



Tender Document

for

Consultancy and Conducting of Structural Audit and NDT of Bank's Buildings at Central Complex, Thane, Plot No. 459, Khopat, Behind S.T. Workshop, Thane (West) 400882.

**(ONLY FOR CONSULTANTS EMPANELLED IN DECEMBER 2021
FOR REPAIR REHABILITATION OF EXISTING BUILDINGS)**

Name of the Tenderer: - _____

Last Date of Submission: 15:00 hours on 18.12.2021 at 16th Floor Chander Mukhi, Nariman Point

Date of Pre-Bid Meeting: 11:30 hours on 14.12.2021 at the site of Central Complex Thane

Date of Opening of bids: 15:30 hours on 18.12.2021 at 16th Floor Chander Mukhi, Nariman Point

CENTRAL BANK OF INDIA,
16th F, Business Support Department,
Central Office, Chander Mukhi, Nariman Point,
Mumbai 400021

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1. BID NOTICE

Central Bank of India invites applications under “One Bid System” on prescribed forms for the under noted works from reputed Consultancy Firms/Companies engaged in conducting structural audit, Non-destructive testing of structures & allied works of multi- storied buildings.

Name of work	Consultancy and conducting of Structural Audit and NDT of Bank’s Buildings at Central Complex, Thane.
Last date and time of submission of bids	Upto 15.00 hrs on 18.12.2021 in the office of the Asst. General Manager, 16th Floor, Business Support Department, Central Office, Chander Mukhi, Nariman Point, Mumbai – 400021. Bid would be opened on 18.12.2021 at 15:30 Hrs.
Availability of Bid document	Bid document could be downloaded from www.centralbankofindia.co.in

NOTE: The document shall be put in a sealed envelope superscribing “Consultancy and conducting of Structural Audit of Bank’s Buildings at Central Complex, Thane, Plot No. 459, Khopat, Behind S.T. Workshop, Thane (West) 400882” and deposited in the office of the Asst. General Manager, Business Support Department, Central Office, Central Bank of India, Chander Mukhi, Nariman Point, Mumbai by the prescribed date and time. Bids through post/email/fax will not be admitted.

2. BROAD SCOPE OF CONSULTANCY WORK

STRUCTURAL AUDIT:

1. Structural audit shall be carried out as a qualitative assessment in accordance with latest guidelines of Indian Society of structural engineers. Visual health inspection of buildings covering internal, external and common areas using light tapping hammer, marking in floor plans all the visible defects, deterioration and quantification.
2. Assessment of damages of RCC members through NDT (Non-Destructive Testing) with calibration chart for the site. Initially digital rebound hammer test and Ultrasonic Pulse Velocity test, Half Cell Potential test, carbonation depth test, core test, chemical test etc. Necessity of which will be decided after inspection.
3. Finding the probable causes of damages, seepage / leakages and status of external plumbing installations.
4. Preparation of detailed report based on visual inspection, NDT, suggesting/ phasing out priority wise repair/ remedial and retrofitting measures supported by photographs wherever necessary.

TENDERING AND AWARD OF WORK

5. Preparation of specification, detailed estimate for proposed structural repairs/ restoration, rectification work with rate analysis and BOQ (Bill of Quantities).
6. Preparation of as Built Drawings including Site Plan, Floor Plans, Sections, Elevations to a suitable scale and submitting four Sets of Hard Copies and corresponding Soft Copies, (Auto Cad and PDF versions).
7. Preparation of drawings (main & working) etc., with sufficient no. of copies for proposed structural repairs/ restoration, rectification work.
8. Prepare such further details and particulars as are necessary for the proper carrying out of the works.
9. Attending meetings with Central Bank of India Officials, wherever required, in respect to above work regarding making addition/alteration in the drawings, specifications, make etc.
10. **A. Preliminary Work (Part of Report)**
 - Collection of preliminary data.
 - Pre-repair survey (field work}
 - Submission of survey report, general defects and damages, general recommendations, estimate in the descending order of preference, generalized bill of quantities

B. Pre-repair Planning.

- Evaluation of methodology and repair strategy.
- Detailed estimation of quantities.
- Estimated value of project and Bill of quantities(BOQ)

The offer shall include the professional charges for all the consultancy services mentioned above and submitted as financial bid in sealed cover.

The offer shall include the professional charges for all the consultancy services mentioned above and be submitted as financial bid in separate sealed cover. The other details such as registration, qualification, work done details, etc. shall be submitted in a separate cover as technical/PQ bid.

The fee for the Structure Engineer includes, documents including drawings etc has to be submitted by the Structure Engineer, if required by the local authority.

(Jagdish Poonia)

Asst. General Manager

3. INSTRUCTIONS TO THE BIDDER

1. All bid papers annexed along with the documents should be **serially numbered on the top right hand corner** of every page.
2. All pages of the bid documents should be duly signed and stamped by the authorized signatory of the applicant. The bid document should be submitted in original
3. Tenders should be on the specified form (Non-transferable) which may be either downloaded from our website www.centralbankofindia.co.in or collected from under-mentioned address and submit the completed document along with necessary papers in prescribed proforma To, Assistant General Manager-BSD, 16th Floor Chandramukhi Building, Narmian Point, Mumbai. Tenders should be submitted super-scribed with the name of the work, date and time of opening on the envelope. It will be opened in the presence of bidders who choose to be present.
4. The Employer (Central Bank of India) does not bind itself to accept the lowest or any TENDER, and Central Bank of India reserves its right of accepting the whole or any part of the TENDER and the Bidder shall be bound to perform the same at the rate quoted.
5. The Financial bid should be enclosed in a sealed envelope, super scribing “Bids for Structural Auditing work for Central Complex, Thane” and deposited in the tender box allotted for the purpose.
6. The Bidder will not be permitted to quote for works in Central Bank of India where a relative is posted.
7. TENDER submitted shall remain valid for 120 days from the date of opening for the purpose of acceptance and award of work, validity beyond 120 days from the date of opening shall be by mutual consent.
8. The Bidder shall quote rates both in figures and words. On check if there are differences between the rates quoted by the Bidder in words and in figures, the rates in words will be considered as final.
9. Before quoting, the Bidder shall inspect the site, to fully acquaint himself about the condition in regard to accessibility of the site, working condition of site and locality including installations of tools and plants (T&P) etc., conditions affecting accommodations and movement of personnel etc. required for the satisfactory execution of the work contract. No claim whatsoever on such account shall be entertained by the Employer in any circumstances.
10. Except writing rates and amounts, the Bidder should not write any conditions or make any changes, additions, alterations and modifications in the printed form of Tenders. No conditional rebate will be accepted.
12. All tender paper annexed along with the “Bid” should be serially numbered on the top right hand corner of every page. All pages of the tender document should be duly signed and stamped by the authorized signatory of the applicant. The tender document should be

submitted in original. Tender document not submitted in original will be treated as invalid and rejected. The applicant should submit complete set of documents in support of information furnished in the Bid document.

13. “JVs/ Consortiums/ MOUs shall not be considered.”

14. Canvassing in connection with the Tenders is prohibited and the Tenders submitted by the consultant who resorts to canvassing are liable for rejection.

15. The Audit reports in hard copy should be submitted in triplicate in hard as well as soft form.

16. As all the buildings are old, Central Bank of India may not be able to provide all DATA, Drawings & Documents related to the buildings. However the data available with us shall be made available to the consultant. All the necessary works related to the Job component shall be under the scope of the party.

Tenders should be in the specified form (Non-transferable) which may be either downloaded from our website www.centralbankofindia.co.in or collected from mentioned address.

The Employer (Central Bank of India) does not bind itself to accept the lowest or any TENDER, and Central Bank of India, reserves its right of accepting the whole or any part of the TENDER and the Bidder shall be bound to perform the same at the rate quoted. **Central Bank of India, also reserves its right sub-divide the work among different consultants and the offer has to be submitted as per BOQ, enclosed in the tender booklet.**

Any bid sent through registered/ordinary post etc., should be avoided and shall be considered as invalid and will be rejected. The envelopes should clearly reflect the applicant's name, address and name of the work.

