) [as per ***Annexure J***]	

Annexure-E: Financial Bid Format (To be enclosed only with Financial Bid)

Experienced, Eligible and Reputed Specialized Contractor for Major Structural Repairs / Restoration, Renovation / Redesigning, Waterproofing and related works required for Nandina, C-DAC Staff Quarters located at Building Number-6, K.C. Marg, Reclamation, Bandra (West), Mumbai- 400050.

From,

.....

Tender No.

To,
The Executive Director
C-DAC
Gulmohar Cross Road No.9
Juhu, Mumbai - 400049

Dear Sir,

Having examined the conditions of contract and specifications including the receipt of which is hereby duly acknowledged, we, undersigned, offer as per terms and conditions of contract and specifications the major structural repairs/restoration, renovation/redesigning, repainting, Plumbing waterproofing and allied works for C-DAC Building Nandina, Bandra …… . (in words _____) of approved revised estimated cost or the actual cost of the work whichever is less or such other sums as may be ascertained in accordance with the schedule of prices attached herewith and made part of this Bid.

The quoted rates are all inclusive of all levies/ taxes like, GST, Sales Tax, Customs, Excise, travelling charges, support service, Service Tax if applicable, etc. We are aware that all the payments shall be subject to TDS, as applicable at the time of payment.

We undertake, if our Bid is accepted, to commence deliveries within (...) days and to complete delivery of all the items specified in the contract within (…) days calculated from the date of issue of your purchase order. After completion of all the works, we will obtain the Bank Guarantee of a Nationalised/Schedule Bank for a sum of **3% of the value of the completed work of Waterproofing, Structural repair & Painting work for a period of 10 Years**

We agree to abide by this Bid for a period of 120 days from the date of the financial bid opening and it shall remain binding upon us and may be accepted at any time before the expiration of that period. I / We agree to abide by the terms and conditions stipulated by the Bank in the Tender and Technical BID for Experienced, Eligible and Reputed Specialized Contractor for Major Structural

Repairs / Restoration, Renovation / Redesigning, Waterproofing and related works required for Nandina, C-DAC Staff Quarters located at Building Number-6, K.C. Marg, Reclamation, Bandra (West), Mumbai- 400050.

Until a formal Purchase Order / Contract Order is prepared and executed, this Bid together with our written acceptance thereof of your notification of award of contract shall constitute a binding contract between us.

Bid submitted by us is properly sealed and prepared so as to prevent any subsequent alteration and replacement.

We understand that you are not bound to accept the lowest or any bid, you may receive.

Dated this .....day of 2023

(Signature)

Signature of…… in capacity of……..

Duly authorised to sign the bid for and on behalf of.....

Witness..... Tele No.(s):-

Signature..... FAX No.(s)

Address..... E-Mail Address:-

Annexure-F: Tender Acceptance Letter

Date:

To,
The Manager (Purchase)
C-DAC
Gulmohar Cross Road No.9, Juhu
Mumbai 400049

Sub: Acceptance of Terms & Conditions of RFP.

e-Tender Reference No: _____

Name of Tender / Work: -

Dear Sir,

I/ We have downloaded / obtained the tender document(s) for the above mentioned 'Tender/Work' from the web site(s) namely: http://eprocure.gov.in/as per your Notice Inviting Tender (NIT) given on the above mentioned website(s).

1. I / We hereby certify that I / we have read the entire terms and conditions of the tender documents from Page No. _____ to _____ (including all documents like Annexure(s), Schedule(s), etc.,), which form part of the RFP and I / we shall abide hereby by the terms / conditions / clauses contained therein.

2. The Corrigendum(s) issued from time to time by C-DAC, have also been taken into consideration, while submitting this acceptance letter.

3. I / We hereby unconditionally accept the tender conditions of above mentioned Tender Document(s) / Corrigendum(s) in its totality / entirety.

In case any provisions of this tender are found to be violated, then C-DAC shall, without prejudice to any other right or remedy, be at liberty to reject this tender/bid.

Yours faithfully,

(Signature of the Bidder, with OfficialSeal)

Annexure-G: Performance Bank Guarantee

----------Bank Guarantee issued by a Nationalised Bank----------

To,

C-DAC Mumbai

Dear Sirs,

Sub: PERFORMANCE BANK GUARANTEE in favour of C-DAC, Mumbai.

WHEREAS

M/s. (***name of bidder***), a company/LLP registered under the _____, having its registered office at ***(address of the bidder***), (hereinafter referred to as "**Successful Bidder**", which expression shall unless repugnant to the context thereof includes its successors, heirs, assigns), have been issued a Purchase Order (P.O.) No. :- …….. dated ……..... by Centre for Development of Advanced Computing, Mumbai (hereinafter referred to as C-DAC, Mumbai).

As specified in terms of the RFP, M/s. (***name of bidder***) is required to furnish an unconditional, unequivocal and irrevocable Bank Guarantee in your favour for Rs._____ (Rupees …….. only) being a sum of **3% of the value of the completed work of Waterproofing, Structural repair & Painting work for a period of 10 Years** as security for compliance with the performance obligations specified in the RFP. We hereby agree to be Guarantors and are responsible to C-DAC, Mumbai, on behalf of M/s. _____ for their due performance as per the Contract and do hereby agree and undertake to pay the amount due and payable under this bank guarantee, as security against breach/ default / termination of the said contract by our constituent M/s. (***name of bidder)***.

We hereby irrevocably, unconditionally and absolutely undertake to immediately pay you, upon your first written demand declaring the Successful Bidder to be in default under the Agreement and without cavil or argument, any sum or sums within the limit of Rs._____ (Rupees …….. only) as aforesaid, without your needing to prove or to show this grounds or reasons for your demand or the sum specified therein. This guarantee is valid until the _____ day of _____. (The validity date should be 60 days beyond the date of completion of all contractual obligations including warranty/license obligations).

In consideration of the fact that our constituent is our valued customer and the fact that he has entered into the said contract with you, we, (***name and address of the bank***), have agreed to issue this Performance Bank Guarantee. Therefore, we (***name and address of the bank***) hereby unconditionally, irrevocably and absolutely guarantee you as under:-

In the event of our constituent committing any breach/default/termination of the said contract, and which has not been rectified by him, we hereby agree to pay you forthwith on demand such sum/s not exceeding the sum of Rs._____ (Rupees …….. only) which is a sum of **3% of the value of the completed work of Waterproofing, Structural repair & Painting work for a period of 10 Years** without any demur. Notwithstanding anything to the contrary, as contained in the said RFP, we agree that your decision as to whether our constituent has made any such default(s) / breach(es), as

aforesaid and the amount or amounts to which you are entitled by reasons thereof, subject to the terms and conditions of the said RFP, will be binding on us and we shall not be entitled to ask you to establish your claim or claims under this Performance Bank Guarantee, but will pay the same forthwith on your demand without any protest or demur or argument within the limit of Rs._____ (Rupees …….. only) being a sum of **3% of the value of the completed work of Waterproofing, Structural repair & Painting work for a period of 10 Years**

We, undertake to pay any amount you may claim (by one or more claims) up to but not exceeding the amount mentioned aforesaid during the period from and including the date of issue of this bank guarantee through the period.

If it is necessary to extend this guarantee on account of any reason whatsoever, we undertake to extend the period of this guarantee on the request of our constituent upon intimation to you.

This security is valid for a period of ____ years from ___ (date) to M/s. _____ as mutually agreed until _____hours of the _____ day of_____, _____.

This Guarantee shall be incorporated in accordance with the laws of India. We represent that this Bank Guarantee has been established in such form and such content that is fully enforceable in accordance with its terms as against the Guarantor Bank in the manner provided herein.

Dated ……. this …….. day …… 2023.

Yours faithfully,

For and on behalf of the …… Bank,

(Signature of Bank Official): -

Designation of Bank Official: -

Name of the Bank: -

(Complete Address of the Bank): -

Note: This guarantee will attract stamp duty as a security bond. A duly certified copy of the requisite authority conferred on the official/s to execute the guarantee on behalf of the bank should be annexed to this guarantee for verification and retention thereof, as documentary evidence.

Annexure H: No Claim Certificate

----------(On company Letter-head) ----------

Contractor's Name_____

[Address and Contact Details]

Contractor's Reference No._____ Date…….

To

The President of India, through

Head of Procurement

Procuring Organisation

[Complete address of the Procuring Entity]

No Claim Certificate

Sub: Contract Agreement no. ---------- dated ----------for the supply of ----------

We have received the sum of Rs. (Rupees_____only) as final settlement due to us for the supply of under the abovementioned contract agreement. We have received all the amounts payable to us with this payment and have no outstanding dispute of any description whatsoever regarding the amounts worked out as payable to us and received by us.

We hereby unconditionally and without any reservation whatsoever, certify that we shall have no further claim whatsoever, of any description, on any account, against the Procuring Entity, under contract above. We shall continue to be bound by the terms and conditions of the contract agreement regarding its performance.

Yours faithfully,

Signatures of contractor or

Officer authorised to sign the contract documents.

on behalf of the contractor

(company Seal)

Date:

Place:

Annexure-I: Technical Specifications

TS 1: SUPPORT SYSTEM:

GENERAL:

Repair and Rehabilitation works does not mean plaster paint and forget. Contractors are advised to treat this part of tender/Contract with an understanding that is more serious than for new works. It is implied that the work when carried out by the contractor is done with full knowledge of the material used, its high points and its shortcomings. Every additive used should be properly dealt with and prior approval about the methodology of repair and mixing proportions be ascertained by the contractor from the consultants.

SAFETY:

The entire scaffolding system has been considered as double scaffolding and safety of workmen and residents is of paramount importance and suitable safety full body belts, helmets, shoes etc. to be deployed to prevent any accidents.

Preparation for any work forms an important part of repairs and rehabilitation work and due importance be given to all surface preparation. Approval and consultants go ahead is required whenever such surface preparations are mandatory before actual repairs can start. Improper preparation can lead to future failures.

All repairs to structural members must be preceded with a proper support system. This structural support system must be worked out for each structural member. Structural significance and safety of the whole building is of paramount importance. Necessary suitable propping is required to be provided & shall have proper bottom and top bearing planks of proper material and area with adequate thickness (minimum 25mm).The props shall be tight and vertical and should not move or vibrate when tapped.

A guideline to check if the number of props provided is sufficient being for wood. One wooden prop of 100 mm dia. top shall carry 3 T of load.

Unless detailed calculations are done, the following approximate shall apply.

Every column carries approximately the following load: Wc = Wcon + Wst.

Where Wcon = Y where Y is the breadth in cmif width is 23cms And Wst is as follows:

Dia in mm	load per bar
12	2T
16	4T
20	6T
25	9T

So Wst = load per bar x No. of bars

It is mandatory to support every column being jacketed

TS 2: REMOVAL OF CONCRETE/ PLASTER COVER:

2.1. The range of removal of plaster/ concrete cover shall extend to the limit of crack /hollowness /corrosion of rebar. The governing dimensions of removal shall be based on the minimum dimensions and/or shall extend beyond the zone of rusting to a minimum dimensions.

2.2. Concrete surfaces to which treatment are to be applied shall be freshly exposed parent concrete free of loose and unsound materials. Prepare surfaces by mechanical abrasion unless prohibited by environmental limitations in which case acid etching may be used.

2.3. A good base or foundation shall be prepared for successful application of any treatment.

2.4. All unsound /weak concrete/ mortar material shall be first removed by the contractor up to the required depth. Chipping shall continue until there are no offsets in the cavity, which will cause an abrupt change in the thickness of repaired surface. No square shoulders shall be left at the perimeter of the cavity, all edges shall be tapered. The final cut surface shall be critically examined to make sure that it is sound and properly shaped.

2.5. All treated area shall always measure after chipping is complete. It shall be measured as the nearest geometrical shape. Thickness measurements for structural repair shall be taken as average thickness measurement backward from theoretical calculations based on chemical consumption's. Such cases of average thickness exceeding 25 mm shall be paid on pro-rata basis of quoted rate per mm thickness.

TS 3: CLEANING OF SURFACE:

Cleaning of concrete surfaces.

3.1. Concrete surface to which treatment are to be applied shall be freshly exposed parent concrete free of loose and unsound materials. Prepare surfaces by mechanical abrasion unless prohibited by environmental limitations in which case acid etching may be used.

3.2. Mechanical abrasion: - Use sandblasting or scarifying or wire brushing or other approved means. The purpose of this is to achieve a surface that is clean and dust free. Distressed loose concrete is to be removed.

3.3. Acid etching: - Etch surface with a commercial grade of hydrochloric acid diluted at a ratio of 10:120 to 20:80. After this application, scrub surface with a stiff bristled broom, brush, or similar implement. Immediately after foaming action of acid has subsided, flush surface with water jets until all residueisremoved.RepeatprocedureuntilLatinateiscompletelyremoved. Wash such areas with water at least three times and allow to air dry prior to further treatment.

TS 4: WATER CLEANING.

