

**INDIRA GANDHI INSTITUTE OF DEVELOPMENT RESEARCH
GOREGAON (EAST), MUMBAI**

TENDER DOCUMENT FOR

**Annual Rate Contract for the Civil and Interior Repair Works at
IGIDR**

NIT No: IGIDR/Tender/2026/ED/17 Dated: 17.07.2026

INDIRA GANDHI INSTITUTE OF DEVELOPMENT RESEARCH

Gen. A.K. Vaidya Marg, Film City Road, Santosh Nagar, Goregaon (East), Mumbai-400065.

Telephone: 022 6909 6200 / 592 / 9179961199; Fax: 022 6909 6399.

INDIRA GANDHI INSTITUTE OF DEVELOPMENT RESEARCH, MUMBAI
Notice Inviting Tender

“NAME OF THE WORK: **Annual Rate Contract for the Civil and Interior Repair Works** at INDIRA GANDHI INSTITUTE OF DEVELOPMENT RESEARCH, GOREGAON, MUMBAI – 400 065.”

1. The Institute invites bids from reputed & qualified contractors for the following work:

Name of work	Contract Period	EMD (INR)
(1)	(2)	(3)
Annual Rate Contract for the Civil and Interior Repair Works at IGIDR	One Year	INR 40,000.00

2. Tender bids in the two-bid system are being invited for the above-mentioned work.
3. The bidder has to submit an Earnest Money Deposit of **Rs. 40,000/- (Rupees Forty Thousand only)** along with the bid.
4. Tender bids in two-bid systems are invited through **two separate Emails** to tender@igidr.ac.in:
“**Email-1: EMD and Pre-qualification/Technical Bid**” and “**Email-2: Financial Bid**”. The subject of the email should be mentioned as “**Email-1: EMD and Pre-qualification/Technical Bid for Annual Rate Contract for the Civil and Interior Repair Works at IGIDR**” and “**Email-2: Financial Bid for Annual Rate Contract for the Civil and Interior Repair Works at IGIDR**” respectively. **All the bid documents should be attached as a PDF document or zip file, and the financial bid file should be protected with a password.**
5. **The last date of submission of the bid shall be on 06.08.2026, at the end of the day.**
6. **The intending bidder should inspect the site to understand the scope and nature of work before submitting their bid.**
7. The Institute reserves the right to reject any prospective application without assigning any reasons whatsoever.

REGISTRAR

SECTION - A*

LETTER OF OFFER

Date _____

To,
The Registrar,
Indira Gandhi Institute of Development & Research,
Gen. A.K. Vaidya Marg, Film City Road,
Goregaon (East), Mumbai 400065.

Subject: Tender for Annual Rate Contract for the Civil and Interior Repair Works at IGIDR, Mumbai.

Reference: NIT No. IGIDR/Tender/2026/ED/17 Date: 17.07.2026

Dear Sir,

With respect to your above-mentioned tender, we hereby submit our tender in the required format along with the Company Profile and supporting documents.

Should this tender be accepted, I/We hereby agree to abide by and fulfill the terms and provisions of the said Conditions of Contract annexed hereto so far as they may be applicable, or in default thereof, to forfeit the EMD and pay to the IGIDR the amount mentioned in the said Conditions.

I/We have deposited **NEFT/DD/FDR/BG** of Rs. **40,000/- (Rupees Forty Thousand only)** or **MSME exemption Certificate** as an earnest money deposit to the IGIDR, which will not bear any interest. Should I/We fail to execute the contract when called upon to do so. I/We do hereby agree that this sum shall be forfeited by me/us to the IGIDR.

I / We have carefully gone through the terms and conditions prescribed, and I / We accept the same without any alterations/modifications.

Yours faithfully,

Signature

Name & seal of Bidder

** The bidder should submit the Letter of Offer on their company letterhead.*

SECTION - 'B'
GENERAL INSTRUCTIONS TO BIDDERS

Tender bids through email should be addressed to The Registrar, Indira Gandhi Institute of Development Research, Goregaon (East), Mumbai-400065.

1. Bidder has to submit Earnest Money Deposit of **Rs. 40,000/- (Rupees Forty Thousand only)** through **NEFT/DD/FDR/BG** to “INDIRA GANDHI INSTITUTE OF DEVELOPMENT RESEARCH, MUMBAI” Account no. 010220100010001, IFSC code: BKID0000102, Branch name: IGIDR, Bank Name: Bank of India, and UTR number with screenshot of transaction should be included in the part of the tender document towards Earnest money.
2. The bidders registered under **MSEs** are exempted from the submission of EMD, but they should submit a copy of the valid MSME certificate for exemption.
3. Tender bids in two-bid systems are invited through two separate Emails to tender@igidr.ac.in: **“Email-1: EMD and Pre-qualification/Technical Bid”** and **“Email-2: Financial Bid”**. The subject of the emails should be mentioned as **“Email-1: EMD and Pre-qualification/Technical Bid for Annual Rate Contract for the Civil and Interior Repair Works at IGIDR”** and **“Email-2: Financial Bid for Annual Rate Contract for the Civil and Interior Repair Works at IGIDR”** respectively.
4. **All the bid documents should be attached as a PDF document or a zip file. In case the bidder cannot attach a single bid file to an email, then they can split their bid and submit it in multiple emails, with a mention in the email subject as Part-I, II, III,....., etc.**
5. All the required documents should be scanned and merged either into a single PDF file or zipped into a single file and attached to the respective Emails. **The Financial bid should be attached as a PDF document protected with a password, and the password should be shared at the time of financial bid opening through an online meeting. The vendor should keep their password securely with them and be required to give it only when asked in an online meeting for financial bid opening.**
6. The bids will be received up to **06.08.2026 at the end of the day**. Each copy of the tender document is under their stamp and signature. No tender will be accepted after **06.08.2026** under any circumstances whatsoever.
7. The Email bid with subject **“EMD & Pre-qualification/Technical Bid for Annual Rate Contract for the Civil and Interior Repair Works at IGIDR”** shall be opened by the Tender Opening Committee on the next day, **07.08.2026 at 02.30 PM** through online meeting platform. The link of the meeting will be shared with participating bidders. In case a holiday is declared by the Government on the day of opening the bids, the bids will be opened on the next working day at the same time.
8. The Email bid with subject **“Financial bid for Annual Rate Contract for the Civil and Interior Repair Works at IGIDR”** of only qualified bidders will be opened. The date of opening of price bid shall be informed by the Institute to the qualified bidders. The date of opening of financial bid and link for online meeting shall be informed by the Institute to the qualified bidders. **The bidders should provide the password of the financial bid PDF file during the opening of the financial bid. In case a bidder cannot provide the password for the financial bid at the opening, then their bid shall be rejected.**

9. Tender bid shall remain valid for acceptance by the Institute for a period of **Three Months** from the date of opening of the bid, which period may be extended by mutual agreement, and the bidder shall not cancel or withdraw the tender during this period.
10. The bidder must use only the tender forms issued by the Institute to fill in the rates. Any addition/alteration in the text of the tender form made by the bidder shall not be valid and shall be treated as null and void.
11. The Tender form must be filled in English. If any of the documents are missing or unsigned, the tender may be considered invalid by the Institute in its discretion.
12. Rates should be quoted both in figures and in words in columns specified. Overwriting of figures is not permitted. Failure to comply with either of these conditions will render the tender void at the Institute's option. No advice whatsoever, especially on any change in rate specifications after the opening of the tender, will be entertained.
13. Each Page of the Tender Documents should be stamped and signed by the authorized person or persons submitting the Tender in token of his/their having acquainted himself/themselves with the General terms & conditions, specifications, special conditions of contract, etc., as laid down. Any Tender with any of the documents not so signed will be rejected.
14. A tender that is not accompanied by EMD will not be considered. The EMD will be returned to the bidder if their tender is not accepted by the Institute, but without Interest. The EMD paid by the successful bidder shall be held/encashed by the IGIDR as security for execution and fulfilment of the contract. No interest shall be paid on this deposit. The Earnest Money Deposit (EMD) of the successful bidder may be converted into a Performance Security Deposit. The security deposit of the successful bidder will be forfeited if they fail to comply with any of the conditions of the contract. No interest will be paid on the Security Deposit withheld by the Institute.
15. The Institute does not bind itself to accept the lowest or any bid and reserves to itself the right to accept or reject any or all the tenders, either in whole or in part, without assigning any reasons for doing so.
16. The Institute reserves the right to subdivide the work mentioned in the tender, amongst two or more bidders at its own discretion, and the successful bidders will have to execute orders for part of the items placed with them at the quoted rates. The Institute also reserves the right to increase or decrease the quantities and even omit any item of work after the order is placed, and the successful bidder shall execute the same without claiming anything extra for the same. In this context, the rates quoted for each item must be self-supporting and relevant.
17. No bidder will be allowed to withdraw after submission of the tender; otherwise, the EMD submitted by the bidder would stand forfeited. In case the successful bidder declines the offer of contract (or refuses to acknowledge or execute the contract within 15 days of award of order), for whatever reasons, their EMD will be forfeited.
18. The rates quoted in the bid shall include all charges like material rates, applicable GST, transportation, loading and unloading, any other tax and duty or other levy whether existing or future, levied by the Central Government or any State Government or Local Authority, if applicable. No claim in respect of GST or any other tax, duty or levy, whether existing or future, shall be entertained by the Employer.
19. The intending bidder can obtain any clarifications regarding the tender document, technical scope, etc., if any, by contacting Mr. Amit Gaikwad (Estate Officer) at email estateofficer@igidr.ac.in or telephone- 022 6909 6507 or from the Estate Department of the

Indira Gandhi Institute of Development Research, Goregaon (E), Mumbai-400 065 on any working day of the Institute from Monday to Friday.

I/We hereby declare that I/we have read and understood the above instructions, and the same will remain binding upon me/us.

Place:

Signature of the Bidder with seal

Date:

SECTION - 'C'

GENERAL TERMS AND CONDITIONS

Upon the declaration of an intending bidder to be the Successful Bidder by the Institute, they shall be subject to the following terms and conditions that shall form part of the Formal Contract to be executed with the Institute.

1. The successful bidder shall not assign the sub-contract. He shall not sublet any portion of the contract except with the written consent of the IGIDR. In case of breach of these conditions, the IGIDR may serve a notice in writing on the Contractor rescinding the contract.
2. The successful bidder must co-operate with the other contractor appointed by the Institute so that the work shall proceed smoothly to the satisfaction of the Institute.
3. The contractor should hand over any reusable material dismantled from the site to the Institute's engineer after properly creating an inventory & tabulating the same. The contractor should also help the Institute in shifting the material from the premises to other premises if required.
4. The work shall be carried out in strict adherence to the stipulations of the National Building Code, relevant IS Standards & the latest CPWD works manual & specifications. The contractor also bears the cost for any testing required for materials/ Samples of works like Concrete blocks, plaster, etc., as per the above-mentioned Codes & manuals from a government approved Testing Laboratory.
5. The successful bidder is bound to carry out any or all items of work necessary for the completion of the job.
6. The successful bidder shall comply with the Labour Acts or any other Labour Laws in force from time to time for all the workers employed by him. No child labor shall be employed by the contractor anywhere on the site.
7. IGIDR shall not allow any labor accommodation on its premises & shall not allow any work beyond the regular working hours from 8 AM to 7 PM. The contractor is to take care to create the least disturbance to the IGIDR community while working & see to it that the work does not cause any hardships to the community. If the contractor requires permission to work overnight, then they have to get the Institute's prior approval before starting the work.
8. In case the successful bidder contravenes any provisions of the law, and the Institute suffers any damage or loss or harm due to any acts of commission or omission of the Contractor, the Contractor is bound to indemnify the Institute. The Contractor shall also be responsible for the discharge of all legal liabilities towards the Institute and for observing all laws and Government rules relating to labor laws.
9. The successful bidder shall have the addresses and photographs of their workmen being engaged by them for the said work. The entry of workmen will be allowed inside the building only on producing the photo pass issued by the Contractor/Institute.

10. The successful bidder shall carry out all the work strictly in accordance with the scope of work, specifications, and as per the detailed instructions of the Institute's Engineer.
11. In all matters of dispute arising on the work, the matter shall be referred to **the Registrar, Indira Gandhi Institute of Development Research, Goregaon**, for a decision.

12. Arbitration Clause:

In the event that the Successful Bidder is not satisfied with the decision of the Registrar, Indira Gandhi Institute of Development Research, the dispute shall be settled by arbitration in accordance with the provisions of the **Arbitration and Conciliation Act, 1996**, or any enactment thereof. The Arbitral Tribunal shall consist of one arbitrator, to be appointed by the Institute. The place of arbitration shall be **Mumbai**, and any award, whether interim or final, shall be made, and shall be deemed for all purposes between the parties to be made in **Mumbai**. The arbitration proceedings shall be conducted in the English language, and any award or awards shall be rendered in the English language. The procedural law of the arbitration shall be the Indian law. The award of the arbitral tribunal shall be final, conclusive, and binding upon the Successful Bidder and the Institute.

13. Insurance Clause:

The successful bidder shall be responsible for all injury to person, animals or things and for all structural and decorative damage to property which may arise from the operation or neglect of himself or of any nominated sub-Contractor's employees, whether such injury or damage arise from carelessness, accident or any other case whatever in any way connected with the carrying out of the contract. Workmen Compensation Policy for all the employees/workmen to be deputed on the site as per the workmen compensation act.

14. Defect Liability Period:

The defect liability period for the work done by the contractor should be for **Twelve months** from the date of completion of work. Any defect or fault which may appear during **12 months** from the date of virtual completion of work/or supply and installation in full as specified under the contract, arising in the opinion of the Institute's Engineer from materials or workmanship not in accordance with the contract, shall upon the directions in writing of the Institute's Engineer, and within such reasonable time as shall be specified therein, be amended and made good by the Contractor at his own cost and in case of default the Institute may employ and pay other persons to amend the make good such defects/faults and damages, loss and expenses consequent there upon or incidental thereto shall be made good and borne by the Contractor and such damages, loss and expenses shall be recoverable from him by the Institute, or may be deduced by the Institute upon the Institute's/Institute's Engineers' certificate in writing from any moneys due or that may become due to the contractor. The contractor/supplier shall remain liable under the provisions of this clause

notwithstanding the signing by the Institute's Engineer of any certificate or passing of any accounts. The above defects Liability clause does not hold good for waterproofing works.

15. Performance Security Deposit:

The EMD of the successful bidder for **Rs. 40,000/- (Rupees Forty thousand only)** shall be converted into a Performance Security Deposit and will be retained with the IGIDR till the expiry/termination of the rate contract without interest. If the successful bidder submits MSME as EMD, they should deposit Rs. 40,000/- (Rupees Forty thousand only) as PSD in the form of DD/FDR/BG, valid for 60 days beyond the contract period. This deposit shall be forfeited in case the contractor fails to discharge its duties/commitments or whose contract is terminated prematurely.

16. Mode of Payment:

The payment shall be made to the contractor after successful completion of the awarded work within **15** working days of submission of the Tax Invoice as per actual measurement of work done with supporting documents.

17. Tenure of Contract:

The contract period shall be for **one Year** from the date of award of the work order.

18. Penalty Clause:

The time schedule of the work assigned to the contractor from time to time will be provided along with the job allotment letter. If the Contractor fails to complete the work/Individual Job within the specified period, he shall be liable to pay compensation at the rate of **1% per week**, subject to a maximum amount of **5%** of the work/Individual Job amount. Any damage caused to any of the Institute's properties shall be made good by the successful bidder at their own cost.