TENDER submitted shall remain valid for 120 days from the date of opening of financial bid for the purpose of acceptance and award of work. Validity beyond 120 days from the date of opening shall be by mutual consent.

4. GENERAL CONDITIONS OF CONTRACT

Definitions:

‘The Contract’ means the documents forming the tender and acceptance thereof and the formal agreement executed between Central Bank of India and the Consultant, together with the documents referred to therein including these conditions, the specifications, designs, drawings and instructions issued from by the Employer / Consultant from time to time and all these documents taken together, shall be deemed to form one contract and shall be complementary to one another.

In the contract the following expressions shall, unless the context otherwise requires, have the meaning hereby respectively assigned to them.

1.1 **Central Bank of India / Employer** - Asst. General Manager – BSD, 16th F, Central Bank Of India, Chander Mukhi, Nariman Point, Mumbai – 400 021 and includes its representatives, successors and assigns.

1.2 **‘Sanctioning Authority’** means authority nominated to exercise power of approval, sanction and Acceptance concerning administrative, financial and technical aspects of transactions done on behalf of Central Bank Of India..

1.3 **‘Site Engineer’ or ‘Engineer’** means an Engineer appointed by the Employer as their representative to give instructions and supervise the work of the consultant/consultant at site.

1.4 **‘The Consultant or Consultants’** means the firm or agency or individual engaged by the Employer to execute the work. It shall also include their legal representative(s), successors or assigns.

1.5 **‘Contract value’** means the value of the entire work as stipulated in the work order.

Conveying acceptance of the tender subject to such additions thereto or deductions there from as may be made under the provision herein after contained.

1.7 **‘Tendered value’** means the value of the entire work as stipulated in the work order.

1.8 **‘Works’ or ‘work’** means the permanent or temporary work(s) or testing or consultancy work described in the ‘Scope of Work” and/or to be executed in accordance with the contract and includes materials, apparatus, equipment, temporary supports, fittings and things of all kinds to be provided, the obligations of the consultant hereunder and work to be done by the consultant under the contract.

1.9 **‘The Site’** means the premises, into or through which work is to be executed under the contract or any adjacent premises, which may be allotted or used for the purpose of carrying out the contract.

1.11 **‘Specifications’** means the specifications referred to in the tender and any modifications thereof as may be furnished or approved by the Employer from time to time.

1.12 **‘Market Rate’** means the rate as decided by the Employer on the recommendations of their engineer based on the cost of materials and labour at the site where the work is to be executed plus the percentage mentioned elsewhere to cover, all overheads and profits.

1.13 **‘Schedule(s)’** referred to in these conditions mean the relevant schedule(s) annexed to the tender papers.

1.14 **‘Local Controlling Authority’** means the Local Municipal Authority or any other appropriate statutory authority viz. Town Planning Department, Town Development Authority, Town/City Improvement Trust, Electricity Board, Water and Sewerage Department, Civil Aviation Authority, High-rise Building Committee, Lift Inspectorate, Telephone Department, Pollution Control Board, Fire Board and any other authorities as the case may be according to whose rules and regulations a building within its jurisdiction is to be, designed and approval of the drawings to be obtained.

1.15 **‘Month’** means calendar month.

1.16 **‘Week’** means seven consecutive days beginning Monday.

1.17 **‘Day’** means a calendar day beginning and ending at 00 Hrs and 24 hrs respectively.

1.18 **‘Defect Liability Period’ (DLP)** one year after acceptance of report.

2.0 **Scope and performance**

Where the context so requires, words imparting the singular only also include the plural and vice versa. Any reference to masculine gender shall whenever required include feminine gender and vice versa.

3.0 **Work to be carried out**

The work to be carried out under the contract shall, except as otherwise provided in these conditions, include all Labor, Materials, Tools, Plants, Tackles, Equipment and Transport which may be required in preparation of and for and in the full and entire execution and completion of the work. The descriptions given in the Schedule of Quantities shall, unless otherwise stated, be held to include wastage on materials, carriage and cartage, carrying and return of empties, hoisting, setting, fitting and fixing in position and all other labors necessary in and for the full and entire execution and completion of the work as aforesaid in accordance with good practice and recognized principles.

4.0 Sufficiency of Tender

The Consultant shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the rates and prices quoted in the Schedule of Quantities, which rates and prices shall, except as otherwise provided, cover all his obligations under the Contract and all matters and things necessary for the proper completion and maintenance of the works.

4.1 Scope of Work

The consultant shall carry out complete work and maintain the said work in every respect strictly in accordance with this contract and with the directions of and to the satisfaction of the Employer. Any discrepancy in the drawings or between the BOQ and/or drawings and/or specifications should be brought to the notice of Engineer before taking up the work

1. LOCATION / ADDRESS OF SITE

a) Central Complex, Thane, Plot No. 459, Khopat, Behind S.T. Workshop, Thane (West) 400882.

2. RATES FOR PAYMENT

The rates given in the BOQ tendered by the consultant/agency and as accepted by, Central Bank of India will form the basis of payment for such items under this contract.

1. No material price variation or wages escalation on any account whatsoever, and compensation for force majeure etc. shall be payable under the contract, by the Bank.

2. The rates for any item of work not included in the Schedule of items, and which the consultant may be called upon to do by BANK shall be fixed by the supplementary written agreement between the consultant and BANK before the particular item or items of work is /are executed in the event of such agreement not being entered into and executed BANK may also execute these works by making alternative arrangements. BANK will not be responsible for any loss or damages on this account.

3. It should be specifically noted by the tenderer that no separate loading, unloading etc charges for materials and site visits shall not be paid for by BANK and the rates quoted by the tenderer/s shall be inclusive of all these charges.

4. Should there arise any items which may be necessary for the smooth completion of work but which does not appear in the Schedule of items, rates and Quantities attached with Tender, items rate will be fixed by analysis of actual inputs of all types including labor and material or derived from the labor and material rates given in the latest CPWD Standard Schedule of Rates. The rates for such non-scheduled items occurring during the course of construction shall be payable subject to the approval of the competent authority.

No items of work requiring non-scheduled rates will be carried out unless ordered to do so by BANK in writing.

5. Payment for the work done will be made to the consultant only when the formal agreement has been executed between the parties and as per the Payment schedule.

6. **Payment schedule: Payment shall be made in stages as per the following schedule:**

S. No.	Stage of Work	Payment percentage
1.	Acceptance of report	30% of the fees
2.	Submission and acceptance of estimates for complete repairing of the buildings/ complex	90% of fees – Earlier Payments
3.	On Completion of Defect Liability Period	100% of fees – Earlier Payments

7. Discrepancies and Adjustment of Errors

- The several documents forming the contract are to be taken as mutually explanatory of one another, detailed drawings being followed in preference to small scale drawing and figured dimensions in preference to scale.
- Any error in description, quantity or rate in Schedule of Quantities or any omission therefrom shall not vitiate the Contract or release the Consultant from the execution of the whole or any part of the works comprised therein according to drawings and specifications or from any of his obligations under the contract.
- Unless otherwise specified, CPWD Specifications 2012 volume I - VI with up-to-date corrections slips and Revised CPWD Specifications 2014 for cement mortar, cement concrete and RCC works shall be followed in general. Any additional item of work, if taken up subsequently, shall also conform to the relevant CPWD specifications mentioned above. Should there be any difference or discrepancy between the description of items as given in the schedule of quantities, general and special conditions of contract, particular specifications for individual items of work and I.S. Codes etc., the following order of preference shall be observed :

Description of items as given in Schedule of quantities.

- Special conditions of Contract.
- General Conditions of Contract.
- Particular Specification's.
- CPWD Specifications.IS Codes.
- Decision of Employer.

- **Work Order**

Within the validity period of the tender, the Employer shall issue a work order by registered post or otherwise dispatching at the address of the consultant as given in the tender to enter

into a contract for execution of the work as per the terms of the tender. The work order shall constitute a binding contract between the Employer and the Consultant.

9.0 Contract document

On receipt of work order from the Employer, the successful tenderer shall be bound to implement the contract and within seven days thereof, he shall sign an agreement on a non-judicial stamp paper of appropriate value. The consultant shall be furnished, one certified copy of the contract documents

Together with all drawings as may be forming part of the tender papers. None of these documents shall be used for any purpose other than that of this contract.