4.1. All surfaces so prepared as per TS 2 and TS 3, have to be cleaned of all the effects of the above procedure.

4.1.1. A fresh water jet is recommended for the cleaning process. This is aimed to remove all oil, rust particles and any such deleterious material that is not conducive to sound construction practices. The jet pressure can also be achieved by a stream of fast flowing water from a pipe.

4.2. Inspection of concrete surfaces prior to Mortar Application

4.2.1. Inspect all concrete surfaces prior to application of mortar to ensure that section is free from loose particles and deleterious materials, cracks and effects of corrosion or carbonation.

4.2.2. Surfaces shall be free of any deleterious materials such as Latinate, curing compounds, dust, dirt, and oil. Materials resulting from surface preparation specified in Article 3.1 shall be removed.

4.2.3. All concrete surfaces shall be dry as defined in Article 4.2.3.2 below unless a water-insensitive coating is used.

4.2.4. Evaluate moisture content for concrete by determining if moisture will collect at boundary lines between old concrete and new coating before the new coat has cured. This may be accomplished by taping a 4 x 4 ft polyethylene sheet to concrete surface. If moisture collects on underside of polyethylene sheet before polymer would cure, then allow concrete to dry sufficiently to prevent the possibility of moisture between old concrete and new layer.

TS 5: CHIPPING OF CONCRETE COVER:

5.1. The range of removal of concrete cover shall extend to the limit of crack /hollowness /corrosion of rebar. The governing dimensions of removal shall be based on the minimum dimensions given in the drawing and/ or shall extend beyond the zone of rusting to a minimum dimension as specified in the drawing.

5.2. Concrete surfaces to which treatment are to be applied shall be freshly exposed parent concrete free of loose and unsound materials. Prepare surfaces by mechanical abrasion unless prohibited by environmental limitations in which case acid etching may be used.

5.3. A good base or foundation shall be prepared for successful application of any treatment.

5.4. All unsound /weak concrete/ mortar material shall be first removed by the contractor up to the required depth as directed by engineer. Chipping shall continue until there are no offsets in the cavity which will cause an abrupt change in the thickness of repaired surface. No square shoulders shall be left at the perimeter of the cavity, all edges shall be tapered. The final cut surface shall be critically examined to make sure that it is sound and properly shaped.

5.5. All areas so chipped shall be subjected to water cleaning and drying. No deleterious material shall be left on the chipped surfaces. It is essential that the loose and cracked concrete shall be properly removed. It is essential that concrete around the rebar, which shows corrosion shall be removed properly, and sufficiently to ensure proper cleaning of rust from the rebar.

5.6. In case the distressed concrete extends into the core of the section it is essential to seek the consultant's approval prior to removal of this concrete. It is essential also to design proper support system and prop the area prior to removal of concrete beyond 5 mm inside the core area.

TS 6: BOND COAT:

6.1. The specific quality requirements as stipulated for a common work of bonding needed in restoration shall be followed. All the test facilities are generally not available even in sophisticated laboratories in the country. Few manufactures do have such an in-house facility with them. The difficulty therefore lies in strict stipulations and their subsequent job-site compliance. Therefore, reliability of the product quality is important. The coat of approved material shall be applied to all exposed surfaces of concrete at least 20 minutes prior to polymer modified mortar / treatment. The material to be used shall be non-acidic in nature. List of approved material is given in the document. Only those materials approved shall be allowed to be used unless equivalent permitted by PMC in case of non-availability. All chemicals used for Rust Inhibition, Bond coat, Polymer Modified Mortar shall be of same generic and same manufacturer to maintain homogeneity.

6.2. The items to be used shall comply with all requirements as specified in STS 6 and the material purchased shall be given in the consultants' custody in the original manufacturer's sealed manner. It shall always remain in the clients store &custody.

6.3. Execution

6.3.1 Preparation of concrete surface

Concrete surfaces to which bonding chemicals are to be applied shall be exposed; this parent concrete should be free of loose and unsound materials. Surfaces shall be prepared by mechanical abrasion or using sand blasting/ stiff wire brushing as instructed by engineer.

6.3.2 Inspection of concrete surface prior to bond coat application.

6.3.2..1. All concrete surfaces prior to applications of coating shall be thoroughly inspected and approved by the consultant.

6.3.2..2. Surfaces shall be free from any deleterious materials, such as oil, dust, dirt etc.

6.3.3 Adhesive mixes permitted for Epoxies only. Polymers come in ready to use packages.

6.3.3.1. Bonding components shall be mixed in a clean container free from harmful residue or foreign particles.

6.3.3.2. Epoxy components shall be thoroughly blended with a mechanical mixer to a uniform and homogeneous mixture. Small batches (up to 1 litre) however shall be allowed by manual mixing such as using spatulas, palette knives etc.

6.3.4 Coating application on concrete / shot Crete / mortar placement

6.3.4.1. Work of application of bonding coat shall not be allowed to be performed beyond 40C atmospheric temperatures. In case the temperature is above specified then it is essential that cooling of the surface shall be done by water application and then drying the surface of free water.

6.3.4.2. Bonding coat shall be applied to concrete surfaces by spray equipment. However, contractor may apply the coating by brush, subject to the permission of engineer.

6.3.4.3. Fresh plastic concrete as per suggested system of modification shall be applied while coat is still tacky. If Bond coat cures to extent of losing its tacks before plastic modified concrete is placed, the same shall be removed or slightly abraved and second coat of Bond coat applied.

6.3.4.4. Freshly placed plastic concrete shall be thoroughly consolidated to ensure full bonding of new concrete.

6.3.5. Clean-up

All concrete surfaces shall be well protected beyond limits of surface receiving coating against spillage and over spaying.

6.4. SAFETY

Contractor shall advice all workers working with bonding chemicals to avoid contact with eyes and skin, inhalation of vapours, and ingestion. Necessary protective and safety Equipment in the form of hand gloves, welders, goggles, shall be provided by the contractor on site.

6.5. Field quality performance requirement

6.5.1 The engineer shall evaluate bonding of fresh concrete/ shot Crete/ mortar to existing concrete after the fresh material has cured for not less than 7 days.

6.5.2 The evaluation shall be performed by sounding, tapping fresh concrete with a blunt metal instrument.

6.5.3 Detection of a hollow sound in any area shall be a reason to suspect inadequate bonding. Under such circumstances the contractor shall on instructions of engineer, core each such area after 28 days of concrete/ shotcreting for further determination of bonding adequacy.

6.5.4 Only if the quality has been detected to be poor the section core shall be taken. Coring shall be through new concrete / shotcrete / mortar and into the existing concrete. Core diameter shall be as required by the engineer. Length of cores shall be twice the core diameter or twice the thickness of new concrete/ shotcrete/mortar, or as instructed by engineer. Such tests are essential only in case the section is treated for stress related causes.

6.5.5 Cores will be visually inspected by engineer evidence of poor workmanship and shall be tested in tension by the contractor to evaluate the quality of bond between new concrete /shotcrete /mortar and the host concrete. If the failure is in the host concrete, the bond of new concrete/shotcrete/mortarshallbedeemedtobesatisfactory.Failureatthe bond-line shall be concluded as lack of proper bond between the new concrete/ shotcrete/ mortar and present concrete, and the contractor shall dismantle such areas of work as instructed by engineer and re-prepare the surface after chipping off new concrete/ mortar work and abrading the bonding interface.

TS 7: POLYMER MODIFIED MORTAR:

7.1.1. The material used shall be as per STS6. Equivalence shall be proved based on the comparison of the infra spectrometer graph of the product the contractor wishes to use with that of the recommended product. The decision of the consultant as regards to the generic and brand shall be final for this contract and the contractor shall use only the material so approved.

7.1.2. The items to be used shall comply with all requirements as specified in STS 6 and the material purchased shall be given in the client's custody in the original manufacturer's sealed manner. It shall always remain in the client's custody.

7.2. Mortar mixes

7.2.1. Mix polymer components in clean container free of harmful residue of foreign particles.

7.2.2. Temperature from preparation of polymer mortar to application should be between0 to 40 degree centigrade, otherwise as recommended by manufacturer.

7.2.3. Thoroughly blend polymer with a mechanical mixer to uniform and homogeneous mixture if the polymer is more than one month old.

7.2.4. The proportion of mixing the polymer for modification shall be decided by the use of the modified mortar. For use in cover replacement the percent of polymer can be limited to 15 percent. However for core replacement or in case of sections where distress is due to over stressing 20% modification is required.

7.2.5. Polymer Modified Mortar application. Modified mortar shall be prepared by first mixing all dry components in dry state mix required quantity of polymer with equal volume of water mixture. Mix the dry system and polymer and water mixture. Mix thoroughly by workable mix. For 1 bag of cement 7.5 Kg of polymer shall be used and the mortar shall be used 1: 3 volumetric mix.

7.2.5.1. Apply polymer modified mortar to concrete surface by hand packing and then sanding machine. Thickness shall be within the limits recommended by the manufacturer. Additional layers shall be applied to bring the surface to line and level as required.

7.2.5.2. Work polymer modified mortar into place and consolidate thoroughly so that all contact

surfaces are wet by the mortar and entrained air is reduced to the level recommended by manufacturer.

7.2.5.3. Finish surface of polymer modified mortar to texture, colour, and smoothness required for the specific application. This mortar coat should be finished by application of plain cement mortar in 1: 3 using 53-grade cement. No water curing shall be applied to polymer modified mortar surface. However over coat of plain cement mortar shall be cured with water as required after 12Hrs.

7.2.5.4. Upon completion of finishing operations, allow mortar to cure in accordance with normal curing practices for polymer modified mortars.

7.2.6. Clean-Up

Protect concrete surfaces, beyond limits of surface receiving polymer modified mortar, against spillage.

7.2.7. Safety

Polymer materials may be skin irritants or sensitizers to many people. Accordingly, advise applicators to avoid contact with eyes and skin, inhalation of vapours, and ingestion. Make protective and safety equipment available onsite. Heed all label warnings by manufacturer. Make application in accordance with applicable safety laws.

7.3. Curing

7.3.1 All polymer treated surfaces can both be immediately covered with plain cement mortar and then cured after 12 hours or the surfaces can be left to naturally cure without sprinkling water for two days and then covered with second coat of plaster.

7.3.2 All plastered surfaces shall be water cured for seven days with the first two days the curing being done every five to six hours. When the atmospheric temperature of the site exceeds 40 degree Celsius then curing shall be resorted to as many times as required to keep the surface moisture to ensure the mortar temperature does not rise.

7.4. Measurement of PMM work

All polymer Modified Mortar / Epoxy Modified Mortar / Polymer modified Concrete / Epoxy Modified Concrete works shall be measured in SQMT of surface area where they are applied. The thickness shall be Min 20mm and onaverage25mm.Theareaofapplicationshallbeapprovedasofadequate thickness only if the consumption of polymer is as per table given below. In case the consumption of polymer is inadequate the rate quoted shall be proportionately reduced. In case consumption deviation is below the acceptableunittheentireappliedareashallbetotallyremovedandredone.

Polymer consumption for 100 SQMT. Area.

Thickness	Consumption			Min acceptance	Max acceptance
	Cement	Polymer			
		15%	20%		
12	12 bag	120 Kg	120 Kg	85	114
15	17 bag	127Kg	170 Kg	120	209
20	22 bag	165 Kg	220 Kg	156	209
25	28 bag	210 Kg	280 Kg	199	266
30	33 bag	247 Kg	330 Kg	235	313

7.5. Testing Procedure for adequacy

Every job that has PMM work the following test procedure shall be adopted:

a) Prepare cube samples of PMM with 5%, 10%, 15%, and 20% modification .The size of the cube shall be 15cm x 15cm x 15cm. five cubes of each modified mortar shall be prepared and moist cured at 60% humidity for 28 days.
b) Three cubes shall be tested compression. Mortar samples whose compressive strength is less than M15 shall be discarded. Details of tests shall be as specified elsewhere.
c) Two cubes shall be crushed, powdered and processed for percentage benchmark chemical testing. This test shall be performed approved laboratory suggested by the consultant.
d) Samples of Min 250gm shall be chipped from inside. Locations being chosen randomly by the consultant from every 50 SQMT of PMM works. This sample shall be tested for chemical equivalence and co-related to the benchmark samples.
e) In case of inadequate modification the contractor has an option to get two more locations chosen randomly by the consultant and "step (d)" repeated .In case majority samples fails the tests , the entire 50 SQMT of PMM work shall be termed defective and replaced by the contractor free of cost .
f) Testing shall be done free of cost by the contractor and shall not raise any bill to the client.

TS 8: GROUTING FOR SURFACE REPAIR

8.1. PRODUCTS.

8.1.1. All components used for grouting repair system are to be from one of the approved makes of polymers. All components are to be of the same make. No components of different makes can be used in conjunction with each other.
8.1.2. The products shall only be from the approved list of companies.
8.1.3. Proper care is to be taken when using the material to maintain the required consistency and purity.
8.1.4. Only polymer latexes based on styrenebutadiene (SBR) or acrylics can be used. The latex should have solid to a maximum of 45% and minimum of 35%. The physical, chemical and structural properties of the material used are to be submitted and specific approval to be seeked for the material/system to be used.