19. Force Majeure:

A Force Majeure (FM) means extraordinary events or circumstances beyond human control, such as an event described as an act of God (like a natural calamity) or events such as a war, strike, riots, crimes (but not including negligence or wrongdoing, predictable/seasonal rain, and any other events specifically excluded in the clause). An FM clause in the contract frees both parties from contractual liability or obligation when prevented by such events from fulfilling their obligations under the contract. An FM clause does not excuse a party's non-performance entirely, but only suspends it for the duration of the FM. The firm has to give notice of FM as soon as it occurs, and it cannot be claimed ex-post facto. There may be an FM situation affecting the purchase organisation only. In such a situation, the purchasing organization is to communicate with the supplier along similar lines as above for further necessary action. If the performance in whole or in part or any obligation under

this contract is prevented or delayed by any reason of FM for a period exceeding 90 (ninety) days, either party may at its option terminate the contract without any financial repercussion on either side. Notwithstanding the punitive provisions contained in the contract for delay or breach of contract, the supplier would not be liable for imposition of any such sanction so long as the delay and/or failure of the supplier in fulfilling its obligations under the contract is the result of an event covered in the FM clause.

20. Termination Clause:

- 20.1 Without prejudice to any other remedy available to the Institute, in case of default on the part of the contractor in the performance of this contract or in the discharge of any contractual obligations arising out of this contract or if the contractor commits substantial breach of his obligations and such breach is not corrected within 7 (seven) days from the date of receipt of the notice specifying the breach, by the contractor, the Institute may terminate this contract by giving a 15 (fifteen) days written notice of intended termination to the contractor.
- 20.2 In the event of this Contract being terminated, the Institute shall be liable to make payments of the amount due under this Contract up to the effective date of termination for which services (including parts thereof) have been rendered by the Contractor, subject to clause 20.5 hereunder.
- 20.3 Notwithstanding anything contained hereinabove, the Institute may terminate this Contract at any time by giving one month's notice to the Contractor without assigning any reason thereof and without prejudice to the rights of the Institute to recover any money becoming due and payable to the Institute under this Contract. The Contractor may terminate this Contract at any time by giving two months' notice to the Institute without assigning any reason thereof.
- 20.4 Forthwith on the expiry or earlier termination of this Contract, the Contractor shall return to the Institute all materials and equipment belonging to the Institute with regard to this Contract. The Institute shall also inform the Contractor of a time when it can collect its equipment stored in the Institute, and the Contractor shall collect the same. In the event that the Contractor does not collect its equipment by the appointed time, the Institute shall not be liable for the same thereafter.
- 20.5 Forthwith on the expiry or earlier termination of this Contract, the Institute shall determine the costs of execution, cost of remedying any defects (if any), and the cost of completion of the work (if required). The Institute shall be entitled to recover from the Contractor the extra costs, if incurred, after adjusting the same against the Performance Security Deposit made by the Contractor.
- 20.6 On the earlier termination of this Contract due to failure to discharge its duties, the Performance Security Deposit shall stand forfeited by the Institute.

I/We hereby declare that I/we have read and understood the above terms and conditions that form part of the Formal Contract to be executed between I/us and the Institute. The same shall be binding upon me/us upon being declared as the Successful Bidder.

Place:

Signature of the bidder with seal

Date:

SECTION - 'D'
SPECIAL CONDITIONS

1. Overall L1, overall L2, overall L3, etc. bidders will be calculated on the basis of quoted rates for individual items with minimum quantity of that item. After comparing the total amount of overall L1, L2, L3, etc. quotes, the L1 bidder will be empanelled for the rate contract. The contract may also be sub-divided between the two or more bidders for their individual lowest quoted items.
2. The workmen will not be allowed to stay within the premises. The workmen will be allowed to work in the premises after 08:00 AM in the morning and maximum till 07:00 PM in the evening.
3. **The water and the electricity required for the work will be provided by the Institute free of cost.**
4. **The Institute will assign the work to the empanelled contractors as per the requirement at IGIDR campus. The minimum work quantity to be assigned at a time should be for a total amount of Rs. 10,000.00 as per the item rates.**
5. **The debris/dust or any wastage generated out of the above work shall be cleaned as frequently as required and as instructed by the Institute's Engineer away from the Institute's premises.**
6. The work has to be carried out with the least inconvenience to the staff.
7. Permission required from the local bodies, if any, shall be obtained by the successful bidder at his cost.
8. **Quotation of Price:** Price quoted should be in Indian Rupees, excluding the applicable GST. The GST will be quoted in percentage.
9. If the quality of product and services provided is not found satisfactory, IGIDR reserves the right to cancel or amend the contract.
10. The successful bidder shall decide the mode and manner of work to be done by his workmen.
11. The Contractor shall arrange to get all the samples of materials to be used in the work approved from the Institute. The proposed materials should be of ISI approved brands.
12. The successful bidder shall only use the materials of brands approved by the Institute's Engineer.
13. Any damage caused to any of the Institute's properties shall be made good by the contractor at their own cost.
14. The Contractor shall make their own arrangements for storing their materials at the site.

We hereby declare that I/we have read and understood the above terms and conditions that form part of the Formal Contract to be executed between the Institute and us. The same shall be binding upon me/us upon being declared as the Successful Bidder.

Place :

Date :

Signature of the Bidder with seal

SECTION - 'E'
QUALIFICATION CRITERIA

- **Minimum Qualification Documents to be submitted by Bidder along with qualification Bid:**

- a) The bidder should be registered with the appropriate registration authorities.

The bidder shall submit documentary evidence of its legal status, as applicable, as follows:

- **Company:** Copy of the Certificate of Incorporation and Memorandum of Association (MOA), Articles of Association (AOA).
- **Partnership Firm:** Copy of the Registration Certificate of the Partnership Firm and Partnership Deed.
- **Proprietorship Firm:** Registration Certificate under the Shops and Establishments Act, Affidavit/Declaration confirming the proprietorship on Letter Head of the firm.

- b) Copy of Registration of Provident Fund and ESIC, if applicable.

- c) Copy of Registration of Goods & Service Tax and PAN.

- d) The bidder should have an average annual turnover of **INR 20.00 Lakh** for the **Building repair, Waterproofing, and Interior (flooring, ceiling, painting, etc.) works** in the last three consecutive financial years (FY2023-24, FY2024-25, and FY2025-26). The bidder must submit the audited balance sheet, P & L account statements, or a Turnover certificate from a CA for the last three financial years, duly certified by a CA. (If the FY 2025-26 Balance Sheet is unavailable, the Balance Sheet for FY 2022-23 accompanied by a CA-certified Average Turnover statement for FY 2025-26 will be accepted.)

- e) The bidder should have experience in the successful completion of contracts for **Building repair, Waterproofing, and Interior (flooring, ceiling, painting, etc.) works** for at least one year during the last seven years.

Copy of Purchase orders/Work Orders/contract agreement/completion certificates to be submitted.

- f) **Bidder should submit a list of at least two clients along with the name and contact number of their representatives.**

- g) Either the Registered Office or a Branch Office (fully working) with availability of staff of the bidder should be located in the territory region of MMRDA.

(Submit the valid office address proof and the list of staff available full-time in the office).

- h) The bidder should not be blacklisted/ De-registered/ debarred by any Government department/ Public Sector Undertaking/ Private Sector/ or any other agency **(Submit Undertaking as per Annexure-A).**

Bidders must submit documentary proof in support of meeting each of the above minimum qualification criteria. A simple undertaking by the bidder for any of the stated criteria will not suffice the purpose. All documentary proof must be listed on the letter pad of the company and enclosed in a cover, to be submitted along with the qualification bid (Email-1) duly stamped and signed by the authorized person of the agency.

- **Information to be furnished by the bidder:**

Sr. No.	Item	Information to be filled by Bidder
1	Name of the bidder	
2.	Address	
2	Telephone Number: Office /Residence: Mobile Number: Fax No. E-Mail address-	
3	Details of Registration (number & date)	
4	Month and Year in which the firm / company was formed/ incorporated.	
5	Type of organisation (Sole Proprietor, Partnership, Pvt Ltd., Public Ltd., etc.)	
6	Enclose a copy of CoI/Memorandum of Association (MOA), Affidavit in case Proprietorship firm, Partnership Deed in case partnership firm, Copy of Registration under Shop & Establishment, Article of Association (AOA).	
7	Average Annual Turnover of Last Three Financial Year (attached audited balance sheet & profit & Loss account) (If the FY 2025-26 Balance Sheet is unavailable, the Balance Sheet for FY 2022-23 accompanied by a CA-certified Average Turnover statement for FY 2025-26 will be accepted.)	FY 2023-24: FY 2024-25: FY 2025-26:
8	Bank Account Details	A/C No. Bank Name: IFSC:

Date :

Signature of the Bidder with seal

SECTION - 'F'
TECHNICAL BID

1. GENERAL:

The Contractor shall include in his rates for all the items listed in this Section.

1.1 Contractor to Inspect Site:

The Contractor shall visit and examine the work site and satisfy himself as to the nature of the existing roads or other means of communications, the extent and magnitude of the work and facilities for obtaining materials and shall obtain generally his own information on all matters affecting the execution of the work. No extra charge made in consequence of any misunderstanding or incorrect information on any of these points or on the ground of insufficient description will be allowed. All expenses incurred by the contractor in connection with obtaining information for submitting this Quotation including his visits to the site or efforts in compiling the bid shall be borne by the bidder and no claims for reimbursement thereof shall be entertained.

1.2 Access to site:

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

1.3 Setting out:

The Contractor shall set out the building in accordance with the plans. All grid/ centre lines shall be pegged out to the satisfaction of the Architects. The contractor shall be responsible for the correctness of the lining out and any inaccuracies are to be rectified at his own expense. He will be responsible for taking ground levels of the site before setting out and recording them without any extra charge.

The Contractor shall construct and maintain proper benches at the intersection of all main walls, columns etc., in order that the lines and levels may be accurately checked at all times

1.4 Treasure Trove:

Should any treasure, fossils, minerals, or works of art of an quarial interest be found during excavation or while carrying out the works, the Contractor shall give immediate notice to the Institutes of any such discovery and shall make over such finds to the Employer.

1.5 Access for Inspection:

The Contractor is to provide at 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 Engineers of their representatives.

1.6 Attendance upon all Trades:

The General Contractors shall be required to attend on all the Tradesmen or Sub-Contractors/Contractors appointed by the Employer for Water Supply and Sanitary, Electrical Installation, Air-conditioning, 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 Employer, use of his scaffolding and retain until such time the relevant sub-Contract works are completed.

1.7 Water supply:

Potable & Construction Water shall be arranged by the contractor at his expense and the Institute shall not be responsible for the supply of the same, The contractor while quoting has to include the cost towards the same in the rates quoted and no extra payment shall be made towards the same.

1.8 Electric Supply:

Electric connection shall be given by the client at one point; the contractor should make his provision for drawing the electricity from that point at his cost. A meter shall be installed at one point and the electricity used shall be measured and billed as per the prevalent electricity board rates plus Administrative charges of the Institute as mutually decided.

1.9 Caretaker and Watchmen:

The Contractor, from the time of being placed in possession of the site, must make arrangements for watching, lighting, and protecting the work, all materials, workmen, and the public by day and night on all days, including Sundays and Holidays at his own cost.

1.10 Storage for Materials:

The Contractor shall provide for all necessary sheds of adequate dimension for storage and protection of materials like cement, lime, timber, and such other materials, including tools and equipment, which are likely to deteriorate by the action of sun, wind, rain, or other natural causes due to exposure in the open. For cement, the contractor shall arrange for leak proof godown of sufficient size to store not less than 3 months requirement of cement.

All such sheds shall be cleared away and the whole area left in good order on completion of the contract to the satisfaction of the Institute's Engineer.

All materials that are stored on the site, such as bricks, aggregates, etc., shall be stacked in such a manner as to facilitate rapid and easy checking of quantities of such materials.

1.11 Cost of Transporting:

The Contractor shall allow in his cost for all transporting, unloading, stacking, and storing of supplied goods and materials for this work on the site and in the places approved from time to time by the Engineers. The Contractor shall allow in his price for the transport of all materials controlled or otherwise to the site.

2. SPECIFICATIONS:

a) INDIAN STANDARDS AND CODES OF PRACTICE

The book of specifications and the various sections therein are intended for a particular application to the tests/works under the contract. However, the given specifications may not cover all the tests. Such tests, which are not covered in the specifications, shall be in accordance with the latest and most current revisions of standards and codes of practice published by the **Bureau of Indian Standards, Manak Bhavan, 9 Bahadur Shah Jafar Marg, New Delhi**, and available through their local branches.

In case of conflict between the Indian standards and the specifications included in the contract documents, the more stringent shall prevail.

Related documents and their precedence

The items in specifications should be in conjunction with the relevant drawings, bill of quantities, general and special conditions of contract. In case of conflict between the specifications and other documents, the precedence shall be in the following order in priority: 1) special conditions of contract 2) bill of quantities 3) drawings 4) specifications 5) general conditions of contract

b) TESTING & INSPECTION

The engineer may issue instructions requiring the contractor to open up for inspection any work covered up or to arrange for or carry out tests for work and the cost of such opening up or testing shall be borne by the contractor & shall be in accordance with the provisions of this contract.

c) QUALITY CONTROL

- GENERAL

The contractor shall provide and maintain an effective contractor quality control (CQC) program and perform sufficient inspections and tests of all items of work, to ensure compliance with contract documents. Includes surveillances and tests specified in the technical sections of the specifications. Furnish appropriate facilities, instruments, and testing devices required for the performance of the quality control function. Controls must be adequate to cover construction operations and be keyed to the construction sequence.

- LATEST DOCUMENTS

The contractor's quality control system shall provide for procedures to ensure that the latest version of contract documents and instructions required for testing and inspection and have them available at the site at all times for use by the contractor's staff.

- SCAFFOLDS AND LADDERS

Scaffolds and ladders used during the course of work shall be in accordance with IS: 3696 Part 1 and Part 2.

The scaffolding shall be designed and erected by the contractor in accordance with the requirements of the work, by experienced workers. All scaffolding material shall be in good serviceable condition and assembled to be stable in the conditions of the work being performed.

- MECHANICAL EQUIPMENT

Do not use mechanical equipment without the prior approval of the institute's engineer.

Do not use gas cutting and electric welding or cutting without the prior approval of the institute's engineer. Take special precautions to prevent fire if permission is granted for gas and electrical cutting and welding.

d) THE MAIN CONTRACTOR

- RELATIONSHIP WITH THE CLIENT

A close relationship and continuous interaction must be maintained with the client and the Managers of the contractor. The client does have specific safety and health requirements to be observed and co-operation with his Project Managers or other representatives, throughout the contract is essential. The prospective contractors are given information on which to base their tenders and at the Tender Stage, the prospective contractors are expected to understand fully the Scope and Design Intent of these provisions.

- PLANNING

Detailed planning should take the following matters into account

- Knowledge of hazardous operations.
- Requirement for equipment to ensure safe working, or ease of handling.
- The sequence of work and its phasing between contractors, to minimize the possibility of one contractor placing another contractor's men at risk.

- The need to provide information, instruction and appropriate training, both on general site safety and on hazards specific in the site.
- The need for fire precautions and emergency procedures.
- Site security and foreseeable risks to the public, including the need for directional and warning signs.
- Safe access across the site for persons. Thought should be given to arrangement for keeping the site tidy, accommodation for site staff, welfare, first aid and other facilities.
- The provision of safe places of work at different stages of the job including the provision of scaffolding for a number of sub/works contractors.