10. Language

The language in which the contract documents shall be drawn shall be English.

11. Liquidated Damages

If the consultant fails to maintain the required progress as per the stipulated time period or to complete the work and clear the site on or before the contract or extended date of completion, he shall, without prejudice to any other right or remedy available under the law to the Employer on account of such breach, pay as agreed compensation the amount calculated at the rates stipulated below: 0.5 % of the consultancy fees per week subject to a maximum of 10% of the consultancy fees. The amount of compensation may be adjusted or set off against any sum payable to the Consultant under this contract with the Employer.

12. Secured Advance

No secured advance will be paid for any of the materials brought to site for carrying out the works under this contract.

13. Mobilisation Advance

No mobilization advance will be paid for this contract.

14. Escalation

No escalation and payment due to increase in prices / wages will be made to the consultant. The rates quoted by the consultant shall remain firm throughout till completion of the work and nothing extra beyond unit rates shall be paid on account of any reason whatsoever.

15. Detailed drawings and instructions

The Employer shall furnish with reasonable promptness additional instructions by means of drawings or otherwise necessary for proper execution of the work at site. All such drawings

and instructions shall be consistent with the contract documents, true developments thereof and reasonably inferable there from. The work shall be executed in conformity therewith and the consultant shall on receipt of the work order prepare and submit a detailed programme schedule indicating therein the date of start and completion of various activities to the Employer. **In case structural drawings or any other drawings like plans, elevation are not readily available with the Employer (Central Bank of India) the consultant/bidder are required to prepare all necessary drawings at the site on their own for completing the structural audit report etc.**

16. Ownership of drawings

All drawings, specifications and copies thereof furnished by the Employer if any are the properties of the Employer. They are not to be used on any other work.

17. Setting out Work

The consultant shall set out the work and shall be responsible for the true and perfect setting out of the same including correctness of the positions, levels, dimensions, and alignment of all parts thereof. The consultant shall get it approved from the Engineer before commencing and proceeding with the work. If at any time, any error in this respect appears during the progress of the works, irrespective of the fact that the layout had been approved by the Engineer; the consultant shall be responsible for the same. The consultant shall at his own expenses rectify such error, if so, required, to satisfaction of the Employer / Consultant.

18. Materials, Appliances and Employees

The consultant shall, at his own expense, provide all materials required for the works and no material required for carrying out the work shall be supplied by the Employer.

19. Quality of Materials, Workmanship & Test

All materials and workmanship shall be the best of the respective kinds described in the contract and in accordance with Employer's / Consultant's /Site Engineer's instructions and shall be from time to time subject to such tests as the Employer / Consultant/Site Engineer may direct at the place of manufacture or fabrication or on the site or an approved testing laboratory. The consultant shall provide such assistance, instruments, machinery, labour and materials as are normally required for examining, measuring, sampling and testing any material or part of the work before incorporation in the work for testing as may be selected and required by the Employer / Consultant/ Site Engineer. The consultant shall, wherever applicable, use material as per the approved brand only.

20. Work to be executed in accordance with specifications, drawings, orders etc.

The consultant shall execute the whole and every part of the work in the most substantial and

workman like manner both as regards materials and otherwise in every respect in strict accordance with the specifications. The consultant shall also conform exactly, fully and faithfully to the design, drawings and instructions in writing in respect of the work signed by the Employer and the consultant shall be furnished free of charge one copy of the contract documents together with specifications, designs, drawings and instructions. The Consultant shall take full responsibility for adequacy, suitability and safety of all the works and methods of execution.

21. Action in case Work not done as per Specifications

All works under or in course of execution or executed in pursuance of the contract shall at all times be open and accessible to the inspection and supervision of the Employer / Consultant, and the consultant shall, at all times, during the usual working hours and at all other times at which reasonable notice of the visit of such officers has been given to the consultant, either himself be present to receive orders and instructions or have a responsible agent duly accredited in writing, present for the purpose. Orders given to the Consultant's agent shall be considered to have the same force as if they had been given to the consultant himself. In such case, the Employer may not accept the item of work at the rates applicable under the contract but may accept such items at reduced rates as the Employer may consider reasonable during the preparation of account bills or final bill if the item is so acceptable without detriment to the safety and utility of the items and the structure or he may reject the work outright without any payment and / or get it and other connected and incidental items rectified, or removed and re-executed at the risk and cost of the consultant. Decision of the Employer to be conveyed in writing in respect of the same will be final and binding on the consultant.

22. Consultant/Agency to supply tools & plants etc.

The consultant shall provide at his own cost all materials, plant, tools, appliances, implements, ladders, cordage, tackle, scaffolding and temporary works required for the proper execution of the work, whether original, altered or substituted and whether included in the specification or other documents forming part of the contract or referred to in these conditions or not, or which may be necessary for the purpose of satisfying or complying with the requirements of the Employer / Consultant as to any matter as to which under these conditions he is entitled to be satisfied, or which he is entitled to require together with carriage therefore to and from the work.

23. Protection of works and property

The consultant shall continuously maintain adequate protection of all his work from damage and shall protect the Employer's properties from injury or loss arising in connection with contract. He shall make good any such damage, injury, loss resulting due to his fault or negligence except due to causes beyond his control. He shall take adequate care and steps for protection of the other floors and adjacent properties. The consultant shall take all precautions

for safety and protection of his employees on the works and shall comply with all applicable provisions of Government and local bodies on safety laws and building codes to prevent accidents, or injuries to persons or property in or adjacent to his place of work. The consultant shall take insurance covers (i.e. Contractor's All Risk Policy) at his own cost. The policy shall be taken in joint names of the consultants and Employer.

In case of flooding of site on account of rain or any other cause and any consequent damage, whatsoever, no claim financially or otherwise shall be entertained notwithstanding any other provisions elsewhere in the contract agreement. Also, the Consultant shall make good, at his own cost, the damages caused, if any.

24. Assignment and subletting

The whole of work included in the contract shall be executed by the consultant and he shall not directly entrust and engage or indirectly transfer assign or underlet the contract or any part or share thereof or interest therein without the written consent of the Employer and no undertaking shall relieve the consultant from the responsibility of the consultant from active superintendence of the work during its progress.

The contract shall not be assigned or sublet without the written approval of the Employer / Consultant. And if the consultant shall assign or sublet his contract, or attempt to do so, or become insolvent or commence any insolvency proceedings or make any composition with his creditors or attempt to do so, or if any bribe, gratuity, gift, loan, perquisite, reward or advantage pecuniary or otherwise, shall either directly or indirectly, be given, promised or offered by the consultant, or any of his servants or agent to any public officer or person in the employment of Employer / Consultant or if any such officer or person shall become in any way directly or indirectly interested in the contract, the Employer shall have power to adopt any of the courses specified under clause of "when contract can be determined" hereof as the Employer may deem best suited to the interest of Employer and in the event of any of these courses being adopted the consequences specified in the said Clause of shall ensure.

25. Variations/Extra Items of Work

No alteration, omission or variation ordered in writing by the Engineer shall vitiate the contract. In case the Employer /Consultant thinks proper at any time during the progress of works to make any alteration in, or additions to or omission from the works or any alteration in the kind or quality of the materials to be used therein, the Employer / Consultant shall give notice thereof in writing to the consultant or shall confirm in writing within seven days of giving such oral instructions to the consultant and the consultant shall alter to, add to, or omit from as the case may be in accordance with such notice(s) but the consultant shall not do any work extra to or make any alteration or additions to or omissions from the works or any deviation from any of the provisions of the contract, stipulations, specifications or contract drawings without previous consent in writing of the Employer / Consultant and the value of such extras, alterations, additions or omissions shall in all cases be determined by the Employer and the same shall be added to or deducted from the contract value, as the case may be.

26. Work by other agencies

The Employer/Consultant reserves the rights to use premises and any portion of the site for execution of any work not included in the scope of this contract which it may desire to have carried out by other persons simultaneously and the consultant shall not only allow but also extend all reasonable facilities for the execution of such work(s). Such work(s) shall be carried out in such manners not to impede the progress of the works included in the contract.