8.2. SURFACE INSPECTION AND PREPARATION

8.2.1. All surfaces to be treated are to be exposed to the base level with removal of all claddings, plasters, facades, waterproof layers etc. The surface is to be examined for surface cracks, crevices, spalls and honeycombing.
8.2.1.1. Concrete surface to which treatment is to be applied shall be freshly exposed parent concrete free of loose and unsound materials. Prepare surfaces by mechanical abrasion unless prohibited by environmental limitations in which case acid etching may be used.
8.2.1.2. Mechanical abrasion: - Use sandblasting or scarifying or water blasting or other approved means.
8.2.1.3. Acid etching:-Etch surface with a commercial grade (22 deg Baume) of hydrochloric acid diluted at a ratio of 10:120 to 20:80. After this application, scrub surface with a stiff bristled broom, brush, or similar implement. Immediately after foaming action of acid has subsided, flush surface with water jets until all residues are removed. Repeat procedure until laitance is completely removed. Wash such areas with water at least three times and allow to air dry prior to further treatment. This method of cleaning is to be used only in exceptional cases and under normal cases permission will not be given for use of this method.
8.2.2. Inspection of concrete surfaces prior to mortar application
8.2.2.1. Inspect all concrete surfaces prior to application of mortar to ensure that requirements of this Article are met

8.2.2.2. Surfaces shall be free of any deleterious materials such as laitance, curing compounds, dust, dirt, and oil. Materials resulting from surface preparation specified shall be removed.

8.2.2.3. All concrete surfaces shall be dry unless a water - insensitive coating is used. Surface temperature shall be at least 40F to permit wetting of concrete surface by polymer coating.

8.2.2.4. Evaluate moisture content for concrete by determining if moisture will collect at surfaces. This may be accomplished by taping a 4 x 4 ft polyethylene sheet to concrete surface. If moisture collects on underside of polyethylene sheet before polymer would cure, then allow concrete to dry sufficiently. Drying of the surfaces can be accomplished by either heating the surfaces by blowlamps or by use of sawdust, sand or any other means so that the surface is bone-dry.

8.3. Identification of method of grouting.

8.3.1 FOR ALL SURFACES HAVING CRACKS/CREVICES

8.3.1.1. Locate the cracks by either surface inspection or by scrubbing the surface. In case the cracks are not visible to naked eye use compressed air to clear the crack marks. Having identified the cracks use light chisel or mechanical/ electrical saws to clear the crack upto the depth of the crack. In case widening of the crack is necessary to reach the depth of the crack it is advisable to do so at this juncture.

8.3.1.2. After clearing/ widening the crack use compressed air/ water jet to clean the opened crack surface. Ensure that the surface is dried in case water jet is used.

8.3.1.3. A method of grouting through three rows of grout nipple is to be adopted for all such cases. Insertion of the grout nipples are as per the specification .The section shall then be subjected to a series grouting as per specification. This grouting shall be adopted with a mix of proper consistency. Once the grouting is completed the top surface shall be cleaned and brought to level. The surface shall be then left for proper setting of the grout for about 48 hours.

8.3.1.4. Proper curing and safety precaution that form the integral part of the specification herein under referred shall be also followed in totality. The surface shall be ponded with water for ten days to test leakage.

TS 9. GROUTING FOR DISTRESSED CONCRETE:

9.1. PRODUCTS.

9.1.1. All components used for grouting repair system are to be from one of the approved makes of polymers. All components are to be of the same make. No components of different makes can be used in conjunction with each other.

9.1.2. The products shall only be from the approved list of companies.

9.1.3. Proper care is to be taken when using the material to maintain the required consistency and purity.

9.1.4. Only polymer latexes based on styrene butadiene (SBR), acrylics, or epoxies can be used. The latex should have solid to a maximum of 50% and minimum of 40%.The physical, chemical and structural properties of the material used aretobesubmittedandspecificapprovaltobeseekedforthematerial/system to be used.

9.2. SURFACE INSPECTION AND PREPARATION

9.2.1. All surfaces to be treated are to be exposed to the base level with removal of all claddings, plasters, facades, waterproof layers etc. The surface is to be examined for surface cracks, crevices, spalls and honeycombing.

9.2.1.1. Concrete surface to which treatment is to be applied shall be freshly exposed parent concrete free of loose and unsound materials. Prepare surfaces by mechanical abrasion

unless prohibited by environmental limitations in which case acid etching may be used.

9.2.1.2. Mechanical abrasion: - Use sandblasting or scarifying or water blasting or other approved means.

9.2.1.3. Acid etching: - Etch surface with a commercial grade (22 deg Baume) of hydrochloric acid diluted at a ratio of 10:120 to 20:80. After this application, scrub surface with a stiff bristled broom, brush, or similar implement. Immediately after foaming action of acid has subsided, flush surface with water jets until all residue is removed. Repeat procedure until laitance is completely removed. Wash such areas with water at least three times and allow to air dry prior to further treatment. This method of cleaning is to be used only in exceptional cases and under normal cases permission will not be given for use of this method.

9.2.2. INSPECTION OF CONCRETE SURFACES PRIOR TO MORTAR APPLICATION

9.2.1.1. Inspectallconcretesurfacespriortoapplicationofmortartoensurethat requirements of this Article are met.

9.2.1.2. Surfaces shall be free of any deleterious materials such as laitance, curing compounds, dust, dirt, and oil. Materials resulting from surface preparation specified shall be removed.

9.2.1.3. All concrete surfaces shall be dry as defined below unless a water - insensitivecoatingisused.Surfacetemperatureshallbeatleast40Ftopermit wetting of concrete surface by polymer coating.

9.2.1.4. Evaluate moisture content for concrete by determining if moisture will collectatsurfaces.Thismaybeaccomplishedbytapinga4x4ftpolyethylene sheet to concrete surface. If moisture collects on underside of polyethylene sheet before polymer would cure, then allow concrete to dry sufficiently. Dryingofthesurfacescanbeaccomplishedbyeitherheatingthesurfacesby blow lamps or by use of sawdust, sand or any other means at the surface is bone-dry.

9.2.3. IDENTIFICATION OF METHOD OF GROUTING. (FOR ALL SURFACES HAVING CRACKS/ CREVICES)

9.2.3.1. Locate the cracks by either surface inspection or by scrubbing the surface. In case the cracks are not visible to naked eye use compressed air to clear the crack marks. Having identified the cracks use light chisel or mechanical/ electrical saws to clear the crack up to the depth of the crack. In case widening of the crack is necessary to reach the depth of the crack it is advisable to do so at this juncture.

9.2.3.2. After clearing/ widening the crack use compressed air/ water jet to clean the opened crack surface. Ensure that the surface is dried in case water jet is used.

9.2.3.3. A method of grouting through three rows of grout nipple is to be adopted for all such cases

TS 10. BRICK BAT WATER PROOFING:

10.1 REMOVAL OF EXISTING WATER PROOFINGLAYER.

All existing waterproofing layer will be removed by the contractor, wing wise using chisel and hammer. The hammer will not be used directly on the slab, chisel is to be used only in slanting manner to ensure that the chisel does not enter the slab section. Any damage to the slab will be made good using proper shuttering,steel and concrete mix 1:1.5:3. It shall be allowed to cure for 7 days before further work is undertaken.

10.2 Pre Treatment.

After the slab top face is exposed the same shall be first broom cleaned and then water cleaned. Immediately on cleaning with water a thin slurry of cement is prepared and broomed over the entire surface and allowed to entire all cruises, cracks etc. which are grooved prior to slurry application . After the slurry coat is completed, and

dried for 24 Hrs. The surface is inundated with water for 4 days to check for water tightness. In case any seepage marks appear on the 4th day grooving is repeated before proceeding ahead. Due care is to be taken that all crevices, cracks and unevenness is properly treated.

10.3 Water proof treatment.

11 The grouted surface is cleaned of all excess inundated water and air dried 1 day, cement mortar (1:3) with waterproofing chemical added in the ratio of 1 kg for 50kg of cement is prepared and laid evenly over the surface. Thickness of very evenly backed bricks are then hand packed in this wet mortar to create desired slope. The slope that is maintained is 1mm in 120mm (1" in 10'). The slope should drain water into the rain water pipe. The top finished level should be at least 1mm below the bottom invert of the rain water pipe. Water is inundated on this brick laid surface for 7 days to check for water tightness and to eliminate weak brick pieces. All weak brick pieces are to be replaced by fully caked pieces. All joints of brick work are then filled with thin coat cement slurry and levelled with cement mortar (1: 3) duly mixed with water proof compound. The cement mortar is to broom finished and inundated with water for 21 days. In case of cement slurry smooth finish with marking as top finished inundation shall be done after top finish coat. China mosaic coat is applied in required design after monsoon and cleaned, finished cured complete.

11.1 CHINA MOSAIC FLOORING:

10.4.1. China Mosaic shall be of broken flat glazed tiles of mixed colours of not less than 20mm in thickness and of approved size not more than 20 mm in any direction and of approved quality.

10.4.2. China mosaic shall be laid to required slope on a bedding of lime mortar 25mm thick and set in cement floating in approved patterns. Care shall be taken to fix the mosaic in the cement float, tapping to required slope, and to press the floor hard so as not to leave any air gap between the mosaic floor and the brick bat grading below. The joints shall not exceed 3mm.

10.4.3. Near the walls the flooring shall curve upwards to a height of 15cm above the finished surface so as to make a water tight joint. The rate for the work shall be inclusive of all preparatory works. Supplying, setting and handing over neat and clean the area to be tiled.

TS 11. GROUTING FOR HONEY COMBED SURFACES:

11.1. For surface which exhibits honeycombed concrete, the surface has to maintain in its dry state and a method of grouting through triangular grout nipples is to be adopted.

11.2. The opposite side to the grouting surface has to be sealed for flowing grout by either impervious cement plaster or by use of proper sealant as specified in the material to be used for grouting.

11.3. SIZE AND SPACING OF NIPPLES.

11.3.1. To determine the size of nipples use a standard callipers or a metric scale and measure the width of the opened crack. The size of the nipple to be fixed within the crack has got to be minimum half the surface width of the crack measured above but should not exceed 15 mm in dia.

11.3.2. The nipples to be used should be of metal with one end tapered and thickness should be sufficient to withstand 5 m head of water. The spacing for the crack depends inversely to the width of the crack and will not exceed more than 300mm c/c and will not be less than 125mm c/c. The number of nipples along the crack will always be 1 less than two

rows of nipples that needs to be fixed parallel to the crack at the same distance as the nipples spacing in the crack so as to form equilateral triangle with the apexes in the crack.

11.4. SEQUENCE OF GROUTING

11.4.1. For all horizontal surface grouting simultaneous grouting through of manifold pipe system is recommended. The grout pressure required to be given should be min X' for X" of slab. For grouting vertical surface bottom most row of nipples is to be grouted simultaneously.

11.4.1.1. When a row or a nipple is grouted and no more grout passes through that nipple/row of nipple then that nipple/ row of nipple is to be cut and sealed.

11.4.1.2. After the grout in the first nipple/ row of nipple cures then subsequent row is to be treated. This process shall be continued till all the nipples/ row of nipples are grouted.

11.4.1.3. All the nipple /rows of nipple on that surface has to be treated before any change of direction is to be adopted. In case of change of direction the same sequence has to be adopted.

11.5. FIXING OF GROUT NIPPLES.

All nipples are to be fixed in oversize drill hole extending to min. half of slab thickness but not exceeding 2/3 of slab thickness. They should be as erect as possible and drilled holes are to be properly sealed using proper sealants (impermeable). All surface cracks are also be sealed similarly. This operation to be completed min. 24 hrs. Prior to grouting operation. While using sealants epoxy based system or latex based are to be used. However combination of two will not be permitted. After the grouting operation is over remove all pipes, manifolds installed and cut all the nipples, flush to the slab base and seal them with the same sealant used for sealing the crack. In case of exposed R.C. walls and slab surfaces cover them with appropriate quality of plaster and slurry finish the surface for smoothness. Plastering and cement slurry is to be measured and paid separately under appropriate heads in bill of quantity. (Grouting to be adopted for one surface only.)

11.6. MATERIAL FOR GROUTING

Latex based polymer modified cement slurry is to be used for grouting. The ratio to be used shall be 20 kg of chemical to every bag of cement. The slurry has to be kept in its slurry form by timely stirring by manual or mechanical means at regular intervals during the process of grouting. Once the operation starts grouting should not be stopped unless the grout oozes out of the adjoining nipple or level of grout in the container does not change over a period of not more than 30 minutes.

All materials shall be supplied in sealed containers with labels legible and intact.

Contractor shall arrange to store all materials at temperatures between 5 to 30 deg. Celsius unless otherwise recommended by manufacturer.