- **CO-ORDINATION**

The site Manager must be totally responsible for compliance with health and safety code. The Construction Manager must take suitable arrangements to ensure the effective co-ordination of the work of with other contractors on site. He should ensure that he is kept informed on a day to day basis, of progress and problems, which arise. Clear lines of communication should be set up between each contractor and the Safety Officer of the Main Contractor. Operatives must also know whom to contact over safety and health matters requiring action or a decision. Such effective co-ordination will be enhanced by ensuring that 'safety and health' figures prominently on the agenda of regular project meetings. Weekly report on safety must be submitted to the Project Controller in every Project Meeting.

e) **NON-COMPLIANCE OF SAFETY AND HEALTH PROVISIONS**

The Compliances of the Safety and Health provision are of utmost important to the Client. The prospective contractors must do that the client will have a serious view of any non-compliance report of Safety Committee. Based on Safety Committee's report, the Client has right to order stoppage of work till rectification is carried out to the satisfaction of the Safety Committee and all stoppages on this account will be at the entire risk, costs and consequences of the Contractor.

f) **ACCIDENT PREVENTION ORGANISATION**

FIRST AID KIT

Regardless of the number of employees there must be at least one first aid box on site. Every first aider and occupational first aider should have easy access to first-aid equipment, and provision should be made for every employee to have reasonably rapid access to first aid. Each box should be placed in a clearly identified and readily accessible location and contain a sufficient quantity of suitable first aid materials and nothing else. Boxes and kits should be checked frequently to ensure they are fully stocked, and all items are in a usable condition. Sufficient quantities of each item should always be available in every first aid box or cabinet. The first aid box or cupboard should protect the contents from dampness and dust and be clearly marked with a white cross on green background.

g) **FIRE PREVENTION**

Electrical wiring equipment for heating or power purposes must be installed in compliance with the requirements. Internal combustion engine powered equipment must be located with exhausts well away from combustible materials. Smoking is to be prohibited in the vicinity of fire hazards, and such areas must be conspicuously posted. Care shall be taken properly to ground nozzles, hoses, or steam lines used in hazardous tanks or vessels.

h) **PERSONAL PROTECTION**

Workers are often reluctant to use protection equipment. Such items should not only be suitable for their purpose but also be as comfortable as possible and acceptable to the workers concerned. Only then can efforts to ensure that equipment is worn or used prove successful.

All necessary personal safety equipment's (like Helmet, Safety belts, gloves, masks, goggles, etc.) as considered adequate by the Engineer-in-charge shall be available for use of persons employed on the site and maintained in a condition suitable for immediate use, and the contractor shall take adequate steps to ensure proper use of equipment by those concerned.

- * Those engaged in handling any material, which is injurious to eyes, shall be provided with protective goggles.

- * Those engaged in welding works shall be provided with welder's protection eye-shields.

- * The contractor shall not employ men below the age of 18 and women on the work of painting with products containing lead in any form. Whenever men above the age of 18 are employed on the work of lead painting, the following precautions shall be taken:

- (i) No paint containing lead or lead products shall be used except in the form of paste or ready.
- (ii) Suitable face masks shall be supplied for use by workers when paint is applied in the form of spray or a surface having lead paint dry rubbed and scraped.
- (iii) The contractor to workmen shall supply overalls and adequate facilities shall be provided to enable working painters to wash during and in cessation of work.

i) HAND & POWER TOOLS

- Hand and power tools must be maintained in a safe condition, whether furnished by the contractor or by the employee. When power-operated tools are designed to accommodate guards, they must be equipped with appropriate guards when in use. Belts, gears, shafts, pulleys, sprockets, spindles, drums, flywheels, chains and other moving parts of equipment must be guarded if the parts are exposed to contact by employees.
- All hand-held power tools must be equipped with a constant pressure switch that shuts off when the pressure is released. Electric power-operated tools shall be of the approved double insulated type, or grounded in accordance with good electrical practice. Pneumatic power tools must be secured to the hose or whip by positive means. Safety clips or retainers must be maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled.
- Pneumatically driven nails, staplers, and similar equipment provided with automatic fastener feed that operate at more than 100 psi pressure at the tool must have safety devices on the muzzle to prevent the tool from ejecting fasteners, unless the muzzle is in direct contact with the work surface.
- Hoses shall not be used for hoisting or lowering tools, and hoses exceeding ½ inch inside diameter must have a safety shutoff at the source of supply to reduce pressure in case of a hose failure.
- All fuel-powered tools must be stopped while being refueled, serviced, or maintained.
- Only trained employees may be allowed to operate a powder actuated tool. Such tools must be tested each day before loading to see that the safety devices are in proper working condition, in accordance with manufacturer's recommended test procedure. Tools shall not be loaded until just prior to the intended firing time. Neither loaded nor empty tools are to be pointed at any employee, and hands shall be kept clear of the open barreled end. Fasteners shall not be driven into very hard or brittle materials such as cast iron, glass block, face brick, hardened steel, or hollow tile.
- For driving into materials that are easily penetrated, appropriate backing must be available to prevent the pin fastener from passing completely through.
- All employees using abrasive wheels must use eye protection, and other tools must be operated using appropriate personal safety equipment.

j) LADDERS

Use of Ladders and Folding Step-Ladders

- This regulation applies to all ladders and pairs of steps, but not roof ladders and crawling boards.
- Ladders Must:
 - i) be fixed near the top if practicable, or near the bottom if not suspended; they must be secure.
 - ii) be placed (except when suspended) on a firm level base; they must not stand on loose packing (e.g. bricks).
 - iii) be intermediately secured, where necessary, to prevent swaying and sagging, and
 - iv) be supported, or suspended, equally on each stile.
- If a ladder, standing on the ground, cannot be fixed to prevent slipping, then someone must hold it at the base when it is being used.
- A ladder which is not more than 3 m in length, need not be fixed or footed, provided it is securely placed so as to prevent it from slipping or falling. This exemption does not apply to ladders which are used as a means of communication between one working place and another, or to suspended ladders.
- Ladder must:
 - i) Extended at least 1.05 m above any landing place beyond the highest rung from which a person may be working or have a nearby handhold of equivalent height.
 - ii) To be placed so that there is space behind each rung for a proper foothold (e.g., no rung should coincide with a scaffold tube).

k) ANTI-MALARIAL PRECAUTIONS

The contractor shall at his own expense, conform to all anti-malarial instructions given to him by the Engineer in charge, including the filling up of any borrow pits which may have been dug by him.

l) SAFETY CODE

- i) First aid appliances, including an adequate supply of sterilized dressings and cotton wool, shall be kept in a readily accessible place.
- ii) An injured person shall be taken to a public hospital without loss of time in cases where the injury necessitates hospitalization.
- iii) Suitable and strong scaffolds should be provided for workmen for all works that cannot safely be done from the ground.
- iv) No portable single ladder shall be over 8 meters in length. The width between the side 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.

- v) 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.
- vi) Every opening in the floor of a building or in a working platform is 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.
- vii) No floor, roof or other part of the structure shall be so overloaded with debris or materials as to render it unsafe.
- viii) Workers employed on mixing and handling material such as asphalt, cement mortar and lime mortar shall be provided with protective footwear and rubber hand-gloves.
- ix) Those who engage in welding work shall be provided with welder's protective eye shields and gloves.
 - No paint containing lead or lead products shall be used except in the work of paste or readymade paint.
 - Suitable face masks should be supplied for use by the workers when the paint is applied in the form of spray or surface, having lead paint dry rubbed and scraped.
- x) 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 period of cessation of work.
- xi) Hoisting machines and tackle used in the works, including their attachments, anchorage, and supports, shall be in perfect condition.
- xii) 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.

3. SCOPE OF WORK:

The detailed scope of work and Specifications with estimated quantities are attached as a separate Bill of Quantities & the bidding agency hereby agrees to have understood the same & shall quote the rates in the attached Bill of Quantities in conjunction with the stipulations of this Tender Document.

Place :

Date :

Signature of the Bidder with seal

PARTICULAR SPECIFICATIONS

PART-I

SECTION I: DEMOLITION, DISMANTLING AND MODIFICATIONS DURING CONSTRUCTION OF BUILDING INTERIORS

GENERAL

SCOPE OF WORK

Work included:

This section covers the requirements of works involving demolition and/or dismantling parts of building interiors not involving the structure or any part of the building that contributes to the integrity and stability of the building

This section includes preliminary works in preparation for demolition such as obtaining permits; disconnection and/or controlled operation of building services; precautionary measures for the safety of the building, its occupants and workers.

This section includes demolition of non-load-bearing masonry and concrete walls; ally types of partitions and wall cladding; doors and windows; suspended ceiling; wall and floor finishes.

This section includes the dismantling of built-in cabinets, counters, furniture and fixtures.

This section includes disconnection, dismantling and controlled operation of electrical systems, water supply, drainage and sanitary systems, HVAC systems and all other building services by skilled operatives competent in their respective fields.

This section includes the salvaging, retrieval and safe storage of all material as required by the contract and the transport and disposal of all unwanted material and debris.

Work excluded:

This section does not include structural demolition or modifications.

RELATED WORK SPECIFIED ELSEWHERE

Temporary works

Electrical

Water supply & drainage

HVAC

SUBMITTALS

The contractor shall submit the following to the architect for review and approval well before the commencement of work.

- Required approvals from all concerned authorities
- Proposed demolition and dismantling plan and day-to-day progress schedule showing clearly the sequence of operations for disconnection of building services, controlled operation of services to retained and safety precautions. This shall be accompanied by description of procedures proposed to be followed.
- Equipment proposed to be used for demolition and dismantling.
- Proposals for temporary works to partition and protect adjacent or nearby areas in use, including dust control and clean-up procedures.

- Proposal for temporary storage of salvaged material and for debris to be transformed off-site.

CONTROL OF PROCEDURES AND SAFETY

The contractor shall devise and be responsible for all procedures to ensure the safety of the building, the workers and the other occupants during the demolition and dismantling work. The work shall at all times be under the direct supervision of experienced foremen under the overall supervision of the contractor's site engineer.

HANDLING, STORAGE, TRANSPORTATION, AND DISPOSAL

Handle and store materials retrieved from the demolition and dismantling in accordance with IS:7969. Whenever there is a conflict in the requirements of IS:7969 and the provisions herein, the more stringent of the specifications shall apply.

Store debris and salvaged material separately in designated places approved by the submittals procedure described above. All salvaged material shall be classified and stored separately by categories agreed upon prior to commencement of demolition.

Do not pile up material in a manner that will cause the structure to be overloaded. Stack material so that the stacks are stable and do not cause obstruction to movement.

Do not allow debris to accumulate beyond the capacity of the approved area for temporary storage. Do not dump debris in public rights-of-way, in private property without the owner's consent, in municipal garbage receptacles etc. The contractor shall dispose of debris only at dumping grounds approved by the local authority in a manner not objectionable to the authority.

Transport debris to the approved dumping grounds at times permissible by law and acceptable by local practice. Take precautions to avoid spillage of debris from the transport vehicle en-route.

MATERIALS AND PRODUCTS

SCAFFOLDS AND LADDERS

Scaffolds and ladders used in the demolition and dismantling shall be in accordance with IS:3696 Part 1 and Part 2.

The scaffolding shall be designed and erected by the contractor in accordance with the requirements of the work, by experienced workers. All scaffolding material shall be in good serviceable condition and assembled to be stable in the conditions of the work being performed.

MECHANICAL EQUIPMENT

Do not use mechanical equipment without the prior approval of the architect.

Do not use gas cutting and electric welding or cutting without the prior approval of the architect. Take special precautions to prevent fire if permission is granted for gas and electrical cutting and welding.

EXECUTION

GENERAL

Survey and mark out clearly the portions that are to be demolished or dismantled. Proceed with demolition and dismantling strictly in conformance with the plans, sequence, schedules and procedures proposed by the contractor and approved by the architect.

Proceed with work only in the presence and under control of skilled supervisors.

Do not proceed with work if latent conditions contrary to expectations or assumptions are encountered as work proceeds. Do not proceed with work if any part of the building assumed to be non-structural and non-load-bearing is discovered or suspected to be structural and contributing to the stability of the building. Report to the architect and obtain approval to proceed further.

Maintain in a journal with serially numbered pages, inventories of all salvaged items as the work proceeds.

WATER SUPPLY AND SANITATION PIPES, FIXTURES AND FITTINGS

Dismantling of water supply, drainage and sanitary installation shall be carried out under the supervision of a licensed plumber, employing competent skilled workers.

Coordinate dismantling work with related permanent work to be installed, if any.

Shut off water supply and drainage pipes by closing valves or by providing plugs to isolate the systems to be dismantled from those to be retained. Ensure that areas in use are not disturbed during the progress of work by providing temporary service connections. If possible complete and protect proposed permanent modifications before commencing dismantling and demolition work.

Fixtures and fittings shall be removed only by skilled technicians to salvage them with minimum damage. Dismantle in the following sequence:

- Fittings such as faucets, showers, taps, valves, meters, gauges etc.
- Fixtures such as wash basins, WC's, urinals, pumps etc.
- Pipes, tanks, and heavy equipment
- Brackets, supports, hangers and foundations

Complete dismantling of water supply, drainage and sanitary installation before commencing demolition of walls and partitions, flooring, ceiling etc. Closely coordinate the works if this is not practically possible.

ELECTRICAL

Dismantling of electrical installation shall be carried out under the supervision of a licensed electrical contractor, employing competent certified electricians.

Carefully survey the entire existing system and coordinate dismantling work with related temporary permanent works, if any. Modify the existing system, if required before commencing dismantling work to ensure that the functioning of systems outside the demolition areas are not affected.

Shut off and isolate electric supply to the demolition and dismantling area. Take precautions to ensure that the disconnected circuits may not be accidentally re-energized.

- Disconnect supply cables and isolate all distribution boards within the work areas. Disconnect and remove the distribution boards. Provide temporary service connections to the work areas from a temporary DB fed by an exclusive cable tapped from a board outside the work area with an isolation switch close to the temporary DB. Do not provide temporary services through any existing circuits in the areas to be demolished.
- If DB and circuits located within the demolition areas cannot be disconnected or diverted, they shall be clearly marked out and identified with cautionary signs to distinguish them from others that are to be dismantled.
- Have a skilled electrician on standby.
- Fixtures and fittings shall be removed only by skilled technicians to salvage them with minimum damage.

- Complete dismantling of electrical installation before commencing demolition of walls and partitions, flooring, ceiling etc.

OTHER SERVICES

Carefully survey each of the existing systems in its entirety and coordinate dismantling work with related temporary and permanent works, if any. Modify the existing system, if required, before commencing dismantling work to ensure that the functioning of systems outside the demolition areas are not affected.

Systematically shut off and isolate each system from the demolition and dismantling area. Take precautions to ensure that the portions to be retained are clearly marked out and identified with cautionary signs to distinguish them from others that are to dismantle.

Follow a sequence of dismantling by which valuable equipment, fittings and other material are recovered with minimum damage.

Complete dismantling of all services before commencing demolition of walls and partitions, flooring, ceiling etc.

SECTION II: CAST IN PLACE PORTLAND CEMENT CONCRETE

GENERAL

SCOPE OF WORK

Work included

This section cover the requirements for supply of materials, mixing, forming, placing, compacting, finishing, jointing, curing and all other works as required for cast-in-place concrete.

The scope of work includes testing of concrete as required by this specification.

Work not included

Concrete reinforcement

RELATED WORK SPECIFIED WORK ELSEWHERE

Concrete reinforcement

Metal decks

QUALITY CONTROL

The contractor shall be fully responsible for quality control inspection and testing. All concreting operations shall be at all times under the supervision of a qualified and experienced engineer.