27. Work in shifts and holidays

For completing the work in time, the Consultant might be required to work in two or more shifts (including night shifts) or on Holidays. No claim whatsoever shall be entertained on this account, notwithstanding the fact that the Consultant may have to pay extra amounts for any reason, to the labourers and other staff engaged directly or indirectly on the work according to the provisions of the labour and other statutory bodies regulations and the agreement entered upon by the Consultant with them.

28. Dismantled material Employer property

The consultant shall treat all useful materials obtained during dismantling/ testing of the building/premises as Employer's property and such materials shall be disposed off to the best advantage of Employer according to the instructions in writing issued by the Employer / Consultant.

29. Maintenance of Registers

The consultant shall maintain the following registers at site of work and should produce the same for inspection of the Employer / Consultant whenever desired by them. The consultant shall also maintain the records/registers as required by the local authorities/Government from time to time.

- i) Daily progress register/ Test Register
- ii) Site order book

30. Permits, Laws and Regulations

Permits and licenses required for execution of the work shall be obtained by the consultant at his own expenses. The consultant shall give necessary notices and comply with the local regulations, laws, and ordinances rules, applicable for execution of work. If the consultant performs any act, which is against the local law, rules and regulations, he shall meet all the costs and consequences arising there from and shall indemnify the Employer against any legal actions arising there from. The consultant shall arrange to obtain completion certificate from the relevant local authority after completion of work. The rates quoted by the consultant are inclusive of obtaining such approval(s) and nothing extra beyond quoted rates shall be paid to the consultant on this account.

31. Local Laws, Acts, Regulations

The consultant shall strictly adhere to all prevailing labour laws inclusive of contract labour (regulation And abolition act of 1970) and other safety regulations. The consultant shall comply with the

provision of all labour legislation including the latest requirements of all the Acts, laws, and any other regulations that are applicable to the execution of the project.

1. Minimum Wages Act, 1948 (Amended)
2. Payment of Wages Act 1936 (Amended)
3. Workmen's Compensation Act 1923 (Amended)
4. Contract Labour Regulation and Abolition Act 1970 and Central
5. Apprentice Act 1961 (Amended)
6. Industrial Employment (Standing Order) Act 1946 (Amended)
7. Personal Injuries (Compensation Insurance) Act 1963 and any other modifications
8. Employees' Provident Fund and Miscellaneous Provisions Act 1952 and amendment thereof
9. Shop and Establishment Act
10. Any other Act or enactment relating thereto and rules framed there under from time to time.

32 Time for completion

Time is the essence of the contract and shall be strictly observed by the consultant. The entire work shall be completed within a period of 30 days from the date of commencement of work. If required in the contract or as directed by the Employer, the consultant shall complete certain portions of work before completion of the entire work. However the completion date shall be reckoned as the date by which the whole work is completed as per the terms of the contract.

33 Rate of progress

Should the rate of progress of the work or any part thereof at any time in the opinion of the Employer / Consultant is slow, to ensure the completion of the whole of the work by the prescribed time or extended time for completion, the Employer / Consultant shall thereupon take such steps as considered necessary by the Employer / Consultant to expedite progress of work so as to complete the work by the prescribed time or extended time. Such communications from the Employer / Consultant neither shall relieve the consultant from fulfilling obligations under the contract nor will he be entitled to raise any claims arising out of such directions.

34 Extension of Time

34.1 If the work(s) are delayed by: Force Majeure or abnormally bad weather or serious loss or damage by fire or Civil Commotion. Location commotion of workmen, strike or lockout, affecting any of the trades employed on the work or

- Delay on the part of other consultants or tradesmen engaged by Employer in executing work not forming part of the contract or
- Any other causes which in the absolute discretion of the Employer is beyond the Consultant's Control.

Then upon the happening of any such event causing delay, the consultant shall immediately give notice thereof in writing to the Employer but shall nevertheless use constantly his best endeavours to prevent or make good the delay and shall do all that may be reasonably required to the satisfaction of the Employer / Consultant to proceed with the works.

34.2 Request for extension of time, to be eligible for consideration, shall be made by the consultant in writing within two days of the happening of the event causing delay. The Consultant may indicate in such a request the period for which extension is desired.

34.3 In any such cases the Employer will give a fair and reasonable extension of time for completion of work. Such extension shall be communicated to the Consultant by the Employer in writing, within 3 days of the date of receipt of such request. Non application by the consultant for extension of time shall not be a bar for giving a fair and reasonable extension by the Employer and this shall be binding on the consultant.

35 Virtual Completion Certificate (VCC)

Soon after the completion of the work, the Consultant shall give notice of such completion to the Employer and within 10 working days of the receipt of such notice, the Employer shall inspect the work and if there is no defect in the work, the Employer shall furnish the consultant with a virtual completion certificate, otherwise a provisional virtual completion certificate of physical completion indicating defects (a) to be rectified by the consultant and / or (b) for which payment will be made at reduced rates, shall be issued.

On successful completion of entire works covered by the contract to the full satisfaction of the Employer, the consultant shall ensure that the following works are also completed to the satisfaction of the Employer.

- a) Clear the site of all scaffolding, wiring, pipes, surplus materials, consultant's labour, equipment and machinery.
- b) Demolish, dismantle and remove the consultant's make shift site office if any temporary works, structures including labour sheds/camps and constructions and other items and things whatsoever brought upon or erected at the site or any land allotted to the consultant by the Employer and not incorporated in the permanent works.
- c) Remove all rubbish, debris etc. from the site as required by the Employer.
- d) Shall put the Employer in undisputed custody and possession of the site.
- e) Shall hand over the work in a peaceful manner to the Employer.
- f) All defects/imperfections have been attended and rectified as pointed out by the Employer and to the full satisfaction of Employer. Upon the satisfactory fulfilment by the consultant as stated above, the consultant shall be entitled to apply to the Employer for virtual completion of the work. The Employer shall within seven (10) working days of the receipt of the application for virtual completion certificate (VCC), issue a VCC in respect of the work for which the VCC has been applied.

This issuance of a VCC shall be without prejudice to the Employer's rights and consultant's liabilities under the contract including the consultant's liability for defects liability period nor shall the issuance of VCC in respect of the works or work at any site be construed as a waiver of any right or claim of the Employer against the consultant in respect of works or work at the site and in respect of which the VCC has been issued.

36 When Contract can be determined

Subject to other provisions contained in this clause, the Employer may, without prejudice to

his any other rights or remedy against the consultant in respect of any delay, inferior workmanship, any claims for damages and / or any other provisions of this contract or otherwise, and whether the date of completion has or has not elapsed, by notice in writing absolutely determine the contract in any of the cases.

37 Suspension of work

i) The consultant shall, on receipt of the order in writing of the Employer (whose decision shall be final and binding on the consultant) suspend the progress of works or any part thereof for such time and in such manner as the Employer / Consultant may consider necessary so as not cause any damage or injury to the work already done or endanger the safety thereof for any of following reasons:.

- a) On account any default on the part of the consultant, or
- b) For proper execution of the works or part thereof for reasons other than the default of the consultant, or
- c) For safety of the works or part thereof.

The consultant shall, during such suspension, properly protect and secure the works to the extent necessary and carry out the instructions given in that behalf by the Employer / Consultant.

ii) If the suspension is ordered for reasons (b) and (c) in sub-para (i) above :

The consultant shall be entitled to an extension of time equal to the period of every such suspension. No compensation whatsoever shall be paid on this account.

If the works or part thereof is suspended on the orders of the Employer for more than three months at a time, except when suspension is ordered for reason (a) in sub-para (i) above, the consultant may after receipt of such order serve a written notice on the Employer requiring permission within fifteen days from receipt by the Employer of the said notice, to proceed with the work or part thereof in regard to which progress has been suspended and if such permission is not granted within that time, the consultant, if he intends to treat the suspension, where it affects only a part of the works as an omission of such part by the Employer or where it affects whole of the works, as an abandonment of the works by the Employer, shall within ten days of expiry of such period of 15 days give notice in writing of his intention to the Employer. In the event of the consultant treating the suspension as an abandonment of the contract by the Employer, he shall have no claim to payment of any compensation on account of any profit or advantage which he might have derived from the execution of the work in full but which he could not Derive in consequence of the abandonment. He shall, however, be entitled to such compensation, as the Employer may consider reasonable, in respect of salaries and / or wages paid by him to his employees and labor at site, remaining idle in consequence adding to the total thereof 2% to cover indirect expenses of the consultant provided, the consultant submits his claim supported by details to the Employer within 30 days of the expiry of the period of 3 months.