All materials shall be handled in a safe manner and in a way to avoid breaking container seals.

Contractor shall comply with manufacturer's recommendations as to environmental conditions under which the material can be used/ applied.

11.7. POLYMER & GROUT TECHNIQUE OF WATER PROOFING:

11.7.1. The following specifications need to be followed to be able to achieve the desired result of treating a porous slab section and also creating a separate water proofing layer.

11.7.2. Pre-Treatment.:

11.7.2.1. Top Surface: All the wearing coats and water proofing layer existing on the present slab should be removed and the surface properly cleaned. The original slab surface shall be properly cleaned with a water jet prior to application of any treatment. In case of the surface having carbonation or corrosion related distress, this has to be treated first without the final coat of cover built-up being done.

11.7.2.2. Bottom Surface: The plastered surface has to be cleaned and removed. The surface cleaned properly and the surface cracks are to be opened. In case of the surface having carbonation or corrosion related distress, this has to be treated first without the final coat of cover built-up being done. The cracks which are of micro and minor nature (less than 10mm thick) shall be kept open.

11.7.2.3. Pre grouting: Pre grouting shall be adopted to clean the section of any deleterious material. The mix to be used for this grouting shall be very lean and with maximum viscosity and maximum set time. This grouting is to be adopted to clean the section and once grout starts to flow from the bottom surface. All other specification of nipple placement and depth of fixation shall be as per detailed specification.

11.7.2.4. Bottom surface Sealing: Once the pre-grouting is completed all cracks and crevices that are visible shall be filled with a proper crack filling sealant of approved make. The surface shall then be properly plastered with a polymer modified mortar as per specification TS 10 and brought to proper shape and size. Any other treatment preceding this step shall be taken after about four days of curing.

11.7.3 Grouting: The section shall then be subjected to a series grouting as per specification. This grouting shall be adopted with a mix of proper consistency. Once the grouting is completed the top surface shall be cleaned and brought to level. The surface shall be then left for proper setting of the grout for about 48 hours.

11.7.4 Surface Water proofing treatment. The top surface shall be treated for a two coat chemical water proofing treatment. The treatment shall be preceded by placing proper wearing coat/ layer of a material as may be essential for the usage of the slab. All wearing coat shall be placed on the top of water proofing layer in a proper manner so as not to puncture or pierce the WPL. Proper anti- skid layer shall also be adopted on the wearing coat.

11.7.5 Proper curing and safety precaution that form the integral part of the specification here in under referred shall be also followed in totality.

TS 12. 2nd COAT PLASTERING OVER TREATED AREA:

12.1. All areas where the RC section has been treated for either cover replacement or sectional repairs will require to be coated by a layer of plaster. This plaster shall be done on the surface after it has undergone complete treatment. The plaster shall have a thickness sufficient to bring the section repaired to line and level. This shall be done in single coat.

12.2. The exposed surface shall be properly raked and kept uneven to take the second coat of plaster prior to any treatment. This shall not be paid separately.

12.3. Thereafter a 25mm thick (or of required thickness) sand face plaster 1:4 in single coat shall be applied. The thickness shall be sufficient to bring the surface to line & level. In case of thickness greater than 25mm, two coats shall be used and in such case coarse aggregate shall be embedded in 1st coat at regular interval evenly all around . This shall not be paid separately. In the second coat no coarse aggregate shall be embedded and the entire repair area shall be to line & level. The surface is to be treated with polymer

based bonding agent where joint exists with old plaster. Polymer based bonding agents are to be used wherever the joints exist between the RC section and the brick work.

12.4. CURING

12.4.1. All polymer treated surfaces will be immediately covered with plain cement mortar and then cured after 12 hours or the surfaces can be left to naturally cure without sprinkling water for two days and then covered with second coat of plaster.

12.4.2. All plastered surfaces shall be water cured for seven days with the first two days the curing being done every five to six hours. When the atmospheric temperature of the site exceeds 38 degree Celsius then curing shall be resorted to as many times as required to keep the surface moist or to ensure the mortar temperature does not rise.

12.5. CHINA MOSAIC FLOORING:

10.4.4. China Mosaic shall be of broken flat glazed tiles of mixed colours of not less than 20mm in thickness and of approved size not more than 20 mm in any direction and of approved quality. Before laying, the same shall be thoroughly soaked in water for at least two hours and then allowed to dry for 15 minutes.

10.4.5. China mosaic shall be laid to required slope on a bedding of lime mortar 25mm thick and set in cement floating in approved patterns. Care shall be taken to fix the mosaic in the cement float, tapping to required slope and to press the floor hard so as not to leave any air gap between the mosaic floor and the brick bat grading below. The joints shall not exceed 3mm.

10.4.6. Near the walls the flooring shall curve upwards to a height of 15 cm above the finished surface so as to make a water tight joint. The rate for the work shall be inclusive of all preparatory works. Supplying, setting and handing over neat and clean the area to be tiled.

TS 13. PVC PIPES:

PVC pipes shall conform to IS specification for high-density polyethylene pipes for drainage work. The pipes shall have smooth internal and external surfaces. Slight shallow longitudinal grooves or irregularities in the wall thickness shall be permissible provided that the wall thickness remains within the permissible limits PVC pipes shall be pressure ratings (working pressure) as indicated. The pipes shall carry colour bands to indicate the class of pipes.

Class of pipes	Working pressure (Mpa)	Colour
class 1	0.2	Orange
class 2	0.25	Red
class 3	0.4	Blue
class 4	0.6	Green
class 5	1	Yellow

PVC pipes: - PVC pipes shall confirm to IS 4985 - 1981, Specification for PVC pipes for potable water supply. The pipes shall be reasonably round. Internal and external surfaces of the pipes shall be smooth and clean, PVC pipes shall be pressure ratings (working pressure) as 2 - 5, 4.5 and 10Kg / sq. cm. as indicated.

Jointing of PVC pipes

Solvent welded joints: - This technique is used with both

All relevant specifications as outings under IS 60 for removal, refixing, cleaning, painting etc.

TS 14: CHAMBER / SOAK PIT REPAIRS

14.1. **Manholes:** Manholes shall be built at every change of alignment, gradient or diameter of a drain, or where directed. Bends and junctions in the drains, shall be grouped together in manholes. The maximum distance between manholes shall be 45 m for pipes up to 300mm Dia and 75m for pipes up to 500 mm Dia, and 120 m for pipes up to 1200mm.

14.2. Manholes of different types and sizes as indicated shall be constructed in the sewer line at such places and to such levels and dimensions as shown in the drawing or as directed by the Engineer - in-charge.

14.3. Where the diameter of the drain is increased, the crown of the pipe shall be fixed at the same level and necessary slope given in the invert of the manhole chamber. In exceptional cases, where unavoidable the crown of the branch sewer may be fixed at lower level but in such cases the peak flow level of the two sewers shall be kept the same.

14.4. The branch sewers shall deliver sewage in the manhole in the direction of main flow and the junction must be made with care so that flow in the main is not impeded.

14.5. No drain from house fittings e.g. gully trap or soil pipe, to manhole shall be normally exceed a length of 6m unless it is unavoidable.

14.6. **Excavation.** The manhole shall be excavated true to dimensions and levels shown on the planes or directed by the EIC.

14.7. **Bed Concrete -** The manhole shall be built on a bed of cement concrete 1:3:6 type C2, or 1:2:4 type B2 where indicated. The thickness of the bed concrete shall be 20cm for manholes up to 4.25m depth and 30 cm for depths beyond 4.25 m unless otherwise indicated or directed the EIC. In bad ground, Special foundations as suitable shall be provided.

14.8. **Brick Work -** The brick work shall be with sub-class B bricks in cement and sand mortar. The external joints of the brick masonry shall be finished flush, and the joints of the pipes and the masonry shall be made perfectly leak proof. For arched type and circular manholes brick masonry in the arches and arching over the pipes shall be in cement and sand mortar 1:3. In the case of manholes of circular type the excess shaft shall be corbelled inwardly on three sides at the top to reduce its size to the cover frame to be fitted. Specification for the types of masonry shall be indicated.

14.9. **Plaster and Pointing -** The walls of the manholes shall be plastered inside with 15mm thick cement plaster 1:3 finished smooth. Where saturated soil is met with the external surface of the walls of the manholes shall also be plastered with 15mm thick cement plaster 1: 3 finished smooth. The plaster shall further be water proofed where indicated with addition of approved integral water proofing compound in a quantity as indicated.

14.10. **Benching -** The channels and benching shall be done in cement concrete 1:2:4, type B1 rendered smooth with extra cement. The depths of channels and benching shall be as under:

Size of Drain	Top channel at the center above bed concrete	Depth of benching of side walls above bed concrete
mm	cm	cm
100	15	20
150	20	30
200	25	35
250	30	40
300	35	45
350	40	50
400	45	55
450	50	60

14.11. **Steps -** All manholes deeper than 0.8 m shall be provided with steps. These shall be embedded 20cm deep with 20x20x10cm blocks of cement concrete 1:3:6 type Cl. The block

with foot rest placed, in its centre shall be cast in situ along with the masonry.

14.12. Manhole Covers and Frame - The frame of manhole shall be firmly embedded to correct alignment and levels in R. C. C. slab or plain concrete as the case may be. Before completion of work manhole covers shall be sealed by means of thick grease.

TS 15: DRAINS PIPES:

15.1. Excavation: -as per relevant technical specification.

The bottom of every trench shall have true grade throughout and shall be made in perfectly straight lines, as shown on the plans, or as may be directed by the Engineer. In case of any loose, soft or bad ground being met with it shall be excavated to a solid foundation and filled up to the level of the sewer with concrete or as may be otherwise directed by the Engineer.

15.2. In the floor of every sewer trench not specified or ordered to be concreted, as joint hole shall be formed for receiving not only the socket of the pipes, but the mass of clay to be placed all round every joint of the sewer not concreted. In all cases, except where otherwise specifically ordered, the trenches for the sewers under twelve feet shall be opened out.

15.3. In excavating any trench, the materials forming the surface of any road, foot- path, garden or field, shall be kept separate and preserved for re-use at the surface when the trench is filled up. Before any road-metal is re-used it shall be carefully shifted.

15.4. After the foundations of any building or other works have been constructed,or the sewer or drain and other pipe have been laid and jointed or the sewer constructed and the manholes and ventilators are made and as soon as the joints have inspected and passed by the Engineer or his Assistants, the trenches shall be re-filled with the materials taken therefrom. In re-filling the trenches, the utmost care shall be exercised so as not to disturbs break or damage then jointed pipes, and immediately over and around every pipe the finest selected material shall be put. No lumps of rock, earth or other material shall be put round the pipe or be thrown into the trenches until the same has been protected by the fine material before referred to. The ground, as it is being filled into the trenches, shall be rammed until it is completely consolidated and water should be used in addition, if considered necessary by then Engineer, to aid in the consolidation of the trenches. Very great care shall be exercised so that trenches are filled in solidly under the pipes with selected material and that no damage is done to the pipe during then process of consolidation.

15.5. When the contractor is directed to supply pipes they shall be of the following description. The pipe used in the works shall be the best and of approved quality. All pipes shall be perfectly airtight and truly cylindrical, glazed inside and outside, free from cracks and flaws, and perfectly burnt. Those not perfectly straight and truly cylindrical, well and uniformly glazed, free from cracks and flaws and perfectly burnt, shall be rejected.

15.6. All pipes in trenches over 4.5 metres deep and all those in loose ground shall be protected with concrete all round.

15.7. In laying the drains care must be taken that they are laid perfectly true to the inclination, and as far possible, straight from point to point of the manholes, ventilators or lamp holes, and that all pipes are carefully laid and packed underneath so as to guard against subsidence or fracture of the pipes.

15.8. The stoneware pipe shall be joined by forcing two stands of tarred gaskets into the joints, the strands to be sufficiently thick to tightly fit the annular space between the sockets and spigots. The annular space shall then be solidly filled with neat Portland cement which shall be forced into the socket, so s to fill it and fillet of cement shall then be worked round the outside of the joint. This fillet shall be kept in position by a bend of coarse cloth, which shall be

kept moist until the cement has set. Every joint of the earthenware pipes, which is not concreted shall be further protected by placing, on the outside of the joint of cement, well-tempered and tenacious clay, so as to completely surround the joint. For this purpose, not less than the following quantities of clay shall be used for every joint on a (6 inch) 152.397 mm. pipe, 1/2 cubic feet 14158.0 c.c; 8 inch 203.196 mm. pipe, (3/4" cubic feet) 21237.00 c.c. 9 inch 228.586 mm. pipe, 1 cubic feet 28317 c.c.: (10 inch) 253.995 mm. pipe, (1 1/4 cubic feet) 35400.0 c.c.

15.9. After the joints have thoroughly set, the Engineer or his Assistant may inspect the joints, and if he has any doubt as their soundness, he may require the Contractor to cut open and clear away the cement of any joint that he may selected unless some defect be found they shall not be required to open more than one joint in 60 feet (18 meters) of pipe though if defects be found, the Engineer may direct them to open as many joints as he may deem necessary. The joints made on one day will not as a rule, be inspected until the following day and the cement may have a sufficient time to set well before being covered up.