The quality control supervisor shall be responsible for the following regular tests and inspection:

- Consistency measurements such as slump, air-content, temperature, cement content etc.
- Taking and testing of specimens from concrete pours and having them tested in accordance with the codes and standards.
- Inspection and approval of framework and reinforcement
- Inspection and approval of batching and mixing facilities

- Inspection and approval of concrete placement, consolidation, finishing and curing operations.
- Inspection and approval of form removal.
- Maintaining complete, up to date records, throughout the contract of all concreting operations, inspection, tests etc.
- The standard age of concrete for tests is 28 days, but seven day test may be used to predict probable 28-day strength, provided that the relation between 7-day and 28-day test strength is established and the 28-day tests are subsequently performed for confirmation. The acceptance criteria for concrete shall be as set out in NBC, Part VI, section 5, table 5.
- Any concrete, which is deemed by the architect not to comply with this specification shall be broken and replaced, including all reinforcement.

TRANSPORTATION, HANDLING AND STORAGE

Cement and dry admixtures shall be stored in dry, water proof, well ventilated housing or silos. Liquid admixtures shall be stored in clean, isolated containers.

Packaged cement

Packaged cement shall be delivered to the mixing site in original moisture proof, sealed packages, which shall be labeled with the weight, name of manufacturer, brand and type specified. Cement received in broken or damaged packages shall not be used.

Packages of cement, which vary in weight by +/- 3% shall not be accepted.

Bulk cement

Bulk cement shall be stored separately from packaged cement. Bulk cement shall be stored in dry, weather tight, well ventilated bins with provisions for prevention of moisture absorption or the intrusion of foreign matter.

Facilities for sampling of cement shall be provided at the weighing hopper, or at the feed line immediately before entering the hopper.

Different brands of cement, or the same brand of cement from different sources, shall not be used without prior notification by the contractor.

Aggregates

Aggregates shall be transported and stockpiled separately according to their sources and gradations. Aggregates shall be handled in a manner, which will prevent segregation and contamination with earth or foreign materials.

If the aggregates show segregation, or if the different grades become mixed, the aggregates shall be re-screened before placing in the proportioning bins. Contaminated aggregates shall not be used.

Aggregates shall not be transferred directly from trucks, railroad cars or barges to the proportioning bins when moisture content or/and water absorption is such that it will affect the accuracy of the proportioning of the concrete mixture. In such cases, the aggregates shall be stockpiled until the excess moisture drains off.

Muddy or oil-leaking equipment shall not be allowed to operate on the stockpiles.

Formwork

All formwork materials that may be affected by moisture or weather shall be stored in dry, weatherproof, well ventilated housing.

All formwork material shall be handled and stored to prevent damage.

FORMWORK

Forms are designed by the contractor to have sufficient strength to carry the hydrostatic head of the concrete as a liquid without deflecting beyond acceptable limits. Besides the weight of concrete and reinforcement, the formwork shall be designed for loads and lateral pressures due to construction operations.

Maximum deflection of facing materials which reflect in concrete surfaces exposed to view shall be not greater than 1/240 of the span between structural supports.

Where necessary to maintain the tolerances indicated, the framework shall be cambered to compensate for anticipated deflections due to the weight and pressure of the fresh concrete and also due to any other construction loads.

The surface of forms is to be designed to provide the correct finish, as specified in the subsection herein.

CURING:-

Exposed Surfaces of concrete shall be kept continuously in a damp or wet condition for at least seven days from the date of placing of concrete.

Approved curing compounds may be used in lieu of moist curing with the permission of the Architect/Engineer-in-charge. Such compounds shall be applied to all exposed surfaces of the concrete as soon as possible after the concrete has set.

COVER:-

To maintain the specified amount of concrete cover to the reinforcement small precast concrete blocks of grade similar to that of concrete to be placed shall be used as indicated hereunder unless otherwise specified in the drawings.

- a) At each end of reinforcing bar, not less than 25mm, nor less than twice the diameter of bar.
- b) For a longitudinal reinforcing bar in a beam, not less than 25mm, nor less than the diameter of the bar.
- c) For a longitudinal reinforcing bar in a column, not less than 40mm nor less than the diameter of the bar.
- d) For tensile, compressive, shear or other reinforcement in a slab, not less than 15mm, nor less than the diameter of the bar.
- e) For Vertical or horizontal reinforcement in concrete walls not less than 15mm nor less than the diameter of the bar.
- f) For reinforcement in footings, pile caps and raft foundations not less than 50mm.

ADMIXTURES:-

Plasticizers may be used in the concrete work to achieve better workability admixtures or cement containing additives (Such as accelerators, retarders, water proofing agents, etc.) shall not be used unless specified or otherwise directed or approved by the Architect/Engineer-in-charge.

COARSE Aggregate:-

The Coarse aggregate for the reinforced concrete work shall consist of crushed gravel, black trap, granite or other stone to the approval of the Architect/ Engineer-in-charge and shall be free from dust. If considered necessary by the Architect / Engineer-in-charge the aggregate shall be washed specially until an approved cleanliness is obtained. The use of laminated stone, flat or flaky material will not be permitted. The combined coarse aggregate shall in all respects be so graded as to allow 95% to 100% by weight to pass a 20mm BIS Sieve; 25% to 55% by weight to pass a 10mm BIS Sieve and 0% to 10% by weight to pass a 5mm BIS Sieve. The aggregates of different sizes shall be stored in separate stacks in clean state and free from all dirt.

The coarse aggregate where absorption of water after 24 hours immersion is more than 5% by weight shall not be used.

When required by the Architect/Engineer-in-charge tests indicated in BIS 383 shall be carried out by contractor at this cost to show the acceptability of the materials.

Stored piles of aggregate shall have good drainage, preclude inclusion of foreign matter and preserve the gradation.

FINE AGGREGATE:-

Sand shall conform to BIS: 383 and relevant portion of BIS: 515. It shall pass through a BIS: Sieve 4.75mm (3/16-B.S.) test sieve, leaving a residue not more than 5%. It shall be from natural source or crushed stone screenings, chemically inert, clean, sharp, hard, durable, well graded & free from dust, clay, shale, large pebbles, salt, organic matter, loam, mica or other deleterious matter. The sum of percentage of all deleterious materials in sand shall not exceed 5% by weight. It shall be washed, to reduce the percentage of deleterious substances to acceptable limits. Sand shall not contain any trace of salt and it shall be rejected.

The fine aggregate for concrete shall be graded within limits as specified in BIS: 383 and the Fineness modulus may range between 2.60 to 3.20.

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 or iron sheets or brick floor or a thin layer of lean concrete shall be prepared.

The sand for plaster shall be screened & washed.

TESTING:-

All G. I. pipes and fittings may be tested to a pressure of 10.5 Kg/cm² to ensure that pipes have proper threads and that proper materials (such as white zinc and spurnyarn) have been used in jointing. All leaky joints must be made leak- proof by tightening or redoing at contractors expense.

MATERIALS AND PRODUCTS

CEMENT

Cement shall be ordinary Portland conforming to IS: 269 and shall meet the following additional requirements:

Compressive strength

At 3 days ----- 160 Kg/Cm² minimum

At 7 days ----- 220 Kg/Cm² minimum

Time of setting (vicat):

Initial set ----- 30 minutes minimum

Final set ----- 5 hours maximum

COARSE AGGREGATES

Coarse aggregates shall comprise clean crushed or uncrushed gravel, crushed stone or a combination of the three free from adherent coatings deleterious materials, organic impurities and salts in accordance with IS:383.

The coarse aggregates shall be selected, screened to various particle sizes and rinsed as necessary to meet the acceptance criteria.

The normal size of coarse aggregates used for different purposes shall be as given below:

Reinforce concrete – 20mm maximum; 4.75 mm minimum

Floor screed up to 75mm thick over existing concrete slab – 8mm maximum, 1mm minimum

Un-reinforced mass concrete – 40mm maximum; 4.75mm minimum

The coarse aggregates shall comply with the requirements set forth below:

Slake durability index using distilled water as slake fluid – 99.0% minimum

Clay lumps and friable particles – 1.0% maximum

Water absorption – 2.5% maximum

Sodium chloride – 0.03% maximum

FINE AGGREGATES

Fine aggregates shall comprise clean natural sand with rounded or sub-rounded particles free of adherent coatings, deleterious materials, organic impurities, and salts in accordance with IS:383.

Fine aggregates shall be selected, screened, and rinsed as necessary to meet acceptance criteria.

The aggregates shall comply with the requirements set forth below

Clay lumps and friable particles – 1.0% maximum

Material finer than 75 micros – 2.0% maximum

Water absorption – 1.0% maximum

Sodium chloride – 0.05% maximum

WATER

Water for rising aggregates, for in Company in the concrete and for curing shall be clean potable water free from injurious amounts of oils, acids, salts, alkalis, organic matters and other potentially deleterious substances when examined in accordance with IS:3025 and when compared with the limits specified in this specification.

The maximum permissible concentrations of chemicals and organic and inorganic solids shall be in accordance with NBC, Part VI, Section 5, paragraph 4.1.3.2. The pH value of water shall generally be between 6 and 8.

FORM MATERIALS

The selection of materials suitable for formwork shall be made by the contractor unless specified otherwise based on maximum quality consistent with the specified finishes and safety.

The use of proprietary forming systems is recommended and should be used where possible.

MISCELLANEOUS MATERIALS

Water stops to be used in water tight concrete construction joints shall be polyvinylchloride (pvc) of the size and type shown on the drawing.

Other inserts and embedment shall be as shown on drawing.

Form release agents to prevent concrete adhering to formwork shall be non-staining, non-reactive, rust preventive and guaranteed to be compatible with subsequent surface applications to concrete.

CONCRETE GRADES AND MIXES

General

Controlled concrete or designed concrete mix is concrete of which the constituted proportions have been determined by preliminary tests to meet the acceptance criteria of the grade of concrete required.

Ordinary concrete or normal concrete mix is concrete of which the constituent proportions are based on nominal mixes without preliminary tests.

Only controlled concrete shall be permitted for use in reinforced concrete and concrete used in building structures. Ordinary concrete shall generally not be used except by written approval of the architect preceded by a written request for use of ordinary concrete by the contractor giving reasons why he wishes to do so. Concrete in this specification shall always mean controlled concrete.

Grades of concrete are denoted by a designation consisting of the letter 'M' followed by a numeral indicating the 28-day cube compressive strength in Kg/cm².

Each grade of concrete may consist of one or more 'mixes' determined by cement content, quantity and gradation of aggregates, water cement ratio, slump, type of admixtures etc.

Each mix within a grade shall be considered a specific type given an appropriate distinctive nomenclature and will require approval by the architect. The contractor shall use the approved mix for approved uses.

Strength requirements of concrete

The strength requirements of concrete for the various grades of concrete shall be as given below, determined on the basis of the compressive strength of 150mm cubes at 28 days after mixing in accordance with IS: 516

Grade of concrete	Preliminary test	Works test
	Comp. Strength in Kg/sqcm (min)	Comp. Strength in (Kg/sqcm (min
M100	135	100
M150	200	150
M200	260	200
M250	320	250
M300	380	300
M350	440	350
M400	500	400

For explanation refer NBC, Part VI, section 5, table 1.

Concrete mix proportions for ordinary concrete:

The concrete mix proportions for ordinary concrete shall be as given below:

Grade of	Total quantity of dry	Proportion of	Qty of water
Concrete	aggregate by volume per 50 Kg of cement being the sum of individual volumes of fine and coarse aggregates (max in ltrs)	Fine aggregates to coarse aggregates in ltrs)	per 50Kg of cement (maximum

M100	300	Generally 1:2 but	34
M150	220	subject to an upper	32
M200	160	limit of 1:1 ½ and	30
M250	100	lower limit of 1:3	27

For explanation refer NBC, Part VI, section 5, table 3 and 4.

SECTION III: BURNT CLAY BRICK MASONRY

SCOPE OF WORK

Work included

This section covers the requirements for the supply of materials and workmanship for the construction of load bearing and non-load bearing burnt clay brick masonry including all types of mortar, grouting and masonry accessories.

This section includes architecturally exposed burnt clay brick masonry in association with stone masonry.

RELATED WORK SPECIFIED ELSEWHERE

Stone masonry
Cast-in-place Portland cement concrete
Concrete reinforcement
Plastering

QUALITY CONTROL

The contractor shall be responsible for the quality of the burnt clay brick masonry. The masonry work shall at all times be under the direct supervision of an experienced foreman under the overall supervision of the contractors site engineers. The bricks shall comply with I.S.1077.

EXECUTION

GENERAL

The setting and layout of masonry shall be the contractors responsibility and shall be in strict conference with the drawings.

The contractor shall accurately locate openings, returns, offsets etc. in accordance with the drawings.

The contractor shall layout walls in advance for accurate spacing of surface bond patterns with uniform joint widths and to properly locate openings. Use of less than half size bricks at corners, jambs and other locations shall be avoided.

Cut bricks carefully to prevent disintegration and to obtain clean, sharp, un chipped edges. Cut-bricks may be used not more than twice in a straight-run course.

COORDINATION WITH OTHER WORK

The contractor shall coordinate and schedule the masonry work with other related work and trades to avoid cutting and breaking of masonry after erection and for proper sequencing.

ACCURACY AND TOLERANCES

Erect walls and columns true to line and plumb, with courses level with joints of uniform thickness and spacing. Corners, returns, jambs etc. shall be square or true to angles shown on drawings.

Acceptable tolerances are as given below:

Variation from means plan: Walls shall be constructed as true planes. When tested with a 3 meter straight edge, placed anywhere on the wall in any direction, the maximum deviation from a true plane shall be within 5mm.

Variation from plumb: Variation from plumb shall be within 5mm in 3meters height.

Variation from level: Variation from the level for any masonry course shall not exceed 6mm in any 6 meter bay.

Variation from positions: Variation from positions shall not exceed 6mm from the designated position shown on the drawing.

CONCRETE WORK

All concrete work associated with masonry shall proceed keeping pace with masonry.

Concrete lintels, sills, and stringer courses etc. shall be flush with the masonry surfaces, unless otherwise indicated.

CURING

Cure the masonry construction by continuously keeping moist for at least 7 days

SECTION – IV - JOINERY

1. **General:** The type of shutters for doors, windows, ventilators etc. viz. paneled glazed wire gauzed and flush shall be as indicated and detailed in the drawing.
2. **Flush Door shutters:** Door shutters shall be 35 mm thick flush door shutters/solid core type non decorative factory made confirming to IS- 2202 and ISI marked with block board core (confirming to the requirements as per IS-1659 1969) with internal hard wood clippings and both faces commercial ply veneered. Adhesive used shall be phenyl form aldehyde synthetic resin conforming to BWP types specified in IS-848-1974.
3. Contractor shall obtain the approval for the name of the manufacturer of the flush door shutters from the Site Engineer/Architect before placing the supply order. While asking for the approval, copy of the "Bureau of Indian Standard" letter under which manufacturer has been authorized to mark the product with ISI marking should be attached. Site Engineer and Architect before giving the approval shall ensure that the validity date of license has not expired.
4. **Testing of Flush Door Shutters:** On receipt of the shutters at site the Site Engineer or the Architect shall be entitled to get the samples of door shutters tested in any approved laboratory. From each lot of approximately 100 shutters, one shutter shall be selected at random by the Site Engineer/Architect. The cost of replacement of the door shutters selected as samples, their transportation to the laboratory and cost of testing by the laboratory shall be borne by the contractor.
5. **Glazed & Gauzed Door Shutters:** Shutters shall be 35mm thick. These shall consist of first class i.e. champ, haldu, hillock, jamun, mango wood styles, top, bottom and lock rails as per details shown on drawings. Timber to be used for these shutters shall be of good quality, seasoned of material growth and conforming to IS-4021-1963. Seasoning and ASCU treatment shall be done as per IS-402-1962. Styles and rails of shutters shall be in one piece only. Styles and rails shall be jointed to

each other by tenon or mortice at right angles. Mountings and glazing bars shall have joints and shall be shrub tanned to the maximum depth, which the size of member would permit.