38 Foreclosure of contract due to abandonment or reduction in scope of work

If at any time after acceptance of the tender, the Employer decides to abandon or reduce the scope of the work for any reason whatsoever and does not require the whole or any part of the works to be carried out, the Employer shall give notice in writing to that effect to the

consultant and the consultant shall act accordingly in the matter. The consultant shall have no claim to any payment of compensation or otherwise whatsoever, on account of any profit or advantage which he might have derived from the execution of the works in full but which he did not derive in consequence of the foreclosure of the whole or part of the works.

39 Cancellation of contract in full or part

If consultant:

1. at any time makes default in proceeding with the works or any part of the work with the due diligence and continues to do so after a notice in writing of 7 days from the Employer / Consultant; or
2. commits default to complying with any of the terms and conditions of the contract and does not remedy it or take effective steps to remedy it within 7 days after a notice in writing is given to him in that behalf by the Employer / Consultant; or
3. fails to complete the work, on or before the stipulated date of completion, and does not complete them within the period specified in a notice given in writing in that behalf by the Employer / Consultant; or

The Employer may, without prejudice to any other right or remedy which shall have accrued or shall accrue hereafter to Employer, by a notice in writing, cancel the contract as whole or only such items of work in default from the Contract.

The Consultant / Site Engineer shall on such cancellation by the Employer have powers to: Take possession of the site and any materials, constructional plant, implements, stores, etc. thereon; and / or carry out the incomplete work by any means at the risk and cost of the consultant.

On cancellation of the contract in full or in part, the Employer shall determine the amount, if any, is recoverable from the consultant for completion of the works or part of the works or in case the works or part of the works is not to be completed, the loss or damage suffered by Employer. In determining the amount, credit shall be given to the consultant for the value of the work executed by him up to the time of cancellation, the value of consultant's materials taken over and incorporated in the work and use of plant and machinery belonging to the consultant.

Any excess expenditure incurred or to be incurred by Employer in completing the works or part of the works or the excess loss or damages suffered or may be suffered by Employer as aforesaid after allowing such credit shall without prejudice to any other right or remedy available to Employer in law be recovered from any moneys due to the consultant on any account, and if such moneys are not sufficient the consultant shall be called upon in writing and shall be liable to pay the same within 30 days. If the consultant shall fail to pay the required sum within the aforesaid period of 30 days, the Employer shall have the right to sell any or all of the consultants' unused materials, constructional plant, implements, temporary buildings, etc. and apply the proceeds of sale thereof towards the satisfaction of any sums due from the consultant under the contract and if thereafter there be any balance outstanding from the consultant, it shall be recovered in accordance with the provisions of the contract.

Any sums in excess of the amounts due to Employer and unsold materials, constructional plant, etc., shall be returned to the consultant, provided always that if cost or anticipated cost of completion by Employer of the works or part of the works is less than the amount which

the contactor would have been paid had he completed the works or part of the works, such benefit shall not accrue to the consultant.

40. Settlement of Disputes and Arbitration

40.1 Except where otherwise provided in the contract, all questions and disputes relating to the meaning of the specifications, design, drawings and instructions herein before mentioned and as to the quality of workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever in any way arising out of the or relating to the contract, designs, drawings, specifications, estimates, instructions, orders or these conditions or otherwise concerning the works or the execution or failure to execute the same whether arising during the progress of the work or after the cancellation, termination, completing or abandonment thereof shall be dealt with as mentioned hereinafter:

40.2 If the consultant considers any work demanded of him to be outside the requirements of the contract, or disputes any drawings, record or decision given in writing by the Site Engineer any matter in connection with or arising out of the contract or carrying out of the work, to be unacceptable, he shall promptly within 7 days request the Engineer in writing for written instruction or decision. Thereupon, the Engineer shall give his written instruction or decision within a period of one week from the receipt of the consultant's letter.

If the Engineer fails to give his instructions or decision in writing within the aforesaid period or if the consultant is dissatisfied with the instructions or decision of the Engineer, the consultant may within 7 days of the receipt of Engineer's decision, appeal to the Employer who shall afford an opportunity to the consultant to be heard, if the latter so desires, and to offer evidence in support of his appeal. The Employer shall give his decision within 15 days of receipt of consultant's appeal. If the consultant is dissatisfied with this decision, the consultant shall within a period of 30 days from receipt of the decision, give notice to the Employer for appointment of a sole arbitrator failing which the said decision shall be final binding and conclusive and not referable to adjudication by the arbitrator.

40.3 For the purpose of appointing the sole arbitrator referred to above, the Employer will send within thirty days of receipt by him the written notice aforesaid to the consultant a panel of three names of persons who shall be presently unconnected with the organization for which the work is executed.

40.4 The consultant shall, on receipt by him of the names as aforesaid, select any one of the persons named to be appointed as a sole arbitrator and communicate his/her name to the Employer within thirty days of receipt by him of the names. The Employer shall thereupon without any delay appoint the said person as the sole arbitrator. If the consultant fails to communicate such selection as provided above within the period specified, the Employer shall make the selection and appoint the selected person as the sole arbitrator. If the Employer fails to send to the consultant the panel of three names as aforesaid within the period specified, the Consultant shall send to Employer a panel of three names of three persons who shall be unconnected with either party. The Employer shall on receipt by him of the names as aforesaid select any one of the persons named to be appointed as a sole arbitrator and communicate his / her name to the consultant within thirty days of receipt by him of the names.

40.5 If the arbitrator so appointed is unable or unwilling to act or resigns his appointment or

vacates his office due to any reason whatsoever, another sole arbitrator shall be appointed as aforesaid. Such person shall be entitled to proceed with the reference from the stage at which it was left by his predecessor.

40.6 The work under the contract shall however continue during the arbitration proceedings and no payment payable to the consultant relating to the disputed items shall be withheld on account of such proceedings.

40.7 The arbitrator from time to time with the consent of the parties enlarges the time for making and publishing the award.

40.8 The arbitrator shall give a separate award in respect of each dispute or difference referred to him. The arbitrator shall decide each dispute in accordance with terms of the contract and give a reasoned award.

40.9 It is a term of this contract that the party invoking arbitration shall give a list of disputes with amounts claimed in respect of each such dispute along with the notice for appointment of arbitrator and giving reference to the rejection by the Employer of the appeal.

40.10 It is also a term of this contract that no person other than a person appointed by such Employer, as aforesaid should act as arbitrator and if for any reason that is not possible, the matter shall not be referred to arbitration at all.

40.11 It is also a term of this contract that if the consultant does not make any demand for appointment of arbitrator in respect of any claims in writing as aforesaid within 60 days of receiving the intimation from the Employer that the final bill is ready for payment, the claim of the consultant shall be deemed to have been waived and absolutely barred and the Employer shall be discharged and released of all liabilities under the contract in respect of these claims. Further it is agreed that for the purpose of this clause such notice is deemed to have been received by the consultant within two days of posting of the letter by BANK or delivered by hand immediately after receipt thereof by the consultant whichever is earlier. Further a letter signed by the officials of BANK that the letter was posted to the consultant shall be conclusive.

40.12 The arbitration shall be conducted in accordance with the provisions of the Arbitration and conciliation Act, 1996 (26 of 1996) or any statutory modifications or re-enactment thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceeding under this clause.

40.13 It is also a term of this contract that the arbitrator shall adjudicate on only such disputes as are referred to him by the appointing authority and give separate award against each dispute and claim referred to him and in all cases where the total amount of the claims by any party exceeds Rs.50,000/-, the arbitrator shall give reasons for the award.