15.10. The concrete shall be described in a separate specification under that head.

15.11. Testing of Joints of Drainage Pipes and Fittings:

Note: The joints of drainage pipes and fittings will be tested by the contractors without any extra charge to the Municipality as per the specifications described below:-

Smoke Test : All soil pipes, waste pipes and vent pipes and all other pipes when above ground shall be tested for gas tightness by smoke test under a pressure of 25 mm. of water and maintained for 15 minutes after all trap seals have been filled with water. The smoke is produced by burning oily waste or tar paper in smoke machine. Chemical smokes are not satisfactory.

Water Test: Glazed ware and concrete pipes shall be subject to a test pressure of at least 1.5 m. head of water at the highest point of the Section under Test. The tolerance figure of 2 Litres/cm. of dia. /km may be allowed during a period of ten minutes. The test shall be carried out by suitably, plugging the low end of the drains and the ends of the drain and the ends of the connection if any, and filling the system with water. A knuckle bend shall be temporarily jointed at the top end and a sufficient length of vertical pipes jointed to it so as to provide the required test head. Or the top end may be plugged with connection to hose, ending in a funnel which could be raised or lowered until required head is obtained and fixed suitably for observation.

Subsidence of the water level may be due to one or more of the following causes

(a) Absorption by pipes and joints.
(b) Sweating of pipes or joints.
(c) Leakage at joints or from defective pipes and
(d) Trapped air.

Allowance shall be made for (a) above by adding water until absorption has ceased after which the test should be commenced. Any leakage will be visible and the defective part of the work should be cut and made good. But excessive sweating from particular pipe or joint shall be watched for taken as indicating a defect, to be made good. Complete records shall be kept of all tests carried out of drains both during construction and after being put into service.

TS 16: SAND FACE PLASTERING:

16.1. All external surfaces where ever the plaster is loose and detached from the surface of wall in places where the cracks exists in close proximity (max. distance is less than 1 running feet) or the crack is of dimension exceeding 7.5mm in width the area will be treated by patch plaster. The original plaster of such area is to be removed to a min 150mm distance

beyond the affected area. Elsewhere the cracks are closer and the surfaces show extensive crazing or if the original plastered surface is above 20 years old, or exhibits extensive seepage, the entire surface shall be scrapped of its original plaster.

16.2. The exposed surface shall be properly raked prior to any treatment. Wherever the pointing of the wall panels is ineffective or loose fresh pointing shall be done. This shall not be paid separately. The surface cleaned with water twice, all wall joints refilled and these joints are sprayed with a thin layer of cement slurry. Then the entire surface to be plastered shall be coated with a bond coat as specified. If a bond coat is specified as a pre plaster treatment it shall be paid separately. However where no separate chemical bond coat is specified, the surface shall be treated to a bond coat of cement slurry just prior to application of cement plaster. Under no condition shall the first coat of the plaster be applied on dry bond coat. No additional payment shall be made for cement slurry bond coat.

16.3. Thereafter a 25mm thick sand face plaster 1:3 in two coats shall be appointed with water proofing compound in 1st coat from outside. First coat shall be of minimum 12 mm thick and maximum 20 mm thick. The second coat shall be minimum 8mm thick and maximum 12 mm thick. Under no circumstances shall the plaster be less than 25mm thick. In case of internal plastering the thickness can be 20 mm only. As a precaution for/towards seepages use of water proofing agents is suggested as specified above. The surface is to be treated with polymer based bonding agent where joint exists with old plaster. Polymer based bonding agents are to be used where ever the joints exist between the RC section and the brick work. The joint shall be treated with 2 coats of bonding agent applied by brush.

16.4. The consumption of ready mix plaster is to be correlated with manufacturer's specifications for various thickness i.e. 12mm, 15mm, 18mm, and 25mm.

16.5. CURING

16.5.1. All surfaces should be immediately covered with plain cement mortar and then cured after 12 hours or the surfaces can be left to naturally cure without sprinkling water for two days and then covered with second coat ofplaster.

16.5.2. All plastered surfaces shall be water cured for seven days with the first two days the curing being done every five to six hours. When the atmospheric temperature of the site exceeds 38degree Celsius then curing shall be resorted to as many times as required to keep the surface moist or to ensure the mortar temperature does not rise. Curing shall be done in the clean water avoid of any acidic impurities.

TS 17: READY MIX PLASTER WITH FINISH

Ready Mix Plaster of material of Approved make should be used during the work execution with mixing of sufficient water as per the manufacturer's specifications to make a homogeneous mixture. Mortar usable within 1/2 hour only should be prepared at a time. Joints in brick and stone masonry shall be raked out to receive the plaster and concert surfaces shall be hacked and washed well before plastering. The brick work shall be kept wet for atleast six hours before plastering. A first coat of plaster of requisite thickness upto 15mm shall be applied and shall be finished with a coat of POP/White Putty to a thickness not exceeding 3mm and rubbed and polished to a smooth and even finish working from top to bottom.

TS 18: READYMIX PLASTER WITH POP/ WHITE PUTTY FINISH:

The cement mortar used shall be in proportion 1:4 unless otherwise specified. One part of Portland cement shall be dry mixed with four parts of sand, sufficient water shall then be added to make a homogeneous mixture. Mortar usable within 1/2 hour only should be prepared at a time. Joints in brick and stone masonry shall be raked out to receive the plaster and concert surfaces shall be hacked and washed well before plastering. The brick

work shall be kept wet for at least six hours before plastering. A first coat of plaster of requisite thickness shall be applied and shall be finished with a coat of POP/White Putty to a thickness not exceeding 3mm and rubbed and polished to a smooth and even finish working from top to bottom.

TS 19: PAINTING:

19.1. White washing

Fresh white lime slacked at site of work should be mixed with sufficient water to make a thin cream. The approximate quantity of water required in making the cream is 5 liters of water to 1 kg of lime. It shall then be screened through a coarse cloth and gum (glue) in the proportion of 100 grams of gum to 16 liters (three chattacks of gum to 6 gallons) of wash shall be added. The surface should be dry and thoroughly cleaned from dust and dirt. The wash shall be applied with 'moonj' or jute brush, vertically and horizontally alternately and the wash kept stirred in the container while using. Two or three coats shall be applied as specified and each coat shall be perfectly dry before the succeeding coat is applied over it. After finishing the surface shall be of uniform colour. The white wash should not splash on the floor and other surfaces. In old surface the surface should be cleaned and repaired with cement mortar where necessary and allowed to dry before white wash is applied. For final coat blue pigment powder should be mixed to the required quantity with the lime water to give a bright white surface.

19.2. Colour washing

Colour wash shall be prepared with fresh slaked white lime mixed with water to make thin cream adding the coloured pigment to the required quantity to give the required tint. Gum (glue) in the proportion of 100 gm. of gum to 16 litres (three chattacks of gum to six gallons) of wash shall be added. The colour wash may be applied one or two coats as specified. The method of application should be same as for white washing (item 17). For new work the priming coat shall be of white wash.

19.3. Distempering:

The distemper shall be of best quality and the colour should be as specified. The distemper should be mixed and prepared and water added, as laid down in the instructions of the manufacturer. First a paste is made by adding little hot water to the distemper powder and stirred thoroughly, and the paste is allowed to stand for a few minutes. The paste is then thinned with water to have a thin cream to the consistency of oil plant and stirred thoroughly all the time while applying. If the surface is rough, it should be smoothened with sand paper.

The surface must be perfectly dry before distempering is commenced. In new cement plaster the surface shall be washed over with a solution of zinc sulphate, one kg zinc sulphate in 10 liters of water and then allowed to dry. In old surface, the surface shall be repaired with plaster of Paris where required and then whole surface sand papered and washed and allowed to dry.

The number of coats shall be two or as specified. The distemper shall be kept well stirred in containers and shall be applied with broad brushes first horizontally and immediately

crossed vertically. Brushing should not be continued too long to avoid brush marks. The second coat shall be applied after the first coat is dried up. After each day's work the brushes shall be washed and kept dry. Distempering should be done during dry weather but not during too hot weather, not wet weather.

TS 20: OIL PAINTING ON WALLS / MS GRILLS:

20.1. When painting on plaster surface the surface shall first be cleaned, rendered free from dust or dirt and rubbed smooth by means of sand paper or pumice stone, to the satisfaction of the consultants, before the priming coat of zinc white being applied evenly.

20.2. Cracks and nail heads shall then be stopped with putty, and irregularities reduced with sand paper and stone.

20.3. Iron work shall be first thoroughly cleaned from loose dirt and rust, after which red lead paint alone shall be used as priming.

20.4. The paint shall be mixed in the proportion of one kg. of zinc or lead white to 1/2kg. of linseed oil and driers and pigments added as required. After the primary coat, a second coat of paint with the addition of pigment shall be evenly applied when directed and finished smooth. Paint to be applied evenly and properly with approved brushes. No hair marks from the brush should be left on any part of the work.

20.5. Each coat of the paint shall be allowed to dry completely before the next coat is applied, and all except the last shall be lightly rubbed down with pumice stone.

20.6. Putty shall be prepared from the best whiting and boiled linseed oil well kneaded together with a proportion of not less than 10% white lead ground in oil and worked into it during preparation.

TS 21: MATERIALS:-

21.1. Materials shall be of the best approved quality and they shall comply with the respective latest IS specified.

21.2. In case of non-availability of materials in metrics sizes, the nearest size in FPS units shall be provided with the prior approval of the Bank's Engineer-in-charge for which, neither extra will be paid nor any rebate, be recovered.

21.3. All material shall be tested in any testing laboratory approved by the NABL, as per the testing guidelines issued by the Employer, which can be perused by the contractor from the office results of such tests in original issued by the laboratory shall be submitted to the Architects/Consultants with copy to Engineer-in-charge. The entire charges connected with such testing including for repeated tests if ordered by the Architects/Consultants OR Engineer-in-charge shall be borne by the Contractor.

21.4. All materials shall be properly stored and the Contractor shall be responsible for its safe custody until they are required on the works and till the completion of work.

21.5. Unless otherwise shown on the drawings or mentioned in the Schedule of Quantities or Specified Conditions, the quality of materials, workmanship, dimensions etc. shall be as specified here in under.

21.6. All Equipments and facilities for carrying out field test on materials shall be provided by the Contractors without any extra cost.

i) Cement:-

1. Cement shall comply in every respect with the requirements of the latest publication of IS-1489(PPC) and unless otherwise specified Portland Pozzolana Cement (PPC) shall be used.

2. The weight of PPC shall be taken as 1440 kg per CuM (80 lbs per Cft.). Cement shall be measured by weight and in whole bags and each undisturbed and sealed 50kgs. Bag being considered equivalent to 34.72 liters (1.2 Cft.) in volume. Care should be taken to see that each bag contains full quantity of cement. When part bag is required, cement shall be taken by weight or measured in measuring boxes.
3. No other make of cement but that approved by the Architect/Consultants OR Bank's Engineer-in-charge will be allowed on works and the source of supply shall not be changed without approval of the Architect/Consultants OR Bank's Engineer-in-charge in writing. Test certificates to show that cement is fully complying with the specifications shall be submitted to the Architect/Consultant and notwithstanding this, the Architects/Consultants may at their discretion, order that the cement brought on site and which they may consider damaged or of doubtful quality for any reason whatsoever, shall be retested in an approved testing laboratory and fresh certificates of its soundness shall be produced. Cement ordered for retesting shall not be used for any work pending results of retests.
4. Cement shall be stored in weather proof shed with raised wooden plank, flooring to prevent deterioration by dampness of intrusion of foreign matter. It shall be stored in such a way as to allow the removal and use of cement in chronological order of receipt i.e. first received being first used. Cement deteriorated and / or clotted shall not be used on work but shall be removed at once from the site.

ii) Fine Aggregate:-

1. Sand shall conform to IS-383 and relevant portion of IS-515. It shall pass through a IS sieve mm (3/16 BS) test sieve leaving a residue not more than 5%. It shall be from natural source crushed stone screenings, if allowed, chemically inert, clean, sharp, hard, durable, well graded and free from dust, clay, shale large pebbles, salt, organic matter, loam mica or other deleterious matter. The sun of percentages of all deleterious materials in sand shall not exceed 5% by weight. It shall be washed if directed to reduce the percentage of deleterious substance to acceptable limits. Sand shall not contain any trace of salt and it shall be tested and sand containing any trace of salt shall be rejected.
2. The fine aggregate for concrete shall be graded within limits as specified in IS-383 and the Fineness Modulus may range between 2.60 to 3.20.
3. The fine aggregate shall be stacked carefully on a clean hard dry surface so that it will not get mixed up with deleterious foreign materials, if such a surface is not available a platform of planks of corrugated iron sheets or brick floor or a thin layer of lean concrete shall be prepared.