6. **Wire gauge shutters:** Provisioning and fixing of wire 35mm thick gauge shutters to all external doors including main entrance door and all openable windows is in the scope of work of this contract. Wire cloth shall be securely housed in rebates by giving a right angled bend and fixing by means of suitable staples at intervals of 75mm. Over this wooden bead of specified size shall be fixed with nails, or screws, where indicated to cover the rebate fully. The space between the beading and the rebate shall be filled with putty to give it a neat finish. Exposed edges of the beads shall be rounded.
7. Door and windows shutters shall be provided as per details shown on the drawings.
8. The bottom of door shutters shall be 5mm above the finished floor level.
9. The glass panes shall be free from flaws, specks or bubbles and shall have square corners and straight edges. The glass panes shall be so cut that it fits slightly loose in the frames. The glass pane shall be fixed to the shutter with first class hardwood beading of size as indicated properly screwed to the shutter with steel nails and necessary adhesive as per details as shown on drawings.
10. Glazing to windows/doors shutters shall be as follows of quality as approved by Project Engineer & Architect.
 - (a) Fan light of Doors shutters : 4 mm thick plain sheet glass.
 - (b) Door Shutters fully glazed : 5.5mm thick plain sheet glass.
 - (c) Windows (openable & fixed) except for toilets: 4 mm thick plain sheet glass.
 - (d) Windows openable and fixed of toilets : 4 mm thick pin head glass.

NOTE: On all toilet door shutters, aluminum sheet 18 gauge bent to U shape shall be provided at the bottom of the flush shutters. This sheet shall be up to 30cm height on the inner face of the shutters and up to 20cm height on the outer face of the shutters. This shall be fixed with 12mm steel Nails.

SECTION – V – ALUMINUM DOORS, WINDOWS & VENTILATORS.

1. The Aluminium extruded sections shall conform to Designation 63400 given in IS 737-1986 and shall be of manufacturers such as JINDAL or Hindalco or INDAL or equivalent manufacturers to be approved by the Architect/ Site Engineer.
2. The Aluminium Doors, Windows, Ventilators and Glazing sections shall be anodized (anodic coating shall conform to IS 1868) as per colour approved by the Architect and Site Engineer.
3. The fabrication shall be carried out having mechanical joints, accurately machined and fitted to form hair-line joints, with the vertical and horizontal sections at the corners to meet in 45 degrees mitered. The jointing shall be either with accessories such as cleats and cleating screws or by crimping with Hydraulics Press on to heavy duty extruded Aluminium cleats. The relevant arrangement shall be got approved by the Architects. The Glazing shall be fabricated and anchored to withstand wind pressures as per the Indian Standards.
4. Before proceeding with any manufacture, Shop Drawings for each typical elevation shall be submitted for the approval of the Architect and no work shall be performed until the approval of the shop Drawings is obtained.

5. All Glazing shall be airtight and watertight, using appropriate extruded EPDM gaskets/as manufactured by Anand Lescuyer Pvt. Ltd., or equivalent; and sealant which shall be of high quality and performance requirements.
6. Each Glazing shall be tailor-made as per openings at Site. No cutting and making good of exposed grit wash plaster surfaces shall be permitted.
7. All the Aluminium sections shall be wrapped with self-adhesive non-staining thick layer of PVC tapes as Manufactured by M/s. Bhor Industries or equivalent as approved by the Architects, and shall be duly packed for avoiding scratches or blemishes to the powder coated surface of the sections till the installation is completed.
8. The frames shall be fixed to concrete/masonry /brick work with dash fasteners and the method of fixing shall be got approved by the Architects before installation. The drilling of holes for inserting the dash fasteners shall be carried out with drilling machines and the frame shall be fixed in plumb, line and level at jambs, sills and heads.
9. The perimeter gap between the outer frame and the masonry shall be sealed with poly sulphide sealant as per the make approved by the Architect.
10. **Glazing:** The glass panes shall be free from flaws, specks or bubbles and shall have square corners and straight edges. The glass panes shall be so cut that it fits slightly loose in the frames. The glass pane shall be fixed to the shutter with Aluminium beading and E. P.D.M gasket properly shaped as per the drawing. The glass panes shall be of make as specified.

SECTION VI - BUILDERS HARDWARE

1. Manger shall be provided to all doors/windows/ventilator/shutters with necessary matching screws of suitable size
2. Fittings and fixtures to all doors window and ventilators etc. shall be Aluminium anodised Matt finish ISI marked of make as specified. These shall be ISI marked where manufacturer contractor shall obtain the approval of the name of the manufacturer and brand of fittings from page of Director/Architect before placing the supply order. While asking for the approved copy of bureau of Indian Standard letter under which the manufacturer has been issued the license and authorised to make the items of builder hardware with ISI marking should be attached and one sample of each fillings of the particular brand duly ISI marked shall be given by contractor.
3. Butt hinges for doors shall be ISI marked cold rolled mild steel heavy quality of size as specified with mild steel pin and shall be oxidized finish. These shall be welded to pressed steel frames as specified.
4. Handles for window shutters shall be 75mm long & door shutters shall be 125 mm D-Type Aluminium anodised.
5. Link chain and sliding channel shall be sturdy of CP brass and shall be provided to main entrance door of all units as specified.
6. Magic eye for entrance door shall be wide-angle best quality. This shall be fixed at 1400mm height from finished floor level.

7. One sample piece of each fitting shall be produced for approval of Site Engineer /Architect. The bulk supply order shall be placed by the contractor only after approval is accorded by Site Engineer/Architect.

Schedule of Builder's Hardware: Schedule of Hardwares/ittings to door, window and ventilator shutters shall be as per drawing.

9. **Mortice Latch (Vertical Type):** Mortice latch (Vertical type) shall confirm to IS 5930-1970. Specification for mortice latch (Vertical type). These latches shall be capable of being operated inside and outside and shall be provided with a pair of Aluminium anodized lever handle fitted on the handle plate in order to close the door. The latches shall be of brass alloy. Faceplate shall be provided in front of the ease plate; size of latch shall be 65mm.
10. **Mortice Locks:** These shall conform to IS 2209-1976. Specification for Mortice locks (Vertical Type). These shall have body, body covers, cast plate, faceplate, skirting plate lever, follower of cast brass and locking bolt and latch bolt extruded brass. Lever spring and latch spring shall be of phosphor bronze. The locks shall be supplied with 2 Nos. stainless steel keys. Locks shall be 6 lever. The lock shall be easy working with lever and shall be capable of being opened with from both inside and outside and shall be provided with a pair of Aluminium anodized lever handles on the handle plate in order to close the door from both side.
11. **Hydraulic Door Closer (Floor Type):** The Contractor shall provide double acting Hydraulic Door Closer Model No. F-32, Cat No.1204 with SS Plate, Capacity to carry door weight upto 380Kg of EVERITE brand or Cat No. OFS 9621 of OPEL brand. These shall be of approved brand and manufacturer as above (Confirming to IS-6315) for Aluminium door including cost of cutting floor as required, embedding in floors and cover plate etc.

NOTE:

- i) It shall insure that all builder's hardware are from one manufacturers only for the entire work, However, if due to any reason contractor progress to provide part quantity from other manufacturer approved in Para 2 above, then he may be permitted but he will have to obtain specific approval of Project Engineer/Architect for this change in brand. This will be subject to that all items and fixtures in any particular blocks shall be always of one manufacturer only. In no circumstances items of two manufacturers shall be used in all of the particular blocks.
- ii) Project Engineer before giving the approval of the name of the manufacturer and brand shall ensure that the validity date of license for making the fittings, as ISI marked has not expired.
- iii) Those fittings which are not manufactured, as ISI marked shall also be of the one brand of which the ISI marked fittings are approved by Project Manager.

SECTION VII: CERAMIC WALL AND FLOOR TILING

SCOPE OF WORK

The tiles will be selected by the owner and the cost of tiles delivered at site will be adjusted against the allowance for this item provided in the contract documents.

The scope of work under this specification section covers the unloading of materials at site, storage and safekeeping, furnishing of all other materials, accessories, labour, tools, equipment and the installation of tiles.

RELATED WORK SPECIFIED ELSEWHERE

Stone masonry
Burnt clay brick masonry
Cast-in place Portland Cement concrete
Lath and plaster
Structural wood work

QUALITY CONTROL

The tiling shall be carried out under the direct supervision of an experienced tiller foreman who shall continuously check the work of the tiling teams to ensure stringent quality control.

COORDINATION WITH OTHER TRADES AND CONTRACTORS

The tiling work shall be coordinated with other trades and contractors. The contractor shall check and ensure that all work preceding tiling is complete before commencing the work

PROTECTION

Protect other finished work during tiling work to prevent damage and protect the finished tiling work from any damage after completion.

FLOOR AND WALL TILING AND PAVING

SCOPE OF WORK

This section covers the furnishing of all materials (other than those supplied at site by the owner) equipment and labour for floor and wall tiling and paving including but not limited to:

Marble to floors and walls
Polished granite to floor and walls
Granolithic flooring with surface hardener
Cast-in-place Portland cement concrete pavement –external.
Polished granite and marble steps & risers

The owner will provide at site the following material against allowances in the contract documents:
Marble for floors and walls cut to sizes as determined by the contractor according to site conditions.

RELATED WORK SPECIFIED ELSEWHERE

Cast-in place Portland cement concrete
Ceramic wall and floor tiles
Stone masonry

TILES

The tiles will be selected by the owner and the cost of tiles delivered at site will be adjusted against the allowance for this item provided in the contract documents

The contractor shall order take delivery and arrange for the transportation of the tiles to the site from the suppliers nominated by the owner. Costs for ordering, transportation etc. upto delivery at site will be adjusted against the allowance.

EXECUTION

LAYOUT OF TILES

Plan the layout of tiles on all continuous surfaces to ensure that:
The horizontal joints of tiles on walls are all in line.

The layout of tile pattern is in accordance with the design intent.
As far as practicable, jambs, sills and heads of windows, doors and other opening correspondent to tile joints.
Cut tiles will not be less than half tile.
At external corners the tiles may be joined with 45 degree mitered joints.
When required, floor and wall tile joints are aligned.
When floor tiles continue through adjacent rooms the joints are continuous.
At jambs, sills and heads of windows, doors and other openings the finished surface of tiles should match the construction details of the windows and doors and other openings.

PREPARATORY WORK FOR LAYING TILES OVER MASONRY OR CONCRETE

Ensure that all sub-surface installation is in place, tested and approved. Plan ahead, in coordination with all trades involved, so that the requirements of the checklist will be met.
Roughen concrete surfaces, wet the surface and apply a bond coat of rich cement-sand slurry.

Wet masonry surfaces.

Apply a leveling coat of cement or cement lime plaster as specified for plastering in a single coat to a minimum thickness of 15mm and score the surface as a bond for subsequent application. Allow the surface to set and proceed with the application of tiles.

QUALITY CONTROL

The contractor shall be responsible for the quality of materials supplied by him and all workmanship. The work shall be executed under the direct supervision of competent foreman and the quality control staff of the contractor. All defective work shall be replaced by the contractor.

COORDINATION WITH OTHER TRADES AND CONTRACTORS

The contractor shall schedule and coordinate the work under this specification with other trades and contractors to prevent avoidable cutting and patching after installation.

MATERIALS AND PRODUCTS

MARBLE

The marble slabs for use in flooring shall be un-polished 3/4" uniformly thick slabs selected by the owner / architect against the allowance in the contract documents. The sum allowed in the contract shall be inclusive of taxes for delivery within the municipal limits of Mumbai.

The marble slabs for use in wall cladding shall be tin-oxide polished 3/4" uniformly thick slabs selected by the owner / architect against the allowance in the contract documents. The sum allowed in the contract shall be inclusive of taxes for delivery within the municipal limits of Mumbai.

The contractor shall place orders and take delivery from the owners nominated supplier and arrange for the transportation and delivery to site. All costs for ordering, taking delivery and transportation from within the municipal limits of Mumbai to the site shall be adjusted against the contractors rate outside the allowance in the contract.

The contractor shall cut the basic slabs to the sizes and shapes required.

POLISHED GRANITE TILES AND SLABS

The granite tiles and slabs for use in flooring shall be polished $\frac{1}{2}$ " or $\frac{3}{4}$ " uniformly thick slabs selected by the owner / architect against the allowance in the contract documents. The sum allowed in the contract shall be inclusive of taxes for delivery within the municipal limits of Mumbai.

The granite slabs for use in wall cladding shall be polished $\frac{3}{4}$ " uniformly thick slabs selected by the owner / architect against the allowance in the contract documents. The sum allowed in the contract shall be inclusive of taxes for delivery within the municipal limits of Mumbai.

The contractor shall place orders and take delivery from the owners nominated suppliers and arrange for the transportation and delivery to site. All costs for ordering, taking delivery and transportation from within the municipal limits of Mumbai to the site shall be adjusted, against the contractors rate outside the allowance in the contract.

The contractor shall cut the basic tiles and slabs to the sizes and shapes required.

GRANOLITHIC FLOORING

Cement shall be ordinary Portland cement.

Coarse and fine aggregate shall be clean washed quartz of grading between 6mm and 100 microns.

Water shall be clean potable water free of salts, organic, mineral or other deleterious material.

Surface hardener and sealer shall be of an approved manufacturer specializing in the manufacture of concrete additives and treatment materials,

CAST-IN-PLACE PORTLAND AND CEMENT CONCRETE PAVEMENT

Concrete shall be as specified in the specifications in the specification section titled 'CAST-IN-PLACE PORTLAND CEMENT CONCRETE'.

Steel reinforcement shall be as specified in the specification section titled 'CONCRETE REINFORCEMENT'.

SETTING BED FOR FIXING TILES AND SLABS

Setting bed for fixing tiles and slabs shall be cement / sand mortar as specified in specification section titled 'STONE MASONRY'

JOINT GROUT

Joint grout shall be finely ground marble dust mixed with White Portland Cement and colour pigment to match colour of tile or as directed by the architect.

CUSHIONING

Cushioning below setting bed shall be clean river sand.

EXECUTION

CONSTRUCTION AND EXPANSION JOINTS

Floors shall be laid with construction joints cut through the setting bed to the base at regular intervals in every third joint in both directions.

Expansion joints shall be provided at intervals varying between 5 meters to 6 meters directions as indicated on drawings or instructed by the architect on site.

Granolithic and cast-in-place concrete paving shall be installed in preplanned alternatively bays of approx 4 meters x 4 meters as indicated on drawing or instructed by the architect at site.
Expansion joints shall be filled with a flexible joint grout and finished neatly.

INSTALLATION OF MARBLE FLOORS

Install as per details given on drawings.

Spread sand cushion to obtain the required slopes and lightly moisten by sprinkler water.

Install the setting bed of cement / sand mortar to an even thickness and dab on a thin coating of neat cement paste.

Place the pre-soaked tile and firmly tamp into position with a wooden mallet, level the surface with respect to the adjacent tiles and the required finish level. Adjust joint thickness by means of spacers. Cut through setting bed, to bed at construction joints as previously explained.

Clean off excess cement paste from joints as required for grouting.

Trim tiles to suit junctions with walls and other trimming lines.

After the setting bed has reached final set, clean the surface with a damp cloth without excess water. Rake and clean joints in preparation for grouting.