40.14 It is also a term of the contract that if any fees are payable to the arbitrator, these shall be paid equally by both the parties.

40.15 It is also a term of the contract that the arbitrator shall be deemed to have entered on the reference on the date he issues notice to both the parties calling them to submit their statement of claims and counter statements of claims. The venue of the arbitration shall be such place as may be fixed by the arbitrator in his sole discretion. The fees, if any, of the arbitrator shall, if required to be paid before the award is made and published, be paid half and half by each of the parties. The cost of the reference and of the award (including the fees, if any, of the arbitrator) shall be in the discretion of the arbitrator who may direct to any by

whom and in what manner, such costs or any part thereof shall be paid and fix or settle the amount of costs to be so paid.

40.16 The award of the arbitrator shall be final and binding on both parties.

41 Force Majeure

41.1 Neither consultant nor BANK shall be considered in default in performance of their obligations if such performance is prevented or delayed by events such as war, hostilities, revolution, riots, civil commotion, strikes, lockout, conflagrations, epidemics, accidents, fire, storms, floods, droughts, earthquakes or ordinances or any act of god or for any other cause beyond the reasonable control of the party affected or prevented or delayed. However a notice is required to be given within 30 days from the happening of the event with complete details, to the other party to the contract, if it is not possible to serve a notice, within the shortest possible period without delay.

41.2 As soon as the cause of force majeure has been removed, the party whose ability to perform its obligations has been affected, shall notify the other of such cessation and the actual delay incurred in such affected activity adducing necessary evidence in support thereof.

41.3 From the date of occurrence of a case of force majeure, obligations of the party affected shall be suspended during the continuance of any inability so caused. With the cause itself and inability resulting there from having been removed, the agreed time of completion of the respective obligations under this agreement shall stand extended by a period equal to the period of delay occasioned by such events.

41.4 Should one or both parties be prevented from fulfilling the contractual obligations by a state of force majeure lasting to a period of 6 months or more, the two parties shall mutually decide regarding the future execution of this contract.

42. Peaceful handing over of the premises

It shall be the responsibility of the consultant to see that the premises under furnishing is not occupied by anybody unauthorized during execution of work and is handed over to the Employer with vacant possession of complete furnishing.

43. Consultant liable for damages, defects during defects liability period

If the consultant 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, enclosure, water pipe, cables, drains, electric or telephone post or wires, 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 12 months of issue of virtual completion certificate issued by the Engineer on behalf of the Employer as aforesaid arising out of defect or improper materials or workmanship, the consultant shall, upon receipt of a notice in writing on that behalf through the Engineer, make the same good at his own expense or in default, the Employer cause the same to be made 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 consultant, or from his security deposit. The 50% of the security deposit of the consultant shall not be refunded before the expiry of twelve

months after the issue of the virtual completion certificate.

44. Accidents

The consultant shall immediately on occurrence of any accident at or about the site or in connection with the execution of the work report such accident to the Employer / Consultant. The consultant shall also report such accident immediately to the competent authority whenever such report is required to be lodged by the law and take appropriate actions thereof.

Signature of the Tenderer/s:

Address:

5. DETAILED SCOPE OF THE WORK

Conducting Structural audit including detailed visual inspection and non-destructive test using digital rebound hammer in the Bank's buildings at Central Complex, Thane, Plot No. 459, Khopat, Behind S.T. Workshop, Thane (West) 400882. The complex consists of 6 blocks (A,B,C,D,E & F). A & B block is G+2 storied building whereas C,D,E & F is a G+3 storied building with built up area of 60,500 sqft. Plot area is 69,847.295 sq.ft.

1. To carry out following additional non-destructive tests.

Sr. No.	Additional ND Tests	Approx. No. of locations	Remarks
1	Ultrasonic Pulse Velocity Test	80 locations per wing	The Types of tests, numbers and the test locations will be decided in consultation with the respective department on visual inspection and rebound hammer test results.
2	Half Cell Potential Test for Corrosion mapping	40 locations per wing	
3	Carbonation Depth Test	40 locations per wing	
4	Core Test	8 locations per wing	

2. Submission of detailed report, which includes

- A. The findings from detailed visual inspection
- B. Non- destructive test results
- C. Suggested remedial measures
- D. Detailed Estimate and Bill of quantities

B. The consultancy and incidental charges for carrying out the above works shall be as per following format, which is to be filled and submitted in a separate cover:

Sr. No.	Description
1	To carry out detailed visual inspection and digital rebound hammer test (i) Consultancy charges (ii) Incidental charges* (Maximum no. of visits)
2	To carry out additional Non Destructive Tests, a. Ultrasonic Pulse Velocity Test b. Half Cell Potential Test
	c. Carbonation Depth Test d. Core Test e. Rebound Hammer Test
3	Consultancy charges for preparation of report which includes a. The findings from detailed visual inspection b Non-destructive test results c Suggested remedial measures d Estimate & Bill of Quantities

The Consultant will have services of:

1. Licensed Structural Engineers (highest category) registered with appropriate authority.
2. Personnel who is Member of a Special Repair Panel formed by Municipal Corporation or/and other professional bodies
3. Trained and experienced surveyors.
4. Engineer to conduct Structural Audit as per the guidelines of the Indian Society of

Structural Engineers

Consultant will have

- Methodology supported by exhaustive checklists and software.
- Detailed report along with documentation of floor wise observations for Space and Structural Audit.

6. SPECIAL CONDITIONS AND STANDARD SPECIFICATION

1. GENERAL.

The rates quoted by the Consultant/s shall be all inclusive through rates. The consultant within the rates quoted prepare working plan for NDT and get the same approved from Engineer before execution. This will determine the final scope of work at the site. No leads/lifts, loading/unloading, handling, rehandling, stacking at site, GST, toll tax, octroi, sales tax, VAT and royalty or any other charges levied or leviable by the State Government or Local Bodies shall be paid by BANK.

The rates quoted shall be inclusive of all scaffolding, hoists, hoisting equipment, tools, equipment's, testing equipment's etc., required for the smooth execution and completion of the work.

2.1 The consultant will remove all surplus and released material from the site of work after NDT to avoid any hindrance/inconvenience to other agencies working in the adjoining area, and to the traveling public or to the train operation. The consultant will also, at the direction of the site in charge, rehandle his material in use or likely to be used in future to relocate the same to avoid any inconvenience to other agencies working in the adjoining area or to the traveling public or to the train operation without any extra cost.

In case of default, BANK may get the work done at the cost of the consultant by giving him 48 hours' notice in normal case or without any notice in case of an emergency, which is causing complaints from flat/apartment occupant, and recover such costs from any payment due to the Consultants..

2.3 In case of any dispute regarding interpretation of any of the Special Condition of Contract, decision of the BANK will be final and binding on the consultant/s.

3.0 Situations where NDT is an option to consider for investigation of *in-situ* concrete :

- to investigate the homogeneity of concrete mixing lack of grout in post tensioning ducts to determine the density and strength of concrete in a structure
- to determine the location of reinforcing bars and the cover over the bars to determine the number and size/diameter of reinforcing bars
- to determine the extent of defects such as corrosion
- to determine the location of in-built wiring, piping, ducting, etc
- to determine whether internal defects such as voids, cracks, delamination, honeycombing, lack of bonding with reinforcing bars, etc. exist in concrete
- to determine if there is a bond between epoxy bonded steel plates and concrete members.

Permeability of Concrete

Permeability of Concrete is important when dealing with durability of Concrete (Concrete durability depends largely on the ease (or difficulty) with which fluids (water, carbon dioxide, oxygen) in the form of liquid or gas can migrate through the hardened concrete mass, particularly in those used for water retaining structures or watertight sub-structures. Structures exposed to harsh environmental conditions also require low porosity as well as permeability. Such adverse elements can result in degradation of reinforced concrete. Permeability test measures the ease with which liquids, ions and gasses movement can occur by **flow, diffusion, and absorption**. Generally the overall potential for moisture and ion ingress in concrete by these three modes is referred to as its **permeability**.