iii) Coarse Aggregate;-

1. Shall consist of crushed or broken stone 85% of which shall be retained on 4.75 mm IS test sieve. It shall be obtained from crushing Granite, Quartzite, Trap, Basalt or similar approved stones from approved quarry and shall conform to IS-383 and IS-515. Coarse aggregate shall be chemically inert when mixed with cement and shall be cubical in shape and free from soft, friable, thin porous, laminated or flaky pieces. It shall be free from dust and any other foreign matter.
2. Gravel / Shingle of desired grading may be permitted as a substitute in part or full in plain cement concrete it the Architect is otherwise satisfied about the quality of aggregate. For all RCC works the size of coarse aggregate shall be 20 mm and down gauge.

iv) Reinforcement:-

1. Reinforcement shall be of mild steel tested quality conforming IS 432-1866 and any other ISS applicable or deformed bar conforming to IS 1786 and IS 1138 or hard drawn steel wire fabric conforming to IS 1566-1867.
2. All finished bars shall be free from cracks, surface flaws, laminations, jagged and imperfect edges.

v) Bricks:-

1. Bricks shall generally comply with IS 1077 except in size which shall be conforming to the sizes locally available. Depending upon the quality of bricks they shall be classified as 1st and 2nd class.
2. Bricks shall be the best quality locally available table moulded well burnt but not over-burnt, have pane rectangular faces with parallel side and sharp right angled edges, and have a fine compact and uniform texture. The bricks shall be free from cracks, chips, flaws, stones or lumps of any kind and shall not show efflorescence either dry or subsequent to soaking in water. It shall emit a clear ringing sound on being struck and shall not absorb water more than 20% by weight. Common building bricks shall have a minimum compressive strength of 50 Kg per sq.cm. When used as panel in frame structure and 100 Kg per sq.cm. For load bearing wall construction, unless otherwise specifically stated in the schedule of quantities.

vi) Water:-

Water for mixing cement mortar or concrete shall not be salty or brackish and shall be clean, reasonably clear and free from objectionable quantities of silt and traces of oil, acid and injurious alkali, salts, organic matter and other deleterious materials which will either weaken the mortar or concrete or cause efflorescence or attach the steel in reinforced cement concrete. Water shall be obtained from sources approved by the Architect. Potable water is generally considered satisfactory for mixing and curing concrete, mortar, masonry etc. Where water other than main source is used this shall be tested in an approved testing laboratory to establish its suitability. All charges connected therewith shall be borne by the Contractors.

vii) Mortar:

1. Cement and Sand Mortar conform to the specifications; it shall be composed of Portland cement and sand. The ingredients shall be accurately gauged by measure and shall be well and evenly mixed together in a mechanical pan mixture, care being taken not to add more water than required. No mortar that has begun to set shall be used. River sand shall be used unless otherwise specified.
2. If hand mixing is allowed, then it shall be done on pucca water-proof platform OR M.S. Mixing Tray. The gauged materials shall be put on the platform and mixed dry. Water sill then be added and the whole mixed again until it is homogeneous and of uniform colour. Not more than one bag of cement shall be mixed at one time and which can be consumed within half an hour of its mixing.

viii) Cement mortar:

For PCC/backing coat to stone/tiles shall be prepared by mixing cement and sand in specified proportion. Proportioning shall be carried out as detailed in BOQ. Cement and sand shall be thoroughly mixed and water shall be added to it gradually. After addition of water the mix shall be mixed for a minimum of 3 minutes. The mortar mixed shall be consumed within 30 minutes of its mixing.

Annexure -J- Material Specification

APPROVED BRANDS

APPROVED BRANDS OF VARIOUS BUILDING MATERIALS:

SR.NO.	MATERIALS	APPROVED BRANDS
1.	Cement OPC,PPC Grade 43 / 53	Gujarat Ambuja, Ultratech, A.C.C
2.	Ready Mix Plaster	Gujarat Ambuja, Ultratech, A.C.C
3.	White Cement	ACC Silvicrete, JK White, Birla
4.	CPVC Plumbing pipes.	Prince, Astral, Supreme
5.	C.I. Pipe	Nikko ISI or Conforming to I.S.1230 for rain water pipes & Fittings & the I.S.1729 & ISP 3889 for soil & wastewater pipes
6.	P.V.C. Pipe	Prince, Astral, Supreme
7.	Acrylic Paint	ICI Paints, Asian Paints, Sherwin Williams, New World Paint
8.	Elastomeric Paint	ICI Paints, Asian Paints, Sherwin Williams, New World Paint
9.	Metal Red-oxide Primer	ICI Paints, Asian Paints, Sherwin Williams, New World Paint
10.	G.I. Pipes	TATA, Zenith “C” Class
11.	Sand For plastering & other work	Packed Gujarat Sand Bags, SILPOZ or pure river Sand
12.	Sand for waterproofing work	Pure River Sand

NAME OF CHEMICALS USED AS UNDER:

ITEMS	NAME OF CHEMICALS & MANUFACTURERS
Rust cleaner for reinforcement	BASF/ Sika/ Dr.Fixit/ Sunanda/ Krishna Conchem
Ready Mix Polymer	BASF/ Sika/ Dr. Fixit/ Sunanda/ Krishna Conchem
Anti-corrosive Primer for Reinforcement	BASF/ Sika/ Dr. Fixit/ Sunanda/ Krishna Conchem
Anchorage Material for fixing rebars.	BASF/ Sika/ Dr. Fixit/ Sunanda/ Krishna Conchem
Injection Grouting to arrest porosity	BASF/ Sika/ Dr. Fixit/ Sunanda/ Krishna Conchem
Bonding Agent for Concrete	BASF/ Sika/ Dr. Fixit/ Sunanda/ Krishna Conchem
Repair Mortar for Concrete	BASF/ Sika/ Dr. Fixit/ Sunanda/ Krishna Conchem
Polymer for plastering over repaired mortar	BASF/ Sika/ Dr. Fixit/ Sunanda/ Krishna Conchem
Waterproofing chemical material	BASF/ Sika/ Dr. Fixit/ Sunanda/ Krishna Conchem
Epoxy Material	BASF/ Sika/ Dr. Fixit/ Sunanda/ Krishna Conchem
Micro Concrete	BASF/ Sika/ Dr. Fixit/ Sunanda/ Krishna Conchem
Reinforcement Steel	Any ISI mark or enlisted in PWD approved brand

The above mentioned chemicals shall be used as per manufactures specifications and Approval of consulting Engineer.

NOTE: Unless otherwise mentioned specifically, any one of approved makes or brands shall be allowed to use. Other makes or brands of the Building materials bearing I.S.I. monogram on the material itself will also be allowed to be use only after approval of Consultants / C-DAC.

All the ready-mix material shall be used as per the manufacture specification and process under the supervision of Project Consultants and C-DAC.

Annexure-K: BOQ Format

S No	Description of the item	Unit	Quantity	Rate	Amount
I. ENABLING SYSTEM:					
1	**ERECTION & REMOVAL OF BAMBOO SCAFFOLDING:-** Supplying and erecting single or double old or new bamboo scaffolding which will be in intact condition for the carryout the work as per site conditions with required distance at inner as well as outer faces and horizontals and braces on the Building structure or any other places without any major puncher to wall surface etc. with support of nearest supporting elements of building part. including the removal of scaffolding after completion of the work etc. all complete as per the direction of Consulting Engineer / in-charge. **Note: The painting and other work will be carry out on the same scaffolding, the charges will be paid only one time for Entire work. And height measurements of scaffolding considered shall be Gr. Level to above parapet height i.e. 3'0". And width shall be considered at actual on site. 50% Payment for erection & 50% after removal of bamboo scaffolding consider during the billing.**	Square Metre	3370.00		
2	**HESSIAN CLOTH (QTY. SAME AS SCAFFOLDING):-** Providing, erecting, maintaining and removing temporary protective screens made out of safety net as above including necessary beading of thread & including G.I. rings to ensure that it remains in good serviceable condition & position for the entire work duration as required by Engineer in charge. (a) Woven PVC / HDPE Cloth etc. complete as per the direction of Consulting Engineer / in-charge.	Square Metre	3370.00		

3	**SAFETY NYLON NET :-** Providing and fixing safety old or new nylon net which should be in good condtions to prevent debris falling while execution of work, to hold / absorb the debris stone impact, and during the entire period of work. net will be fixed with required support and other fittings items inculding removing after completion etc. complete as per the direction of Consulting Engineer / in-charge.	Square Metre	360.00		
4	**WINDOW COVERING :** Providing and covering windows, doors or other openings with 3 to 4 mm thick new or old Plywood at all levels including securing it properly to avoid damage to the glass panels and to prevent dust entering into flats/units etc. including dismantling the same after completion of the work etc complete as per the direction of Consulting Engineer / in-charge.	Square Metre	635.00		
5	**REMOVAL OF EXISTING WATERPROOFING:-** Removing existing water proofing treatment over terrace, chajja etc. by mechanical as well as manual as and when required upto slab level and cleaning the surface for providing new specialized water proofing treatment, lowering down & stacking the debris with all leads, lifts etc, complete as per the direction of Consulting Engineer / in-charge.	Cubic Metre	72.00		
6	**REMOVING OF TILE/GRANITE CLADDING :-** Removing cement tiles, or marble or polished shahabad floor or dado without bed concrete including stacking the materials as directed with all leads, lifts etc. complete as per the direction of Consulting Engineer / in-charge.	Square Metre	12.50		

7	**DISMANTLING OF EXISTING PAVEMENT:-** Dismantling of cement concrete pavement by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock piling at designated locations and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable materials separately etc. complete.	Cubic Metre	2.50		
8	**REMOVING OF WEATHER SHED :-** Removing existing Weather Shed including frame work and stacking the materials as with all leads, lifts etc. complete as per the direction of Consulting Engineer / in-charge.	Square Metre	35.00		
9	**BREAKING OF PLASTER:-** Breaking of old plaster of any thickness by breaker machine or manually at all levels including cleaning of exposed surface etc. all complete as per the direction of Consulting Engineer / in-charge.	Square Metre	895.00		
10	**CHIPPING OF R.C.C.** :- Chipping of existing loose and damaged concrete particles at specified locations where Polymer treatment to be executed, with chisel and hammer, cleaning the surface with wire brush and washing concrete surface with water etc. all complete as per the direction of Consulting Engineer / in-charge.	Square Metre	477.00		
11	**LOWERING & CARTING AWAY THE DEBRIS:-** Lowering down the debris obtained from breaking and removing the cement plaster/waterproofing, RCC, etc. by any means without causing dust nuisance and damage to structure, stacking the same as and where directed including	Cubic Metre	151.00		

	cleaning the site and carting away the same outside the building compound upto the municipal dump with required municipal permision & all lead and lift complete as per the direction of Consulting Engineer / in-charge.				
12	**TEMPORARY PLATEFORM FOR AC :-** Providing and Fixing TEMPORARY PLATFORM made up of Plywood, G.I sheets, Bamboo etc. supporting with Props to safeguard or protect the AC Units while work in progress with all necessary arrangements etc. complete as per the direction of Consulting Engineer / in-charge.	Square Metre	8.00		
				Total:-	
II. STRUCTURAL REPAIR WORK:					
1	**CORROSION INHIBITOR COATING:-** Removing loose rust from the reinforcement bars by wire brushing, light hammering etc. And applying rust remover (RUSTICIDE) conforming to IS 12077 cleaning the same by water and then Providing & applying Two coats of Anti Corrosive protective coating on reinforcement bars by brush in interval of 02 to 04hrs. Sprinkle dry sand when second coat is tacky so as to get rough surface etc. complete as per the direction of Consulting Engineer / in-charge.	Square Metre	240.00		
2	**BOND COAT:-** Providing and applying of bond coat approved epoxy resin EPI Bond of Krishna Conchem or equivalent before polymer plaster/concrete to have the perfect bond between old concrete and new concrete/polymer plaster surface within half an hour of after application of bond coat confirming to ASTM-C-882-87	Square Metre	477.00		

	using nylon brushes scaffolding labour etc. complete as per the direction of Consulting Engineer / in-charge.				
3	**POLYMER MODIFIED MORTAR (READY-MIX) :-** Repairing of damaged RCC members such as slab, beam, and column by using only Ready-mix Polymer" Modified mortar (up to25 mm thick) of approved brand as listed in tender as per the manufacture's specification and as per the direction of Consulting Engineer / in-charge.	Square Metre	477.00		
4	**MICRO CONCRETE:-** Making up of distressed / loose / cracked / porous carbonated, loose part of concrete with fiberous micro concrete by Micron 1000 of Associated Chemicals or equivalent and repairing the damaged surface of concrete, fixing the form work / shuttering across the profile of damaged structural element, Micro concrete should be mixed homogeneouslsy Pour the free flow ready mix micro concrete mix with 5 L to 7 L of water in the form work OR as per manufacturer's specifications to achieve dense solid mass. The Micro concrete shall be poured properly in slurry tight prefixed holding boards formwork, fixed properly in line, level and in the required size/shape and well-oiled etc. The air bubbles, if any shall be removed by tapping the boards and removing the same after 24 hours, curing the micro-concrete thoroughly for 14 Days etc. complete. The rate shall be inclusive of shuttering, strutting, curing, Bond Coat, etc. complete as per the direction of Consulting Engineer / in-charge. (Excluding cost reinforcement).	KG	3150.00		