Grout the joints with a thick slurry of a grouting and ensure that the joints (except expansion joints) are filled completely with grout.

Cure the installation with clean water by ponding for a period of 7 days.

After the grout has been cured and hardened; commence grinding of the surface, to level out all unevenness of joints. Use a mechanically operated rotary grinder polishing machine using abrasive stones of appropriate grade.

After the surface has been ground level, clean the surface by flushing with water two or three times to clean the surface of all grinding slurry. When excess water has dried off and the surface is in a moist conditions, reapply grout, rub into the entire surface and build up an even thickness throughout. Cure for minimum period of four days by ponding.

After the grout has hardened, polish the surface with a mechanically operated rotary grinder / polisher using finer abrasive stones until the surface is smooth and even, to receive sealer and polish. During the final grinding operation, sprinkle the surface lightly with powdered oxalic acid crystals to remove minor score and scratch marks. Clean off all traces of acid by through flushing with water.

Protect the floor from on-going construction activities until final sealing and polishing.

Prior to substantial completion and handing over, apply an approved sealer and then polish and buff the surface to a fine sheen using a silicon wax polish.

Tolerance : The finished surface when tested with a 3 meter long straight edge placed anywhere in any direction shall not show a gap of more than 3mm. Provided that no abrupt differences are discernible.

INSTALLATION OF POLISHED GRANITE FLOORS

The flooring shall be from pre-polished granite tiles or slabs cut to size and shape required with their edges ground smooth.

Spread sand cushion to obtain the required slopes and lightly moisten by sprinkling water.

Install the setting bed of cement / sand mortar to an even thickness and dab on a thin coating of neat cement paste.

Place the pre-soaked tile and firmly tamp into position with a wooden mallet, level the surface with respect to the adjacent tiles and the required finish level. Adjust joint thickness by means of spacers. Cut through setting bed, to bed at construction joints as previously explained.

Clean off excess cement paste from joints as required for grouting.

Trim tiles to suit junctions with walls and other trimming lines.

After the setting bed has reached final set, clean the surface with a damp cloth without excess water. Rake and clean joints in preparation for grouting.

Grout the joints with a thick slurry of the grouting mix and ensure that the joints (except expansion joints) are filled completely with grout. After the grout has dried, thoroughly clean the surface to remove all traces of grout from the surfaces.

Protect the floor from on-going construction activities until final sealing and polishing.

Prior to substantial completion and handover, apply an approved sealer and then polish and buff the surface to a fine sheen using a silicon wax polish.

Tolerance : The finished surface when tested with a 3 meter long straight edge placed anywhere in any direction shall not show a gap of more than 3mm, provided that no abrupt differences are discernible.

INSTALLATION OF POLISHED MARBLE AND KOTAH STONE WALL CLADDING

The cladding shall be form pre-polished marble or granite slabs cut to the size and shape required with their edges ground smooth.

Cladding shall be installed using dabs of neat cement paste behind the cladding.

Align surfaces and joints accurately using temporary plaster of paris dabs to keep tiles or slabs in place till the setting dabs are fully set and hardened. Grout the voids behind the tile with cement / sand slurry. When the slurry has set, remove the excess slurry and plaster of paris dabs and clean the surface and lightly rake the joints in preparation for grouting.

Grout the joints and point to a neat finish and thoroughly clean the surface to remove all traces of grout from the tile surfaces.

Apply surface sealer and polish prior to handover.

INSTALLATION OF GRANOLITHIC FLOORING

The installation of granolithic flooring shall generally be in according with the specification section titled 'CAST-IN-PLACE PORTLAND CEMENT'

The finish shall be unformed finish type U3.

The surface hardener and sealer shall be applied in accordance with the manufacturers specifications.

PROTECTION AND CLEANING

All work covered by this specification shall be protected after installation and handed over in good condition after thorough cleaning

SECTION – VIII - WALL FINISHES

1. General

- a) **Scope:** This section shall cover internal and external plastering/rendering works as shown in the drawings.
- b) **Mortar:** The mortar of specified mix shall be used.
- c) **Scaffolding:** Stage scaffolding shall be provided for plastering work as per standard practice and as directed by Architect/Site Engineer. This shall be independent of the walls.
- d) **Preparation of Surfaces:** Joints of brickwork wall s hall be raked-out properly. Dust and loose mortar shall be brushed out. Efflorescence if any shall be removed by brushing and scraping, shuttering imperfections of all concrete shall be roughened by hacking with chisel and all resulting dust and loose particles cleansed and the surface shall be thoroughly hacked or bush hammered to the satisfaction of Architect/Project Engineer. The surface shall be thoroughly washed with water, cleaned and kept wet before plastering is commenced.
- e) **Approval of Architect/ Project Engineer to be taken:** No plastering work shall be started before all conduits, pipes fittings and fixtures clamps, hooks etc. are embedded, grouted and cured and all

defects removed to the satisfaction of Architect/Project Engineer. Special approval shall be taken from Architect/Project Engineer before starting each plastering work. No cutting of finished plaster shall be allowed. No portion shall be left out initially to be patched up later on.

- f) **Mixing:** The ingredients shall be mixed in specified proportions by volume. The mixing shall be done in a mechanical mixer on water-tight platform. The cement and sand shall first be mixed thoroughly dry in the mixer. Water shall then be added gradually and wet mixing continued for at least a minute until mortar attains the consistency of a stiff paste and uniform colour. Mortar shall be used within 30 minutes of addition of water. Mortar which has partially set shall not be used and removed from the site immediately.

2. **Internal Surfaces**

- i) Plastering shall be started after the completion of ceiling plaster from top and gradually worked down towards floor. It shall not, at any place be thinner than as specified. To ensure even thickness and a true surface plaster of about 15cm x 15 cm shall be first applied horizontally and vertically at not more than 2m interval over the entire surface to serve as gauges. The mortar shall then be applied to the wall/surface between the gauges and finished even. All corner junctions and rounding shall be truly vertical or horizontal and finished carefully. Inspecting the work at the end of the day plaster shall be cut clean to line, where recommencing the plastering, edge of old work shall be crapped, cleaned and wetted with cement putty before restarting plastering
- ii) Cement plastering internally on all internal surfaces including soffits of RCC slabs, chajjas, lintels, around shelves, inner side of parapets and around of parabolas etc. shall be as shown on drawing. Wherever not shown it shall be as under:
 - (a) 12mm thick plaster in cement mortar 1:6 (1 cement: 6 parts 75%: fine sand & 25% coarse sand) mixed with 10% of lime water over brick and concrete surfaces. Dubbing out wherever required (i.e. bringing up the undulation on the rough face of brick work in level with proudest points) shall also be executed in the same mix along with rendering coat.
 - (b) 6 thick plaster in cement mortar 1:3 (1 cement: 3 fine sand) on soffits of RCC slabs, chajjas, lintels and kitchen platforms and all round of shelves and para golas.
 - (c) 10mm x 6mm grooves shall be provided in ceiling plaster at junction of wall and ceiling.
 - (d) 12mm thick plaster in cement mortar 1:4 (1 cement: 4 parts 75% fine sand & 25% coarse sand) mixed with water proofing compound CICO-1 (liquid) as per manufacturer's instruction to be done on the inside face of the book shelves and cupboards.
 - (e) 15mm thick plaster in cement mortar 1:4 (1 Cement: 4coarse sand) mixed with water proofing compound CICO-1(liquid) as per manufacturer's instruction to be done on the internal surfaces of parapet walls including dubbing wherever required.
 - (f) Before plastering it should be ensured that brick masonry joints are raked out (at least on even surfaces) to a depth of 12mm and all concrete surfaces are rough enough for proper adhesion of plaster. If not, they shall be made rough by hacking or bush hammering at intervals of 2". Efflorescence if any and dust/dirt shall be removed. The surfaces shall be wetted adequately before plastering.
 - (g) G.I. Chicken wire mesh of 24 gauge and 20mm mesh shall be fixed all along RCC Surface adjoining brick work given 150mm lapping on either side of the junction in double fold or as called for using nails etc and cement slurry before plastering. Ensuring equal thickness of plaster on both sides of the mesh.

- (h) Sand used in plaster shall be within the grading zones as stipulated in the IS silt contents shall not exceed 4% by weight. Brick surface shall be raked out at the end of day brick work to afford key to plaster. Plaster surface shall be hard and even without patchy appearance. If they flake or show scratch marks if rubbed by appointed nail the plaster shall be rejected, dislodged and redone.

SECTION – IX - WHITE WASH, DISTEMPER AND PAINTING

GENERAL

SCOPE OF WORK

Work Included: This section covers the surface preparation, field priming and field painting or finish coating of all wood, plaster, concrete and metal surface (both interior and exterior) as called for in the finish schedule. In addition, all surfaces, schedule or not, such as piping, tanks, equipment and machinery shall be painted when called for in the finish schedule or in their respective section of these specifications. Contractor shall finish all labour materials, tools and equipment required to complete the work.

Surface not to be painted: The following surfaces shall not be painted stainless steel, aluminum, brose, copper, lead, brass, factory pre-finished surfaces and installed surfaces. In addition surface of steel member which ate to have concrete cast against them or are to be fully embedded in concrete shall be pointed.

Shop primed Equipment: Final field painting or touch-up of manufacturer's shop primed or shop painted equipment shall not be done until operational testing has been complete and certified.

RELATED WORK SPECIFIED ELSEWHERE

Quality Control
Structural Steel
Lath and Plaster
Architectural woodwork
Cast-in-place Portland Cement concrete.

MOCK-UPS

In addition to the requirement for submitting colour samples, the contractor shall, prior to proceeding with paint application, provide mock-up or field samples, for each substrate to be painted. The mock-ups or field samples shall be painted to demonstrate method of application, finish texture, colour and quality of workmanship. The size and location of the mock-up or field samples shall be determined by the architect.

PRODUCTS

ACCEPTABLE MANUFACTURES

All coating material (paints) shall be furnished be a manufacture, regularly engaged in the manufacture of coatings shall be the manufacturer's best-grade for the intended substrate.

MATERIALS

Coating materials are listed herein by generic type (vehicle) for various substrates. All materials proposed will be subject to review and acceptance by the architect.

Coating accessory materials such as linseed oil, shellac, turpentine and other materials not specifically indicated herein but required to achieve the finished specified shall be of high quality and as far as possible from the manufacturer of the coating material.

Coating shall be ready-mixed, except for field-catalyzed coatings. Pigments shall be fully ground maintaining a soft past consistency, capable of being readily and uniformly dispersed to a complete homogeneous mixture for brush, roller or airless spray application, as recommended by the manufacturer. Coating shall have good flowing properties and be capable of drying or cutting free of streaks, runs or sags. Colours, texture and degree of gloss shall be as shown on the finish schedule. Tint, prime and intermediate coats shall be approximately to the shade of the final coat but with sufficient variation to distinguish them from the preceding coat. Use products of the same manufacturer for succeeding coats. Where red lead primer is used, subsequent coats may be the produce of another manufacturer. If ferrous metals are shop primed, the contractor shall make every effort to determine the type of primer used. If this is not possible or the primer is not compatible with the proposed finish coat as recommended by the coating manufacturer may be required prior to application of finish coat

PAINTS SELECTION GUIDE

Exterior Surface

Ferrous Metals (unprimed)

First Coat	Organic Zinc rich primer
Top Coat	Chlorinated Rubber
Ferrous Metals (Unprimed)	
First coat	Chlorinated rubber Modified Alkyd.
Second Coat	Acrylic Epoxy Enamel
Top Coats	Acrylic Epoxy Enamel

Concrete

First Coat	Acrylic primer/ Sealer.
Second Coat	Acrylic or Vinyl Emulsion
Third Coat	Acrylic or Vinyl Emulsion
Top Coats	Acrylic or Vinyl Emulsion

Cement Plaster

First Coat	Acrylic Latex.
Second Coat	Acrylic Latex.
Top Coats	Acrylic Latex.

Wood Designated Painting.

First Coat	Alkyd Primer
Second	Alkyd Enamel.
Top Coats	Alkyd Enamel.

Galvanized Steel:

First Coat (Where not passivating coat as recommended by coating shop Bonderized) manufacture followed by a Zinc chromate Primer

First Coat	(Where Galvanized Iron primer Bonderised)
Second Coat	Alkyd Enamel.
Top Coats	Alkyd Enamel.

Interior Surfaces.

Ferrous metals (Unprimed)

First Coat	Red Oxide Primer
Second Coat	Alkyd Enamel
Top Coats	Alkyd Enamel.

Concrete:

First Coat	Acrylic primer/Sealer
Second Coat	Acrylic or Vinyl Emulsion.

- (a) CPVC/UPVC/GI pipe with fittings and valves for cold and hot water supply.
- (b) Sanitary fixtures, CP fittings and accessories.
- (c) Soil, waste, vent, rain water pipes and fittings
- (d) Overhead water tank at Terrace with supports.
- (e) Internal Drainage including gully traps.

4. Water supply.

- (a) All GI/CPVC/UPVC pipes and fittings from overhead tank to all taps, wall mixers, wash basins, cisterns, sinks, geyser points, washing machine and showers as shown on drawings.
- (b) Provision of hot and cold water supply lines in all toilets and kitchen.

5. MATERIALS

- 6. All GI pipes shall be galvanised steel tubes medium grade conforming to IS-1239 and ISI marked of makes Jindal Hissar/Prakash. All CPVC/UPVC pipes shall conform to the relevant IS standards.
- 7. All GI fittings shall be conforming to IS-1879 and ISI marked.
- 8. Valve shall be heavy Gun metal full way confirming to IS-778-1971 class I and ISI marked.

LAYING, FIXING AND FITTINGS OF GI PIPES

- 9. All GI pipes below ground shall be laid in trenches and shall have minimum cover of 600mm.
- 10. The runs of the pipes shall be straight and pipes shall not run diagonally. Proper bends, elbows, tees at turnings/corners shall be used.
- 11. All pipes with necessary fittings wherever they are laid on internal faces of the walls shall be concealed in chase. On external faces they will be laid on walls fixed with clamps or on M.S. angle iron brackets as shown in drawings.
- 12. In the concealed portion of plumbing no joints shall be provided in the pipe lines except in the fittings i.e., bends, elbows, tees and nipples where required.
- 13. All pipes for water supply (Hot or cold) within toilets and kitchen shall be laid on walls only. No pipe shall be laid in sunken portion of toilets/kitchen.
- 14. For each unit the size of down comers, branch pipes from the ring (at terrace) from overhead tank and branch pipes from down comers shall be of sizes as shown on drawing.
- 15. Pipes and fittings shall be jointed with screwed fittings, care shall be taken to remove burrs from the end of the pipe after cutting by a round file. Genuine white/red lead and a few strands of cotton thread shall be applied. All pipes shall be fixed in accordance with layout shown on the drawings. Care shall be taken to avoid air pockets. Pipes inside toilets shall be fixed in wall chases at least 30cm above the floor.
- 16. Pipes in shafts and other locations shall be supported by clamps of design as indicated in the typical detail. Pipes in wall chases shall be anchored by iron hooks.