Rebound Hammer Test:

Rebound Hammer test is conducted to assess the relative strength and elasticity of concrete on site based on the hardness at or near its exposed surface. Depending on the age of the concrete structure and carbonation effect some specialized investigation is suggested before conducting the test. It consists essentially of a metal plunger, one end of which is held against the concrete surface while the free end is struck by a spring-loaded mass, which rebounds to a point on a graduated scale. The point is indicated by an index rider. The amount of rebound increases with increase in concrete strength for a particular concrete mix. It measures the surface hardness of concrete and provides an estimation of surface compressive strength, uniformity and quality of concrete. User expertise is low and can be readily operated by field personnel.

It gives accurate assessment of the strength of the surface layer of material. The entire structure can be tested in its 'as-built' condition. It can be very costly and time consuming as instrumentation is required to measure response. It requires careful planning and can damage structure. The member must be isolated from the rest of the structure prior to the test.

Ultrasonic Pulse Velocity (UPV) Test :

Ultrasonic Pulse Velocity Test is conducted as per IS 13111 – 1992 to assess the quality of concrete, which is suspected to have low compaction, voids (porosity), and delamination or damaged material in concrete under test. Ultrasonic Pulse Velocity Test can also be used for the following applications:

Estimation of Strength of Concrete
Establishing Homogeneity of Concrete
Studies on Durability of Concrete

Analysis of Surface Crack Depth
Determination of Dynamic Modulus of Elasticity

Voltage pulses are generated and transformed into wave bursts of mechanical energy by the transmitting transducer (which must be coupled to the specimen surface through a suitable medium). A receiving transducer is coupled to the specimen at a known distance to measure the interval between the transmission and reception of a pulse. There are three practical

arrangements for measuring pulse velocity, namely direct, diagonal and surface techniques. The direct approach provides the greatest sensitivity and is therefore superior to the other arrangements. Determination of the variability and quality of concrete by measuring pulse velocity. Using transmission method, the extent of such defects such as voids, honeycombing, cracks and segregation may be determined. This technique is also useful when examining fire damaged concrete. Low level is required to make measurements. However, expertise is needed to interpret the results. Excellent for determining the quality and uniformity of concrete. It can rapidly survey large areas and thick members. Path lengths of 10m to 15m can be inspected with suitable equipment.

Proper surface preparation is required. The work is very time consuming as it takes only point measurements. Skill is required in the analysis of results as moisture variations and presence of metal reinforcement can affect results. The interpretation of ultrasonic test results based on published graphs and tables can be misleading. It is therefore necessary that correlation with the concrete be inspected is carried out. It works on single homogenous material.

Electrochemical Half-cell Potentiometer Test:

Electrochemical Half-cell Potentiometer test provides a relatively quick method of assessing reinforcement corrosion over a wide area without the need of wholesale removal of the concrete cover. The method of half-cell potential measurements normally involves measuring the potential of an embedded reinforcing bar relative to a reference half-cell placed on the concrete surface. The half-cell is usually a copper/copper sulphate or silver/silver chloride cell but other combinations are used. The concrete functions as an electrolyte and the risk of corrosion of the reinforcement in the immediate region of the test location may be related empirically to the measured potential difference. In some circumstances, useful measurements can be obtained between two half-cells on the concrete surface. ASTM C876 - 91 gives a Standard Test Method for Half-Cell Potentials of Uncoated Reinforcing Steel in Concrete. Quantitative measurements are made so that a structure can be monitored over a period of time and deterioration can be noted. Areas of usage include marine structures, bridge decks, abutments and so on. Used in conjunction with other tests, it has been found helpful when investigating concrete contaminated by salts.

Carbonation Test:

The method of testing consists of determining the depth of the carbonated layer on the surface of hardened concrete by means of an indicator. Carbonation of concrete occurs when the carbon dioxide, in the atmosphere in the presence of moisture, reacts with hydrated cement minerals to produce carbonates, e.g. calcium carbonate. The carbonation process is also called DE passivation. Carbonation penetrates below the exposed surface of concrete extremely slowly. The significance of carbonation is that the usual protection of the reinforcing steel generally present in the concrete due to the alkaline conditions caused by the hydrated cement paste is neutralized by carbonation. Thus, if the entire concrete covering the reinforcing steel is carbonated, corrosion of the steel would occur if moisture and oxygen could reach the steel. The time required for carbonation can be estimated knowing the concrete grade and using the equation.

Concrete Core Extraction and Testing:

In most structural investigations or diagnoses extraction of core samples is unavoidable and often essential. Cores are usually extracted by drilling using a diamond tipped core cutter cooled with water. Broken samples, for example, due to popping, spalling and delamination, are also commonly retrieved for further analysis as these samples may provide additional evidence as to the cause of distress. The selection of the locations for extraction of core samples is made after non-destructive testing which can give guidance on the most suitable sampling areas.

For instance, a cover meter can be used to ensure there are no reinforcing bars where the core is to be taken; or the ultrasonic pulse velocity test can be used to establish the areas of maximum and minimum pulse velocity that could indicate the highest and lowest compressive strength areas in the structure.

Moreover, using non-destructive tests, the number of cores that need to be taken can be reduced or minimized. This is often an advantage since coring is frequently viewed as being destructive. Also the cost of extracting cores is quite high and the damage to the concrete is severe. The extracted cores can be subjected to a series of tests and serve multiple functions such as: confirming the findings of the non-destructive test

- identifying the presence of deleterious matter in the concrete ascertaining the strength of the concrete for design purposes predicting the potential durability of the concrete
- confirming the mix composition of the concrete for dispute resolution
- determining specific properties of the concrete not attainable by non-destructive methods such as intrinsic permeability.

This test is used to determine the compressive strength of a concrete core, which has usually been extracted from an existing structure. The value of compressive strength can then be used in conjunction with other measured properties to assess the condition of the concrete.

Using a masonry saw, the core is first trimmed to the correct test length, which varies upon the standard being adopted. Following trimming, the core will have its ends either ground perfectly flat, or be capped in a material to produce a smooth bearing surface.

After the prescribed curing has taken place, the specimen is then crushed to failure noting the maximum load achieved. From the values of load and dimensions, the compressive strength of the core can be calculated.

Composition of reports:

1. Summary Report, a summary of all the technical observations, pictures of the area, remedial action proposed along with expenditure of complete and maintenance repairs shall be provided respectively, and final conclusion.

2. Visual Inspection report should include approximate overall dimension of the buildings, adjacent areas, vegetation and its effect on the building, maintenance details – structural, non-structural, water supply, sanitation, electrification, etc. and detailed description of defects observed.

Report should mention that inspection is done in presence of whom, details of the personnel involved, their technical qualification, and designation in the company, along with the contact number and email address of the said personnel.

Report should enclose, plan elevations, sections, details structural drawings of the individual buildings and site along with test report of materials used in construction.

Report should mention proposed changes in the structural drawing along with GFC (Good for construction) drawings, along with BOQ for the said changes.

The report should clearly mention major repairs and minor repairs.

The work includes all buildings, common areas, boundary walls etc.

3. Ultra Sonic Pulse Velocity test report, shall have column, beam and slab, location layout plans, a table mentioning details of column, beam and slab, their dimensions, time in micro second, velocity km/sec and method of testing.

4. Rebound Hammer Test report, shall have details of structural members (column, beam, slabs) their location on the layout plan, average reading on the hammer, comp. strength in kg/sqcm.

5. Half-cell Potential Test report, shall have sample identification, their location, average reading, category of risk corrosion, average of half-cell potential, etc.

6. Carbonation Test report, shall have sample selection of structural members, their location, level of carbonation present, its effect from surface in mm.

7. Core Test report, shall have identification of structural members, their location, date of casting, age of specimen, core height, core diameter, core weight, cross-sectional area, max. load, correction factor for dia, correction factor, corrected comp. strength, equivalent cube comp. strength, etc.

8. General observation report, shall mention observations regarding overall building health, external plaster, plumbing and sanitation, internal structure, building frame, Terrace waterproofing, Water Tanks, Lift machine room, parapet wall, staircase, external condition of the building, internal condition of the building, etc.

9. Recommendations and conclusion report, shall be provided mentioning floor wise drawings, BOQ, Estimate, GFCs and all the required documents to ensure the successful completion of the proposed repair and maintenance work.