5	**PRO & FIX STEEL:-** Providing, fabricating, welding & fixing steel reinforcement (Fe500) in existing damaged reinforcement in RCC as required dia of approved brand i.e. TATA/SAIL or equivalent. For column, beams & slab. Etc. including transporting the same to site, cutting, bending, tying at all heights and in all positions, providing concrete covers as required at any height etc. Rates to include MS/TS dowel pins /staple including drilling holes in concrete and providing labour and materials for fixing the pins. Complete as per the direction of Consulting Engineer / in-charge.	Metric Tonne	4.00		
6	**M-30 CONCRETE (PARDI CASTING):-** Providing and laying ready mix M30 RCC work with trap/ granite/ quartzite/ gneiss metal in well staining including compacting by vibrating, finishing and curing etc. Complete. (fully automatic microprocessor based PLC with SCADA enabled with reversible drum type mixer/ concrete batch mix plant (pan mixer) with fine aggregates of required specifications (Natural sand / VSI sand finely washed etc.), excluding reinforcement, All Complete as per the direction of Consulting Engineer / in-charge.	Cubic Metre	2.25		
				Total:-	
III. CIVIL REPAIR WORK:					
1	**EXTERNAL SAND FACE PLASTER IN PATCH (READY MIX):-** Marking of damage plaster with colour & marker as per direction of consultants then cutting with grinder machine of entire marked area after that breaking of plaster by breaker machine or manually of any thickness and at all levels, Including cleaning of exposed surface and make dust free for application of external	Square Metre	625.00		

	plaster 25mm (average) thick ready mix plaster by Using 7-8 liters of water for 40 kg Ready Mix Plaster on external surface followed by 01st coat of 12mm to 15 thick as per manufacturer's specifications and curing the same for not less than 3 day and keeping the ,surface of base coat rough to receive the 02nd coat plaster treatment up to 10mm to 12 thick on surface walls, top sponge finishing, curing etc. including wherever required drip mould/cornice /plaster band etc. All complete as per the specifications, drawings etc. as per the direction of Consulting Engineer / in-charge.				
2	**DASH COAT:-** Repairing the damaged wall surface with application of Dash coat of 1: 4 cement mortar and inserting brickbats or metal chips if required to level the surface complete as per the direction of Consulting Engineer / in-charge.	Square Metre	250.00		
3	**SEPERATION JOINT FILLING :-** Providing & sealing separation cracks between RCC and brick work by cutting grove on both sides crack along the length by electrically operated groove cutter Breaking / removing plaster & loose mortar (up to 75mm depth) in the area between two grooves by chiseling. Washing by drinking water to make it dust free surface. Hammering 10 to 20mm size aggregates in the crack as directed by the consultant. Sealing the crack with Ready mix polymer modified cementations Mortar 9 Up to 50mm depth in two layers all Complete as per the direction of Consulting Engineer / in-charge.	Running Metre	125.00		

4	**CHICKEN MESH :-** Providing and fixing chicken wire mesh of 150 mm wide of aperture at the junction of R.C.C. members and brick work of approved quality including fixing mesh in position by necessary nailing in concrete or / B.B. masonry and/or tying with binding wire etc. complete as per the direction of Consulting Engineer / in-charge.	Running Metre	125.00		
5	**INTERNAL PLASTER IN PATCH (READY MIX):-** Providing and applying 12 mm thick internal plaster in one coat by using only Ready-Mix Plaster at all heights and locations for masonry (except stone masonry) and concrete surfaces including marking & breaking of damaged plaster, racking out joints, hacking of concrete surface, watering, finishing, curing, etc. complete as per the direction of Consulting Engineer / in-charge.	Square Metre	270.00		
6	**PUTTY ON INTERNAL PLASTER:-** Providing and applying Two coats of wall care Putty on (Birla or equivalent) plastered surface and Ceiling and Walls to prepare surface even and smooth of approved make, etc. complete as per the direction of Consulting Engineer / in-charge.	Square Metre	270.00		
7	**NEW WEATHER SHED:-** Providing and fixing corrugated precoated galvanized iron sheet weather shed having thickness 0.80 mm along with necessary accessories like self drilling and tapping screws with weather cap, self drilling and tapping screws EPDM with weather cap for flush at both side including ridge 300 x 300 mm x 0.80 mm thick with all leads and lifts, Fitting, Fixtures, etc. complete.	Square Metre	50.00		

8	**GRANITE WINDOW FRAMING:-** Providing and laying in position flooring door/window framing of telephone black / Amba White / Cat bary brown / Ruby red / Ocean Brown granite stone of approved shade and size 18 mm to 20 mm thick on bed 1:6 cement mortar including cement floats striking joints, pointing in C.M. 1:3 curing and cleaning etc. complete.	Square Metre	3.00		
9	**WALL TILES:-** Providing and laying ceramic tiles having size 30 cm. x 60 cm. confirming to corresponding I.S.for dado and skirting in required position with readymade adhesive mortar of approved quality on plasterof 1:2 cement mortar including joint filling with white/ colour cement slurry cleaning curing etc. complete.	Square Metre	12.00		
10	**PLAIN CEMENT CONCRETE (PCC):-** Providing and laying in situ cement concrete M20 upto 100 mm thickness for flooring with groove cutting of 4mm wide and 20mm deep with necessary refilling with bitumen etc. complete.	Square Metre	25.00		
11	**REMOVING & REFIXING OF SLIDING WINDOWS:-** Removing & Refixing of Sliding Windows of any type and repairing / replacing the damaged members, fittings & fixtures, making good the damaged brick work and refing the same including painting, etc. complete.	Square Metre	20.00		

12	**NEW GLASS DOORS:-** Providing and fixing glazing panels & doors using 12mm thk toughen clear glass (confirming to ASTM Standards C-1048) supported bycchannel (embedded in the floor) at the bottom & side edge and wall connecting profile at the top edge,stainless steel articulated countersunk bolts threaded bolts,chemical fasterners,etc., glass panel size as per design and drawing including applying colourless sealant of joint incl. required edge polish, making glazing water tight etc. Destructive node joint test reports to be submitted forestablishing the safety factor, including operating hardware, SS patch fittings, fabricated long length satin finish SS 304 handles,patchlock, floor springs etc., complete as directed by the architect for frameless patch doors,single or twin leaf shutters with fixed panel on top. Hardware-Droma BTS 80 Floor Spring.	Square Metre	3.80		
				TOTAL	
IV. WATERPROOFING WORKS :					
1	**TERRACE TOP WATERPROOFING:-** Providing and laying integral cement based waterproofing treatment to Terrace Top upto 112 mm thickness including preparation of surface as required for treatment of roof, terraces etc. consisting of following operations: A) Cleaning the surface & making free from looses particles, filling the cracks on slab, applying waterproof chemical in two coats on the terrace slab as per the specifications of Manufacturer B) Laying brickbat coba using old broken brick/brick bats 25mm to 100 mm size with cement mortar	Square Metre	285.00		

	upto 50% 1:5 (1cement: 5 coarse sand) admixed with proprietary waterproofing compound conforming to IS: 2645 over 20mm thick layer of cement mortar mix 1:5 (1 cement 5 coarse sand) admixed with proprietary waterproofing compound conforming to to IS:2645 to required slope and treating similarly the adjoining walls upto 300mm height including rounding of junction of walls and slabs. C) After two days of proper curing Providing & laying IPS in C.M 1:4 i/c roughening the surface to receive China Mosaic etc. complete as per the direction of Consulting Engineer / in-charge. **Note:- It should carry minimum 10 years warranty given by the contractor as format given in tender Also a Bank Guarantee equivalent to 3% of value of executed said items for a period of 5 years to be submitted the bank guarantee will release on pro-rata basis in 05 part.**				
2	**LIFT ROOM, CHAJJA & BALCONY TOP WATERPROOFING:-** Providing and laying integral cement based waterproofing treatment to upto 112 mm thickness including preparation of surface as required for treatment of Lift Room, Chhajja & Balcony Top, etc. consisting of following operations: A) Cleaning the surface & making free from looses particles, filling the cracks on slab, applying waterproof chemical in two coats on the terrace slab as per the specifications of Manufacturer B) Laying brickbat coba using old broken brick/brick bats 25mm to 100 mm size with cement mortar upto 50% 1:5 (1cement: 5 coarse sand) admixed with proprietary waterproofing compound	Square Metre	145.00		

	conforming to IS: 2645 over 20mm thick layer of cement mortar mix 1:5 (1 cement 5 coarse sand) admixed with proprietary waterproofing compound conforming to to IS:2645 to required slope and treating similarly the adjoining walls upto 300mm height including rounding of junction of walls and slabs. C) After two days of proper curing Providing & laying IPS in C.M 1:4 in cluding curing, etc. complete as per the direction of Consulting Engineer / in-charge. **Note:- It should carry minimum 10 years warranty given by the contractor as format given in tender Also a Bank Guarantee equivalent to 3% of value of executed said items for a period of 10 years to be submitted.**				
3	**BROKEN CHINA MOSAIC ON TERRACE TOP :-** Laying the flooring of broken China-mosaic (broken pieces of China glazed tiles) of approved colour set in 25 mm. average bed of C.M. 1:3 with waterproofing compound to correct level and slope (1:100) well compacted and finished; such that minimum coverage of China mosaic chips is about 120% of the total area of slab. The above treatment shall continue along the inner side of parapet or the adjoining wall upto 30 cm. high as per the above specifications regarding cement mortar in shape of round vata with necessary groove etc. all complete as per the direction of Consulting Engineer / in-charge.	Square Metre	285.00		

4	**COPING ON PARAPET TOP :** Providing and casting ready-mix M20 grade concrete of trap metal for coping to head walls/parapet including centering, formwork, compaction and curing etc. complete.(with reversible drum type mixer/concrete batch mix plant(pan mixer)with SCADA with fine aggregates of required specifications (VSI sand finely washed etc) all complete as per the direction of Consulting Engineer / in-charge.	Cubic Metre	5.00		
				TOTAL	
V. PLUMBING WORKS :					
1	**PROVIDING AND FIXING PVC PIPE :-** Removing Existing Plumbing Lines carefully & stacking the same at location indicated by Clinet / consultant , Thereafter, Providing and fixing new PVC pipes of "B type" with all necessary accessories, specials viz. socket, bend, tee, union, cross, elbow, long screw, reducing socket, reducing tee, bend, short piece etc., including cutting pipes, making holes, fitting, fixing, filling gabadas, after checking the leakages etc. etc., complete as per the Direction Of Consulting Engineer / In-Charge. **(Payment will be made on the center line measurements of total pipe line including all fittings. No separate payment will be made for accessories, fittings)**				
a	**50mm Ac & Balcony LINE PVC**	Running Metre	320.00		

2	**PROVIDING AND FIXING CPVC LINE:-** Removing the existing G.I. / CPVC lines on specified areas lowering down the scrap material & stacking the same at location indicated OR as directed by consultants & thereafter, Supplying, fitting and fixing CPVC (Chlorinated Polyvinyl Chloride) pipes of approved make conforming to IS-15778: 2007. of Schedule 80 & SDR 11 with all necessary accessories, specials viz. socket, bend, tee, union, cross, elbow, nipple, long screw, reducing socket, reducing tee, short piece etc. fitted with holder bats clamps, including cutting pipes, making holes, fitting, fixing, filling gabdas etc. complete in all respect including cost of all necessary fittings as required, jointing materials in any position above ground complete as per the direction of Consulting Engineer / in-charge. **(Payment will be made on the center line measurements of total pipe line including all fittings. No separate payment will be made for accessories, fittings)**				
a	**32mm DIA CPVC PIPE**	Running Metre	120.00		
3	**GATE VALVE:-** Providing and fixing gun metal gate valve with C.I. wheel of approved brand i.e. Zoloto, neta, leader with all required fittings etc. complete as per the direction of consulting Engineer / in-charge.				
a	**32mm**	Nos	6.00		
4	**G.I BRACKET :-** Providing and fixing G.I. Brackets as required size upto 4" to 8" and thickens i.e. 5 mm to 10 mm based on site conditions and pipe diameter in both sides of joints in vertical pipes with U Bolt etc.	Nos.	220.00		

	complete as per the direction of Consulting Engineer / in-charge.				
				TOTAL	
VI. PAINTING WORKS :					
1	**EXTERIOR ELASTOMERIC PAINT:-** Providing and applying one base coat of approved brand / colour shade then applying Primer and two coat of Elastomeric Paint of approved brand with all required aarangment for execute the work including necessary preparing surface by thoroughly cleaning oil, grease, dirt and other materials, opening & filling of cracks. All this works to be carried out in accordance with the manufacturer's specifications and as per the Direction Of Consulting Engineer / In-Charge. **Note:- It should carry minimum 10 years warranty given by the manufactures on their letter head also contractor have to provide Bank Guarantee equivalent to 3% of value of executed said items for a period of 5 years.**	Square Metre	31200.00		
2	**INTERNAL PRIMER:-** Providing and applying priming coat on concrete/masonary/Asbestos Cement/plastered surfaces including scaffolding if necessary, preparing the surface by thoroughly cleaning oil, grease, dirt and other foreign material and sand papering as required etc.complete.	Square Metre	6655.00		
3	**INTERNAL LUSTER PAINT (WALLS):-** Providing and applying pearl/ luster finish paint of approved colour and shade in 1 coat of Primer & 02 coats of paint to the existing plaster surface including scaffolding, preparing the surface, applying the acrylic wall putti etc. complete.	Square Metre	5120.00		