17. **Unions:** Contractor shall provide adequate number of unions on all pipes to enable dismantling later. Unions shall be provided near each gun metal valve, stop cock, or check valve and on straight runs as necessary at appropriate locations.
18. **Puddle Flanges:** Puddle flanges shall be provided to all connections i.e. inlet overflow, and scour of the overhead tank, wherever required.
19. **Pipe Protection:** All pipes in chase or under floors or below ground shall be protected against corrosion by applying two coats of bitumen paint, covered with polythene tape and finished with a final coat of bitumen paint.
20. **Painting:** All exposed pipes shall be painted with two coats of oil paint over one coat of primer. Pipes shall be painted to the standard colour code as approved by the Project Engineer/Architect.
21. **Overhead Tanks**
 - a. The tanks shall be of moulded HDPE and shall be one of the following make.
 - i) Unitank, ii) Polycon iii) Sintex
 - b. These tanks shall be located on the roof terrace as shown on the drawing. Placed on supports as per the details shown on drawings.
 - c. Each overhead water tank shall be complete with the following.
 - (i) Lid and cover with a locking arrangement.
 - (ii) Inlet, outlet, overflow (25mm), scour pipe (20mm) and Air vent pipe with all fittings.
 - (iii) Mosquito proof coupling shall be provided to overflow and air vent pipes.
 - (iv) The inlet pipe to the overhead tank shall be provided with ISI marked 25mm brass body ball valve with polythene ball.
 - (v) The inlet pipe to the overhead tank shall be provided with 25mm ISI marked full way gunmetal brass valve and each outlet pipe shall be provided with ISI marked full way gunmetal valve of size of outlet pipe.
 - (vi) The overflow pipes shall be brought down up to the finished terrace level and laid up to nearest khurra on terrace.
 - d. The water tank will rest over 100 mm thick RCC 1:2:4 (1 cement:2 coarse sand:4 graded stone aggregate 20mm nominal size) platform with nominal reinforcement of 8mm dia 6”c/c both ways, supported over ISMBs resting on brick wall supports over terrace and finished with cement plaster 1:6 all around as shown in drawings.
22. **Vent pipes:** Each down take pipe shall be provided with a vent pipe. The height of the vent pipe shall be 150mm above the top of the water tank.

23. **Testing of pipes :**

- a) All pipe lines shall be tested hydraulically to pressure of 7 kg/Sq.cm for a minimum period of 24 hours for check for leakage.
- b) The pipe line in chase or under floors/ground shall be covered up only after the testing is carried out satisfactorily and passed by Architect/Site Engineer.
- c) The instrument, equipment and water for testing shall be arranged by the contractor without extra charges. (i.e. Hydraulic testing machine with pressure gauge)
- d) A test register shall be maintained by the Site Engineer and all entries shall be signed and dated by contractor, Architect and Site Engineer.

24. **Insulation:** 24 Hot water lines in chases shall be provided with 20 mm thick insulation by wrapping 6 mm dia asbestos rope and finishing with a coat of 85% magnesia.

25. **Approval of layout of pipes and position of fixtures at site:** The contractor shall mark the location of all fixtures and fittings and layout of GI pipes on the terrace walls/ ground at site and take approval of Site Engineer/Architect before commencement of cutting chases for GI pipes within the building and digging trenches outside the building.

25. Sanitary Fixture and CP Fittings and Accessories

All sanitary ware shall be first quality white-vitreous china and shall be inclusive of all fixing devices nuts, bolts and hangers/Brackets.

These shall be from one of the following manufactures:

- (a) Hindustan Sanitary Ware
- (b) Parry Ware
- (c) CERA (Madhu Sudan Ceramics)
- (d) NEYCER Ceramic

26. It will be ensured that all sanitary fixtures are from one manufacturer only for the entire work i.e. for all the units. However, if due to any reason contractor proposes to provide part quantity from other manufacturer as approved above, then he may be permitted, but he will have to obtain specific approval of Site Engineer/Architect for this change in brand. This will be subject to that all items and fixtures in any particular block/other buildings shall be always of one manufacturer only. In no circumstances items of two manufacturers shall be used in all of the toilets of particular block/other buildings.

27. **Kitchen sink and draining Board:** Kitchen sink and draining boards shall be of stainless steel (Salem stainless steel ISI-304) 1.0mm thick. The sink and draining board shall be in one piece of following sizes with rectangular compartment/bowl. Each sink shall be provided with one CP brass waste and PVC waste pipe.

Overall size (LxW)	=	1060x510mm
Bowl size (LxWxD)	=	500x400x200mm

28. The Stainless steel sink and draining board shall be of one of the following makes:-

(a) NIRALI.

29. Kitchen Sink shall be supported on RCC/ Kadappah platform having suitable cut for the bowl of the sink as per the details shown on the drawings.

30. All bib cocks, stop cocks, angle-valves, pillar taps, mixtures, showers rose & arm, bottle traps, CP waster and inlet connections and other minor fittings shall be brass chromium plated. These shall be ISI marked where manufactured. Contractor shall obtain the approval of the name of the manufacturer and brand of CP brass fittings from Site Engineer/Architect before placing the supply order. While asking for the approval, copy of the Bureau of Indian Standard letter under which the manufacturer has been issued the license and authorised to mark the five items of CP brass fittings as listed in hereinafter below with ISI marking should be attached and one sample of each fittings of the particular brand duly ISI marked shall be given by contractor. The fittings shall be of CONTINENTAL range from Jaquar Make.

31. Project Engineer before giving the approval of the name of the manufacturer and brand shall ensure that the validity date of license for marking the fittings as ISI marked has not expired.

32. Those CP brass fittings which are not manufactured as ISI marked shall also be of the same brand of which the ISI marked CP brass fittings are approved by Site Engineer as per para above.

33. It will be ensured that all CP fittings are from one manufacturer only for the entire work i.e. for all units in D' unit blocks/other buildings. However, if due to any reason contractor proposes to provide part of quantity from other manufacturer approved in para hereinafter then he may be permitted, but he will have to obtain specific approval of Site Engineer/Architect for this change in the brand. This will be subject to that all items and fittings in any particular block/other buildings shall be always of one manufacturer only. In no circumstances items of two manufacturers shall be used in any of the toilets of particular block/other buildings.

34. All chromium plated brass fittings and accessories shall be provided with CP cast brass wall flanges.

35. For fixing of CP brass fittings wherever required CP brass extension pieces shall be provided.

36. Fixing screws shall be half round head chromium plated brass screws with CP washers.

37. All exposed pipes, if any, within the toilets and near the fixtures shall be chromium plated brass except otherwise specified.

Schedule of Sanitary and CP Brass fittings in all buildings shall be as under:

(a) Kitchen

- (i) Stainless steel Sink with drain board
- (ii) CP Brass waste

- (iii) Sink Mixer
 - (iv) GI Waste pipe 40mm dia from CP Waste to floor drain grating
- (b) Toilets: - All vitreous china sanitary wares shall be “white”. The fittings and fixtures in toilets of each unit shall be as under:-

(A) Wash Hand Basin

- (i) Vitreous china first quality wash basin 550 x 400mm wall mounting type on MS Angle brackets.
- (ii) Same as above, but Oval Shape under counter WB.
- (i) CP Brass waste 32mm dia. with overflow
- (ii) CP Brass bottle trap with CP brass pipe to wall with CP cast brass wall flange
- (iii) Brass pillar taps 15mm
- (iv) CP Brass Basin Mixer
- (v) CP Brass angle valves with CP copper
- (vii) Connecting pipes with nuts and washers.
- (viii) CPVC waste pipe 32 mm dia

Note: Outlet of CP brass bottle trap shall be connected to nearest floor trap by GI waste pipe (concealed) as per details shown on drawings

(B) Water Closets and Cisterns

- (1.) European type white vitreous china ware and cistern with S-trap without vent horn
- (2.) White 10.00 Liter capacity low level HIP flushing cistern water bird "COMMANDER MODEL" ISI marked complete with Delrin valve and float, fittings and specials of standard make & 40mm white flush bend, over flow with mosquito proof coupling, all washers and rubber bed etc. complete including fixing accessories
- (3.) CP brass angle valve with CP copper connecting pipe with nut and washer
- (4.) Bakelite solid type seat and cover ISI marked Type 1A (IS-2548-1983) with CP brass hinges Commander brand (black colour)

(C) Urinals

- (i) Range of one and three urinals
- (ii) Chinaware cistern
- (iii) Bottle trap
- (iv) CP brass angle valve with CP copper connecting pipe with nut and washer.

(D) Shower and Taps

- i. CP brass wall mixer with bend for overhead shower with central control knob for three positions, for supply to spout, second to stop and third for supply to shower.
- ii. 125mm dia CP brass shower rose 15mm with ball joint and 230mm long CP brass extension pipe.

(E) **Towel Rail:** CP brass towel rail 20mm dia 16 guage 600mm long including brackets.

- (F) **Towel Ring:** CP brass towel ring 200 mm dia with CP brass brackets fixed to wall with Flanges & CP brass screws.
- (G) Mirror of size as specified in the items and 5mm thickness over every wash hand basin. The mirrors shall be of make Modifloat or Atul Brand made from Tata Ashi float glass. The mirror shall have marine ply backing 6 mm thick mounted on kail wood frame $\frac{3}{4}$ " x $1\frac{1}{2}$ " with Aluminium angle 30 x 15 x 2mm allround & hung on to wall with key hole hooks.
- (F) **Peg Sets: Aluminium Anodised with 3 hooks**
- (J) **Gratings:**
 - (i) All floor traps (FT) and floor drains (FD) shall be provided with 125mm and 100mm round stainless steel gratings respectively of approved design and shape. The weights of 125mm dia and 100mm dia gratings shall not be less than 130gms and 100 gms respectively.
 - (ii) Gratings for floor drain (FD) below sink in kitchen shall have suitable hole for passing GI waste pipe from sink.

38. **Geysers:** Scope for arrangement of fixing of Geysers included in this contract is as under:

- (a) Arrangement for fixing electric geyser vertical type one each in toilets and kitchen.
- (b) In all the units from the provision of common hot water supply shall be made.
- (c) Hot water supply of all units shall be from the respective Geysers/Solar heater installed therein.
- (d) At the inlet pipe of all Geysers one number CP brass angle valve shall be provided.
- (c) The ends of inlet and outlet pipes shall be connected with one PVC connecting pipe with CP brass nuts & washers. This is to pass the water from inlet to outlet till Geyser is installed at a later date.
- (d) Provisioning and fixing of Geysers is beyond the scope of this contract.

39. **Installation of Sanitary Fittings:**

- (a) European Type water closets shall be fixed with brass screws of suitable length with PVC plugs or phill plugs embedded in the floor after drilling hole in floor. It should be coupled with low level flushing cistern complete with rubber cone adapters etc, all as per manufacturer instructions.
- (b) Wash hand basins shall be fixed firmly to wall with MS angle iron brackets. The brackets shall be given two coats of white enamel paint over a coat of primer. In addition the wash basin shall be securely fixed to walls with a pair of 25x3mm MS clips screwed with rawl plugs to walls (placing of basin over the brackets without secure fixing on wall shall not be accepted).
- (c) Indian type Water Closets shall be embedded firmly in the floor and its surrounding packed with cement concrete 1:3:6 (1 cement : 3 coarse sand : graded aggregate 40mm graded aggregate) below the level of top of the Closet to receive the top layer of floor finish. WC shall be set in the CI trap in cement concrete 1:3:6 (1cement:3 coarse sand:6 graded stone aggregate 20mm nominal size), joint between WC and Flush pipe will be made in the pre-moulded rubber joint.
- (d) Urinals: Urinals shall be lipped type half stall (small) white glazed vitreous china of first quality and size 610x 400 x 380 mm size.

- (i) Half stall urinal shall be provided 15 mm dia spreader, 32 mm dia CP domical waste and C.P. cast brass bottle trap with pipe and wall flange, and shall be fixed to wall by one CI bracket and two CI wall clips complete as recommended by manufacturer's directives/Site Engineer.
- (ii) Half stall urinals shall be fixed with C.P. brass screws.
- (iii) Flushing cistern for urinals shall be automatic type vitreous china as given in the schedule of quantities. Each flushing cistern shall have a copper siphon and inlet nozzle cock to control the flow. Flushing cistern shall be fixed to wall with R.S. or C.I. brackets painted with two coats of white enamel paint.
- (iv) Flush pipes shall be G.I. pipes concealed in wall chase but with chromium plated bends at inlets and outlets.
- (v) Urinals may be flushed with flush valves as described in the item.
- (vi) Waste pipes for urinals shall be any of the following.

a. G.I. pipes. b. Rigid PVC

Waste pipes may be exposed on wall or concealed chase as directed by the engineer-in-charge. Specifications for waste pipes shall be same as given in Section II.

- (e) **Urinal Partitions:** Urinal partitions shall be white glazed vitreous chinaware marble or stone of size specified in the schedule of quantities. Porcelain partitions shall be fixed at proper heights with C.P. brass screws with anchor fasteners and MS clips as recommended by the manufacturer and directed by engineer-in-charge.
 - (e) All fixtures shall be fixed at proper heights, as shown in drawings and workmanship which shall be of acceptable standards.
40. **Internal Drainage:** Scope of internal sewage disposal and drainage system for all buildings/blocks included in Schedule A part I under this contract will include the following and shall be provided as per the layout/locations shown on drawings:
- (a) GI floor drains in toilets and kitchen
 - (b) HCI waste pipes and their connections upto Gully traps.
 - (c) HCI soil pipes and their connections upto nearest manholes.
 - (d) Vent pipes with vertical stacks
 - (e) All floor traps and gully traps.

Note: SWG sewerage lines from Gully Trap and nearest manholes onwards shall be measured and paid separately under schedule A part III (External sewerage)

41. **Soil, Waste, Vent and Rain Water Pipes:** All pipes shall be sand cast iron and shall comply to IS-1729 of 1979 and shall be ISI marked. Where shown on drawings the floor drains (FD) shall be of GI pipe medium grade ISI marked.
42. All cast iron pipes fittings like bends, branches, floor traps, tees 'Y' junctions, in waste, soil and vent pipes shall be sand cast iron comply with IS 1729 of 1979 and shall be ISI marked. These shall be spigot and socket "Access door shall be made up with 3mm thick insertion rubber washer and white lead. The bolts shall be lubricated with grease or white lead for easy removal later. The fixing shall be air and water tight".

43. **Cast Iron Traps:** Floor trap shall be cast iron, deep seal with an effective seal of 50mm. The trap and waste pipes shall be set in cement concrete blocks firmly supported on the structural floor. The blocks shall be in cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 20mm nominal size) and extended to 40mm below finished floor level. The concrete portion at top of the floor trap inlet shall be finished smooth and water proofed by applying neat cement slurry mixed with water proofing compound. Size of the blocks shall be 30x30cms of the required depth. The trap shall be 100mm inlet and 100mm outlet for kitchen and for toilets. Traps shall have extension pieces to receive waste lines as indicated in typical details.

Urinal Traps: Urinal traps shall be cast iron P&S trap with or without vent and set in cement concrete block specified in para above without extra charge.

Cleanout Plugs: Contractor shall provide cast brass clean out plugs as required. Cleanout plugs shall be thread and provided with key holes for openings. Cleanout plugs shall be fixed to the pipe by a G.I. socket lead caulked.

PVC pipes & fittings: PVC pipes for drainage system shall be rigid upvc pipes conforming to I.S. 13592 Type B.

- i. Fittings for the pipes shall be injection moulded with approved type of sockets and 'O' rings joints.
- ii. Jointing shall be done as per the manufacturer's recommendation. The pipes and fittings must have matching dimensions for a perfect joint. Loose or excessively tight joints in the system shall not be accepted. Fittings must have sufficient gap (approx. 10 mm) for permissible thermal expansion of pipes.

Fittings

- i. Fittings shall conform to the same Indian Standard as for pipes. Contractor shall use pipes and fittings of matching specifications.
- ii. Fittings shall be of the required degree of curvature with or without access door of rear, LH or RH.

SECTION XI: GYPSUM BOARD PARTITIONS AND CEILING

GENERAL

It is intended that these specifications cover principal requirement of new gypsum board partition and ceiling construction.