7. ADDITIONAL TERMS AND CONDITIONS

1. Completion Period

30 days for conducting the Structural audit as per the scope and submission of detailed report of observations and recommendations along with submission of detailed tender documents.

2. Payment

The payments for the Consultancy and NDT will be made after completion of testing and submission of report along with BOQ for the repairs, maintenance and restoration works as per relevant clauses elsewhere in the Bid document.

3. All the Audit reports will have to be provided in triplicate in hard as well as soft copy.

4. Since these are old buildings, BANK will not be able to provide any Data, Drawings & Documents related to the buildings. All the necessary work related for job completion shall be in the scope of the Consultants.

5. All the necessary tools, tackles, instruments, material required for completion of audit shall be part of the scope of work.

6. THE ENTIRE JOB SHALL BE CARRIED OUT AS PER THE TERMS AND CONDITIONS STIPULATED IN THE TENDER AND INSTRUCTIONS OF BANK.

SAFETY CODE

1. There shall be maintained in a readily accessible place first aid appliances including adequate supply of sterilized dressings and cotton wool.

2. An injured person shall be taken to a public hospital without loss of time, in case where they injury necessitates hospitalization.

3. Suitable and strong scaffolds should be provided for workmen for all works that cannot safely be done from ground.

4. No portable single ladder shall be over 8 meters in length. The width between the said rails shall not be less than 30 cm (clear) and the distance between two adjacent rungs shall not be more than 30 cm. When a ladder is used an extra mazdoor shall be engaged for holding the ladder.

5. The excavated material shall not be placed within 1.5 meters of the edge of the trench or half of the depth of trench whichever is more. All trenches and excavations shall be provided with necessary fencing and lighting.

6. Every opening in the floor of a building or in a working platform be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be one meter.

7. No floor, roof or other part of the structure shall be so overloaded with debris or materials as to render it unsafe.

8. Workers employed on mixing and handling material such as asphalt, cement, mortar or concrete and lime mortar shall be provided with protective footwear and rubber hand-gloves.

9. Those engaged in welding works shall be provided with welder's protective eye-shields and gloves.

10. (i) No paint containing lead or lead products shall be used except in the form of paste or readymade paint.

(ii) Suitable face masks be supplied for use by the workers when paint is applied in the forms of spray or surface having lead paint is being dry rubbed and scraped. 33

11. Overalls shall be supplied by the Contractor to the painters and adequate facilities shall be provided to enable the working painters to wash during the periods of cessation of work.

12. Hoisting machines and Tackle used in the works, including their attachments anchorage and supports shall be in perfect condition.

The ropes used in hoisting or lowering material or as a means of suspension shall be of durable quality and adequate strength and free from defects.

8. ARTICLES OF AGREEMENT

Articles of agreement made thisday of..... between the Central Bank of India, hereinafter called the EMPLOYER, which expression shall include its successors and assigns and persons for the time being of the management of the Employer of the one part and.....hereinafter called the consultant which expression shall include his/their respective Heirs, successors, executors, administrators and assigns of the other part.

Whereas the Employer is desirous of getting.....and has caused drawings and specifications describing the work to be done to be prepared by.....

And whereas the tendered rates are submitted by the consultant were accepted by the Employer on terms and conditions hereinafter agreed at:

And whereas the Consultant has agreed to execute, upon and subject to the conditions set forth herein and to the conditions set forth in the invitation to tender, General Instructions and Conditions of the tender, and schedule of quantities and Conditions of Contract (all contained in bid document of which are collectively hereinafter referred to as the said conditions), the works shown upon the said drawings and / or described in the said schedule of quantities at the respective rates herein set forth amounting to the sum as therein arrived at or such other sum as shall become payable there under (hereinafter referred to as 'the said contract amount')

NOW IT IS HEREBY AGREED AND DECLARED BY AND BETWEEN THE PARTIES HERE TO FOLLOWS

In consideration of the said Contract amount to be paid at the time and in the manner set forth in the said conditions, execute and complete the work shown upon the drawings and described in the said specifications and the schedule of quantities

The Employer shall pay the Consultant the said Contract amount or such other sum shall become payable at the times and in the manner hereinafter specified in the said conditions

The said Conditions and Appendix thereto shall be read and construed as forming part of this agreement, and the parties hereto shall respectively abide by, submit themselves to the said conditions and perform the agreements on their part respectively in the said conditions contained

The plans, agreement and documents mentioned herein shall form the basis of this and the decision of the said architects for the time being as mentioned in the said conditions, in reference to all matters of dispute as to materials and workmanship be final and binding on both parties

This contract is neither a fixed lump sum contract nor a piece work contract but is a contract to carry out the work in respect of the entire buildings to be paid for according to actual measured quantities at the rates contained in the schedule of rates and probable quantities or as provided in the said conditions

The consultant shall be responsible for the co-ordination of the work of other consultants/sub consultants etc. The respective consultants shall work harmoniously and afford reasonable facility to each other as circumstances required

In all matters of co-ordination the Employer's decision shall be final and binding on all parties.

The Employer reserves to itself the right of altering drawings and nature of the work, adding to or omitting any item of work from the contract or having portion of the same carried out through other agencies without prejudice to this contract.

Time shall be considered as the essence of this agreement and the consultant hereby agrees to commence the work soon after the site is handed over to him or from the Tenth day of the date of issue of formal work order as provided for in the said conditions and to complete the entire work within 30 days, nevertheless to the provisions for extension of time.

All payments by the Employer under this contract shall be made only at Mumbai.

Further all disputes arising out of or in any way connected with this agreement shall be deemed to have arisen in Mumbai and only courts in Mumbai shall have jurisdiction to entertain and determine the same.

The several parts of this contract have been read by us and fully understood by us.

In witness where of the parties hereto have set their respective hands the day and the year in above written.

Signed by the said consultant

Signed by the Employer

In the presence of

in the presence of:

Address:

Address:

Occupation:

Occupation:

9. UNDERTAKING

Asst. General Manager - BSD

Central Bank of India,

Central Office,

16th F, Chander Mukhi, Nariman Point,

Mumbai – 400021

I/We-----

Have read the various conditions of bid attached here to and hereby agree to abide by the said conditions. I/We offer to do this work of **“Consultancy and conducting of Structural Audit, and NDT of Buildings at Central Complex, Plot No. 459, Khopat, Behind S.T. Workshop, Thane (West)”**. As detailed under scope of work in the event we are Pre-qualified for the purpose and hereby bind myself/ourselves to complete the work in all respects.

I/We also hereby agree to abide by the General Condition of Contract and to carry out the consultancy work according to the Special Conditions of Contract and specifications for material and testing works as laid down by BANK.

Signature of the bidder/s

Bidder/s Address with telephone
Nos (complete postal address to be
given)

10. APPLICATION FORM

I / We am / are desirous of participating in the bid for the work of Consultancy and conducting of Structural Audit, NDT and Allied Works of various Buildings of Central Complex, Plot No. 459, Khopat, Behind S.T. Workshop, Thane (West), as detailed under scope of work, and hereby apply for the same.

NOTE:

- 1) The patch plastering/related repair work will have to be done by the individual firm at their cost after conducting various tests if any.
- 2) The rates quoted shall be inclusive of all scaffolding, hoists, hoisting equipment, tools, equipment's, testing equipment's etc., required for the smooth execution and completion of the work.
- 3) The consultants/Firms may visit the site to understand the scope of work before quoting for the scheduled Pre Bid Meeting on 14.12.2021 at 11.30 AM.

Place:

Date:

11. FINANCIAL BID

Date

**Asst. General Manager
Central Bank of India,
16th Floor, Chander Mukhi Building
Nariman Point
Mumbai**

Dear Sir,

Reg.: Consultancy for Structure Audit of Bank's building at Central Complex, Plot No. 459, Khopat, Behind S.T. Workshop, Thane (West) 400882

We are pleased to inform you that we are willing to offer our consultancy services at a fee for Rs (in words) + GST on terms and conditions stated in the Tender document.

Thanking you,
Yours faithfully

(Sign and stamp)

Name and address of the Consultant.