4	**INTERNAL PLASTIC PAINT (STAIRCASE):-** Providing and applying plastic emulsion paint of approved quality,colour and shade to old surface in three coats (01 Primer + 02 Paint) including scaffolding, preparing the surface, filling the cracks (excluding primer coat) etc. complete.	Square Metre	1535.00		
5	**PRIMER COAT OVER OLD/NEW STEEL:-** Providing and applying priming coat over new/old steel and other metal surfaces including preparing the surface by thoroughly cleaning oil, grease, dirt and other foreign matter and scoured with wire brushes, fine steel wool, scrappers and sand paper, scaffolding etc.complete as per the direction of Consulting Engineer / in-charge	Square Metre	1400.00		
6	**OIL PAINT ON OLD/NEW STEEL:-** Providing and applying two coats of flat oil paint of approved colour to the old structural steel work and iron work previously painted in building including scaffolding, if necessary, cleaning and preparing the surface (excluding primer coat) etc. complete as per the direction of Consulting Engineer / in-charge .	Square Metre	1400.00		
				TOTAL	
VII. WC/BATH WATERPROOFING :					
1	**REMOVAL OF EXISTING WC/BATH WATERPROOFING:-** Removing brick bat coba more than (4") 100 mm thick including carting away the same and from the actual place of work to any other site and making the site clear as directed. The debris will become contractor's property.	Cubic Metre	7.50		
2	**REMOVAL OF EXISTING FLOORING/TILES :** Removing cement tiles, or marble or polished shahabad floor or dado without bed concrete including stacking the materials	Square Metre	25.00		

	as directed with all leads, lifts etc. complete				
3	**REMOVAL OF EXISTING WC PAN :** Removing W.C. pans/ Wash Basin/Urinal Pans/Doors/Windows including disconnecting the sanitary and water supply connections, removing and breaking flooring and bedcon-crete around pan removing the same carefully and stacking the serviceable materials as and where directed including throwing the unserviceable materiasls outside etc. carefully and throwing out the refusal outside etc. complete.	Nos.	8.00		
4	**WC/BATH WATERPROOFING:-** PWaterproofing Treatment to Toilet/bathroom by using Polymeric Cementitious Membrane as approved by Engineer in charge, followed by 112mm thick brick bat coba covered with 20 mm mortar finish. If there are cracks on the bare slab, open the crack in V Groove and fill it with ready to use repair polymer modified mortar based on special cements, aldehyde based polymers with thixotropy modifying agents. If there are lots of honeycombs and identified bad patches of concrete the same should be grouted as per the instructions of site incharge. (The grouting shall be paid separately). Clean the entire surface thoroughly and over this prepared surface, apply three coats of polymeric Cementitious waterproofing coating having a non-toxic, 2-(methoxycarbonyl)-1-propene-Butyl-2 propenoate (MPBP) based polymeric waterproofing solution as approved by Engineer in charge. Provide and lay 112 mm average thicknes of brick bat coba in cement mortar 1:5 over	Square Metre	25.00		

	12mm thick CM 1:3 bedding with one pouch of 330 grams of thorough blend of special cements, aldehyde based polymers, shrinkage compensating agents as approved by Engineer in charge per 50 Kg bag of cement and finishing with 20 mm thick cement plaster in cement mortar 1:3 by mixing one 330 grams pouch of above admixture per 50 Kg bag of cement, including all lead, lifts and laid to proper slope to drain off water entirely preparing bell mouth including watta, beveled or champhered portion at the junction of wall and work up to a height of 300 mm or as directed and including curing and covering the whole treatment and covering 10years guarantee on court fee stamp paper of Rs.500/- including ponding test etc. complete.				
5	**WATERPROOFING BEDDING IN WC/BATH:-** Providing waterproof bedding for flooring of Bath and WC 25mm thick in C.M.1:3 including using approved waterproofing compound in specified proportion as per manufacturers specifications for per bag of cement including leveling, curing and covering 10years guarantee on court fee stamp paper of Rs.500/- including ponding test etc. complete.	Square Metre	25.00		
6	**ANTI-SKID FLOORING TILES:-** Providing and laying Anti skid Ceramic tiles of approved quality of size 30cmx30cm and confirming to IS15622-2006 (Group-BIIA) for anti skid flooring in required position laid on a bed of 1:4 cement mortar including cement float, filling joint with cement slurry cleaning curing etc. complete.	Square Metre	25.00		

7	**EUROPEAN TYPE WC PAN:-** Providing and fixing European type wall-hung white water closet of approved make with push valve concealed type with cover plate 32mm size of approved make including soil pipe, vent pipe upto out side face of wall, 100mm dia. G.I. plug bend inlet pipe all fittings,cutting and making good walls, floors etc.complete.	Nos.	8.00		
8	**NHANI TRAP:-** Providing and fixing 10cm C.I. Nahani Trap including C.I. grating bend and piece of C.I. pipe upto the outside face of the wall complete.	Nos.	8.00		
				TOTAL	
VIII. GENERAL WORK :					
1	**NEW SHUTTERS BELOW KITCHEN PLATFORM:-** Providing and fixing anodized (anodic film must not be less than 15 microns i.e. AC-15 as per IS, the anodising must be scaleted by keeping the anodized section in boiling deanodized water for a period of one hour) aluminum fixed/ sliding / pivoted / top hung / side hung / louvered type windows, doors, ventilators and partitions conforming to IS:1948, 1961 with hollow bottom section & standard single / two / three / four track frame section all round (top, bottom and sides) with shutter frame made up of standard handle section standard interlocking section and standard top and bottom section with infill panel of 4 mm thick Hardener Laminated sheet (Bakelite composite panel) with nylon guides, gliders glass fixing PVC weather strips, neoprene gasket, PVC weep holes etc complete with approved type of locking arrangement, handles and other fixtures including fixing, filling the gaps with silicon	Square Metre	111.00		

	sealant, cleaning polishing the aluminium section with petrol and / or other agents as specified by the manufacturers etc. complete as directed by Engineer In Charge.				
2	**KITCHEN PLATFORM EXTENSION:-** Providing and constructing raised platform of 750 mm wide and 600 to 750mm high using minimum 40mm thick polished kadappa stone slab base with minimum 15mm thk. polished Ruby red / jet black / Hasan green Granite slab at top and facia,supported by both side polished, 40mm thk. and minimum 700mm wide kadappa spaced at not more than 1200mm clear, including polished facia of min. 100mm height as specified below with champhered/rounded at the top edges, jointing in approved adhesives, machine cutting, leveling, smooth cement plastering along the sides to match the existing surface & Platform in cement mortar, filling the joints with pigment mixed with cement, cleaning, finishing, curing etc complete as directed by Engineer In Charge.	Running Metre	8.00		
3	**RCC SLAB RECASTING (M 30):-** Providing and laying Ready Mix cement concrete M-30 of trap/ granite / quartzite/ gneiss metal for R.C.C. slabs and landings as per detailed designs and drawings including steel centering, formwork, cover blocks, laying/pumping, compaction finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete,(Excluding reinforcement and structural	Cubic Metre	30.00		

	steel).with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Natural Sand / Crushed sand VSI Grade finely washed etc)				
4	**BREAKING OF RCC WORK :-** Demolising cement concrete manually / by machanical means including disposal of material within 50 metres lead as per direction of Engineer - in - charge.	Cubic Metre	30.00		
5	**PROVIDING ANTI TERMITE TREATMENT:-** Providing anti-termite treatment around the periphery of the existing building conforming to IS-6313 (part III) by excavating trenches of 20cm width and exposing the sides of the columns, plinth beams and wall upto a depth of 300mm, rodding for the holes of 300mm deep and at 150m c/c in the trenches, treating with chloropyrifos EC 20 Emulsion or equivalent of 1% concentration by weight at the total rate of 2.25 Litters per meter including backfilling the trenches etc. complete as directed by Engineer-in-Charge.	Running Meter	120.00		
				TOTAL	

SUMMARY OF BILL OF QUANTITY		
Sr.No.	**ITEMS**	**Amount**
1.	ENABLING SYSTEM	
2.	STRUCTURAL REPAIR WORKS	
3.	CIVIL REPAIR WORKS	
4.	WATERPROOFING WORKS	
5.	PLUMBING WORKS	
6.	PAINTING WORKS	
7.	WC/BATH WATERPROOFING WORKS	
8.	GENERAL WORKS	
	TOTAL AMOUNT	
	ADD: CGST 9%	
	ADD: SGST 9%	
	TOTAL AMOUNT WITH CGST & SGST	

TOTAL AMOUNT IN WORDS: _____

Annexure-L: Service Level Agreement (SLA)

In case Contractor is found responsible for delay in execution / completion of work, C-DAC reserves the right to levy penalty @ Rs.5000/- Per day till completion of work after the scheduled time period. The maximum limit of the penalty amount is restricted to 5% of the total value of the job.

Annexure-M: Additional Information

Details filled in this form must be accompanied by sufficient documentary evidence, in order to facilitate C-DAC, Mumbai to verify the correctness of the information.

Format -I		
Sr.No	**Item**	**Details**
1.	Name of Company/Firm	
2.	Nature of the Company/Firm whether Proprietary/Partnership (Provide full details)	
3.	Names of the partners /Associates if any with their bio data	
4.	Postal Address	
5.	Telephone, Mobile and Fax Numbers	
6.	Name, Designation, Telephone, Mobile, email of the contractor (with registered details with Local Development Authority/Municipal Corporation / CPWD) authorized to make commitments to C-DAC, Mumbai	
7.	Email Address	
8.	Year of commencement of Business	
9.	Detailed description of the work done in the last three years (Format-II)	
10.	Brief description of project maintenance services provided by the firm/Company after successful completion of works	
11.	Details of the resources (manpower, tools infrastructure etc.) Provide in Format III	
12.	Time to report to a call	
13.	Call Escalation Hierarchy	

Date:_____ Name: _____ Sign_____

Note: Please enclose separate sheets / photographs /documents as required.

Format II : List along with details of similar works executed in last three years							
Sr. No	**Name of the work executed with address**	**Name and address of the client**	**Value of the work executed**	**Date of completion**	**Stipulated time for completion**	**Contract details**	**Remarks if any for delay / variation**

Please enclose copies of PO /work order, successful completion certificate

Format III : List along with details of similar works in Hand							
Sr. No	**Name of the work with address**	**Name and address of the client**	**Value of the work**	**Date of award**	**Stipulated time for completion**	**Present status**	**Remarks if any for delay / variation**

Please enclose copies of appointment letter / agreement for each job

Format IV: Details of Resources (Manpower, Infrastructure, tools/equipment)					
Sr. No	**Manpower**	**Qualification**	**Experience (details of organization(s) where worked/working and present position**	**Details of the tasks handled**	**Remarks**
1					
2					
3					
4					

Details of equipment/tools/infrastructure facilities like computers, software, etc.) :

Any other information:

Format V: Details of Empanelment with other Organization / Department				
Sr. No	**Name and address of Organization with contact numbers**	**Registered or empanelled for value of work upto Rs.**	**Date of empanelment and validity**	**Certificate**

Please enclose copies of letter of empanelment or registration

Annexure-N: Payment Terms

Sr. No.	Description /Activity	Payment to be released
i.	**R.A. Bill**	R.A Bills payment will be released by C-DAC within 10 working days of the certification of Bill by Consultant (PMC).
ii.	**Final Bill**	Final Bill payment will be released by C-DAC within 30 working days of the certification of final bill by Consultant (PMC).
iii.	**ISD and ASD**	ISD and ASD will released along with final bill payment by C-DAC.
iv.	**Retention Amount**	To be released after completion of defect liability period i.e. 18 Months after work completion by C-DAC.
v.	**Performance Bank Guarantee**	Performance Bank Guarantee equivalent to the a sum of 3% of the value of the completed work of Waterproofing, Structural repair & Painting work for a period of 10 Years will be released after 60 days of completion of all warranty obligations.

Payment will be released within 15 working days on receipt of Invoice and completion Certificate duly signed by C-DAC or its representative.