To prevent weakening due to calcimine, gypsum wallboard should not be exposed to temperature over 125F (52 C) for extended periods of time.

The Contractor shall furnish all materials, labour and scaffolding required to complete satisfactorily of all gypsum board partitions and ceiling work shown on the Drawings and / or specified.

MATERIALS

All materials shall be of an approval manufactures (India gypsum or equivalent) and shall comprise of the following:

- G.I Framing for suspended ceiling
- G.I Framing for partition and wall cladding.
- G.I. corner beads and edge trims.

Dry-wall screw.

Regular gypsum wall board shall be ½" thick. Long edges shall be square. Joint treatment materials shall be. Joint Tape

Joint compound to be ready-mixed

Fast hardening joint compound.

Topping compound to be ready-mixed.

Adhesive materials shall be joint compound for board application and wallboard /panel adhesive for board for framing application as recommended by manufacturer.

INSTALLATION

Preparation of work :

Commerce gypsum board and ceiling only after all work are complete.

Examine and inspect materials to which gypsum board is to be applied. Remedy all defects prior to installation of drywall. Any defects in the finished installation due to misaligned framing or the work performed under that section of the specification and such defects shall be remedied under that section of the specification.

Installation of wallboard:

Gypsum wallboard shall be applied to wall. Board of maximum practical length shall be used so that an absolute minimum number of end joints occur. Board edges shall be brought into contact with each other but shall be forced into place.

Wallboard joints at opening shall be located so that no end joint will align with edges of opening unless control joints will be installed at these points. End joints shall be staggered, and joint on opposite sides of a partition shall not occur on the same stud.

Gypsum wallboard shall be held in firm contact with framing member while fasteners are being driven. Fastening shall proceed from center portion of the wallboard toward the edges and ends. Fasteners shall be set with the heads slightly below the surface of the wallboard in a dimple formed by the hammer or power screwdriver. Care shall be taken to avoid breaching the face paper of the wallboard. Improperly driven nails or screws shall be removed.

SECTION XII: ARCHITECTURAL WOODWORK

SCOPE OF WORK

Work included

This section covers the furnishing of all materials, equipment, accessories and labour for architectural woodwork, including but not limited to:

Wall paneling

Staircases

Railings and balustrade

Wood flooring and decks

Built-in-cabinetry, including plastic emulsion

Miscellaneous finished woodwork

Rough carpentry and framing associated with the above

Preservative treatment of wood

Metal fasteners, accessories and adhesives

Work not included

The following work are not included in this section and are covered elsewhere:

Structural woodwork

Wood doors
Wood windows

RELATED WORK SPECIFIED ELSEWHERE

Structural woodwork
Wood doors and windows
Painting and finish coatings

QUALITY CONTROL

The contractor shall be responsible for the quality of all work and material used in the work and shall implement a programme for inspection and testing to monitor the quality of work.

Wood shall be of the best select grade free of defects in accordance with IS:1629

COORDINATION WITH OTHER TRADES AND CONDITIONS

The contractor shall schedule and coordinate the structural woodwork with other trades and contractors whose work may be affected by the Architectural woodwork.

MATERIALS AND PRODUCTS

WOOD

Generally wood for all architectural wood work shall be teak, except for parquet flooring for which the wood shall be Laurel.

The moisture content of wood shall be in conformance to IS:287 and shall generally be between 12% to 14%.

All wood shall be heartwood from mature trees, of the best grade, with minimum sapwood, free of defects, selected for goods finished appearance.

All grades of wood with the following defects shall be prohibited for use:

Timber with loose grain, splits, compression wood in coniferous timber, heartwood-rot and sap rot and wraps.

Worm holes and pitch knots

Wood, that has been badly stored and damaged.

LAMINATES

Plastic laminates shall be from an approved manufacturer, shall conform to IS: 2046 and shall be of new stock & 1.0-1.5mm in thickness.

PLYWOOD

Plywood shall be of new stock from an approval manufacturer, complying IS:303 BWR (and preservative treated respectively)

Plywood having the following defects shall be prohibited for use:

Damaged surfaces

Loose joints between ply

Badly stored

FASTENER AND ACCESSORIES

Screws shall be of Mild steel, complying to IS:451

Mild steel wire nails shall be in compliance with IS:723

Copper wire nails shall be in compliance with IS:725

ADHESIVES

Adhesive shall be synthetic resin adhesives complying with IS:851, Fast setting glues such as Rubber solutions/ "Zat Pat" shall not be used.

IRON MONGERY

Flanges, bolts, hasps, screws and other hardware shall be brass of the best quality approved by the architect. Locks and architectural finish hardware such as handles and knobs will be selected by the owner against the allowance made in the contract documents.

The contractor shall order, take delivery and arrange for the transportation of the hardware from the supplier nominated by the owner. The costs for ordering, transportation etc. upto delivery at site will be adjusted the allowance.

EXECUTION

GENERAL

The preservative treatment of wood shall be performed after conversion of lumber to the required sizes in construction so as to keep subsequent working on them to a minimum.

Brush supply two heavy coats of the same wood preservative chemical to any surfaces which were exposed by cutting, sawing, drilling etc.

Set out all architectural woodwork accurately in accordance with the contract drawings or approved shop drawings, true to line, angles, slopes and panes.

All members shall be in continuous lengths between supports without any immediate joints or splices unless otherwise shown on the drawings.

All sizes shown on the drawings are the finished dimensions and shall be within the tolerances given below:

- For measurement upto and including 100mm in width or thickness +/- 0.5mm.
- For measurement above 100mm in width and thickness +/- 0.1mm

All bearing surfaces shall be constructed to achieve full contact between surfaces over the entire bearing area.

All joints shall be worked to achieve accurate and tight fit with full contact between surfaces.

As far as possible grain and of wood shall be matched for adjacent pieces.

PANELING

Install the wall paneling in accordance with the design and details shown on the drawings.

Check alignment, plumb, plane and dimensions of the backing which is to receive paneling. Make necessary corrections prior to commencing paneling.

Layout paneling in accordance with actual dimensions obtained at site location. Adjust detailed dimensions to obtain the intent of the design.

Install sub-frames and grounds and secure them firmly to the backing, true to line, plumb, alignment and plane to avoid adjustment while installing paneling.

The panel frames shall be true to dimensions, sections, profiles, mouldings etc. as shown on the drawings. Members shall be in one piece between joints.

Panels shall be of the thickness and profiles shown in the drawings. When a large panel is required to be built up from two or more pieces, the joints shall be tongue and grooved flush joints, glued and drawn tight by means of vices, clamps or other means to obtain permanently indiscernible joints. The colour and grain of the wood shall be matched to conceal the joints.

The frames and panels shall be planed and sanded smooth to remove all tool marks before assembly.

The panel frames shall be jointed by 'all wood' joints without metal fasteners by means of the most appropriate glued mortise-and-tenonned joints and wood pins. Mortises and tenons shall be tooled to obtain intimate contact between their surfaces and shall be fully glued with glue. Joints shall be tightened with vice, clamps, draw straps or other means to obtain tight, indiscernible joints. The grain of wood pins shall match the surface grain of the frames.

Mouldings shall be mitered at 45 degrees to obtain a perfect match of lines, edges and profiles between abutting pieces.

After assembly the joints shall be tooled and sanded to remove minor unevenness at joints.

Planted mouldings and architects shall be fixed by means of headless-nails, neatly punched below the surface of wood.

Tolerances:

- Plane surfaces when tested with a straight edge placed anywhere, in any direction shall not show a gap of more than 1mm between the surface and the edge in any 2 meter length, provided that there is no noticeable abrupt differences in smaller areas.
- Straight lines and edges when tested with a 2 meter long straight edge shall not show a variation of more than 2mm, provided that there are no noticeable abrupt differences.

WOOD VENEERS AND PLYWOOD

Wood veneered plywood shall be 4mm. thick of an approved manufacture. Veneered plywood shall be selected from the best quality new stock for grain and colour appearance.

Plywood shall comply with IS: 5509 and IS :5539

ADHESIVES AND FASTENERS

Adhesives shall be synthetic resin adhesive complying with IS: 851

Screw shall be of brass.

Copper wire nails shall be in compliance with IS:725

TREATMENT AGAINST DECAY AND INSECT ATTACK

Treatment against and insect attack shall be by means of an approved proprietary product, proven to have outstanding durability under any conditions of exposure, to provide long-lasting protection against decay producing fungi and insects.

The material used for treatment shall be clean, oil-free. Odorless and harmless to people, planes and animals, evens when exposed to fire.

The material shall be spray or brush applied for deep-penetration, fiber- fixed to prevent leaching. The treated wood shall be capable of being subsequently painted or stained without being discoloured.

No coal –tar based products shall be used for preservative treatment.

The material used for preservative treatment shall be compatible with the material used for fire retardant treatment.

HARDWARE

All hardware for wood doors and wood windows will be selected by the owner.

The Contractor shall order, take delivery and arrange for the transportation of the hardware from the supplier nominated by the owner. The costs for ordering, transportation etc. up to delivery at site will be adjusted against the Allowance.

GLASS

Glass All shall be float glass of glazing quality conforming to BS:952 part 1 or other acceptable standard.

Wired glass: All wired glass shall be polished both sides with square pattern stainless steel wire mesh complying to BS:925, part 1 or other acceptable standard

Insulating glass insulating glass units shall consist of one exterior pane of tinted glass and one pane of clear glass, separated by a 15mm. Thick spacer filled with moisture absorbing desiccant. Each unit shall be hermetically sealed with primary butyl rubber sealant completely covering the unit's edge.

Glass and sizes and thickness shall be as shown on the contract Drawings.

All glass shall bear the label of its manufacturer and the standard to which it is manufactured.

Glazing gaskets: All glazing gaskets shall be 'U' shaped of flexible vinyl or synthetic rubber (neoprene) to fit the glass thickness.

Setting blocks: All setting blocks shall be of synthetic rubber to provide the necessary edge clearance from frames for the glass.

Glazing components: These shall be clear silicone sealant.

WEATHER STRIPS

The weather strips to seal the perimeter gaps between sashes and frames shall be flexible vinyl or synthetic rubber suitable for heavy-duty application.

Sealant caulk for sealing joints between frames and structural opening shall be a one -part polysulphide sealant suitable for application by a caulking gun.

Place :

Date :

Signature of the Bidder with seal

Approved Makes/Brands: Civil Works

The contractor shall quote for the best of the materials specified below with the ISI mark wherever applicable. The contractor shall obtain prior approval from the Institute / Architect before placing an order for the specific materials agencies. In case of non-availability of any of the approved /specified materials /agency. During the execution of the work, the Institute /Architect may approve a suitable equivalent brand/agency, and his decision shall be final and binding on the contractor and the price variations. If any, shall be adjusted accordingly.

S. N.	Materials	Manufacturers
1.	Grey Cement (43 or 53 Grade) White Cement Putty	A.C.C., Ultratech, Ambhuja, Jaypee Birla White, J.K. Birla White Putty
2.	Steel (Thermo Mechanically Treated Steel) High-strength deformed bars or mild steel reinforcement	TATA, SAIL, JSW, or equivalent
3	Clay Bricks	Good quality locally available material approved by Engineer / Architect
4	Pressed Steel frames for Doors	Fabricated P.S. frames approved by Engineer/Architect.
4a.	Pressed Steel frames for Aluminium-Windows, Ventilators.	Jindal of 25 microns approved by Engineer/Architect.
5	Flush Door Shutters	Century/ Anchor / Archid / Green / Samrat / Kenwood or equivalent
6	Particle Boards/Block Boards (Wardrobe Shutters and Kitchen Cabinets on with Laminates)	Century / Anchor / Archid / Greenply /Marino / Samrat/ Kitply or equivalent
7	Glass (Plain / Pin Headed) and Glass Tinted	Modi Float / Triveni / Hindustan Pallington / Asahi / Saint Gobain or equivalent
8	Aluminum Hardware/fittings	Argent / Classic / Shalimar or equivalent
9	Brass Mortice Locks & Latches	Godrej/ Link or equivalent
10	Latches with Internal locks	Godrej / Link/ Vijayan or equivalent
11	Floor Type Hydraulic door closer (Floor spring)	Everite / Hypper / Hemco or equivalent
12	Aluminum door, window and ventilator sections.	Jindal / Hindalco or equivalent
13	Water proofing material/ compound.	BSF/Roff/Fosroc/Sikka/or equivalent
14	Glazed Tiles	Johnson & Johnson/ Nitco/ Kajaria or equivalent
15	Ceramic Tiles (Non-Skid)	Johnson & Johnson/ Kajaria/ Nitco/ Bell or equivalent

16	Cement Concrete (Chequered) Tiles	Nitco / Bharat or equivalent
17	Vitrified Tiles	Kajaria/Johnson/Nitco or equivalent
18	Glass Mosaic Tiles	Italia or equivalent
19	Synthetic Enamel Paint	Jenson & Nicholsan/ Asian/ Nerolac/ Berger or equivalent
20	Oil Bound Distemper	Jenson & Nicholsan/ Asian/ Burger/ Nerolac or equivalent
21	Plastic Paint	Jenson & Nicholsan/ Burger/ Nerolac/ Asian or equivalent
22	Paneled Doors	National/ Century/ Swastik/ Kitply or equivalent
23	P.V.C. Doors	Sintex / Mihir / Fixopan or equivalent
24	Rolling Shutter & Grills	Good quality locally available material.
25	Hardeners	“Ironite” or equivalent.
26	Red Oxide	“Asian” or equivalent.
27	Waterproof cement paint / acrylic paint	Snocem India, Nerolac, Nitcocem or equivalent.
28	Glazing	“Hindustan Pilkington” Tiveni, Modi
29	Water seal (Epoxy-sterarate)compound.	As approved by Architect / Engineer
30	Medium-density fibreboard in lieu of partitions panelled doors and flush doors.	Nuwood, Mangalam or equivalent
31	Screws	GKM/ mettler fold or equivalent
32	Brass Hinges	Reliance/ Punit heavy duty or equivalent
33	Iron monjires and brass fittings	Jiranna / CIEF/ Shalimar / Everite.
34	Drawer sliding fitting	Earl bhihari or equivalent
35	Hardware	Shalimar, Everite/ Reliance Brass powder coated
36	Drawer Shutter Lock	Vijayan/Godrej (3 set of keys or equivalent)
37	Ball Catch	Magnetic (M-2) / Brass or equivalent
38	Veneer	Anchor / Kitply / Uro / Durian / Century or equivalent
39	Adhesive	Fevicol (SH) for furniture, laminates, Araldite of Hindustan Ciba Geigy Ltd. for Steel/Mirror
40	Polish	French/Zinc Oxide / Melamine (Asian) or equivalent
41	Wood Preservative	Asian paint / British paint or equivalent
42	Sun control film	Garware or equivalent
43	Polyure than foam	‘U’ foam or equivalent

Place :

Date :

Signature of the Bidder with seal

Annexure – A*

**FORMAT OF UNDERTAKING, TO BE FURNISHED ON COMPANY LETTER HEAD WITH
REGARD TO BLACKLISTING/ NON-DEBARMENT, BY ORGANISATION UNDERTAKING
REGARDING BLACKLISTING / NON-DEBARMENT.**

To,
The Registrar
Indira Gandhi Institute of Development Research
Film City Road, Santosh Nagar,
Goregaon (East),
Mumbai – 400 065.

We hereby confirm and declare that we, M/s _____, is not blacklisted/ De-registered/ debarred by any Government department/ Public Sector Undertaking/ Private Sector/ or any other agency for which we have Executed/ Undertaken the works/ Services during the last 5 years.

For M/s _____

Authorized Signatory

Date:

**To be submitted on the company letterhead, duly signed and stamped.*