Tender No. LHO/AMR/P&E/2026-27/07/01 **Date: 11.07.2026**

The Assistant General Manager(P&E),
State Bank of India,
Premised and Estate Department,
2nd floor, Gunfoundry Building
Amaravati Local Head Office,
Abids Hyderabad – 500001.
Ph: 040-2338 7503/365
Mail: agmpe.lhoand@sbi.co.in

Tender document for Proposed Construction of RCC buildings, 1 Bungalow for DGM (Ground Floor + 1 Upper Floor) and 16 flats for AGM / CM (Stilt + Ground Floor + 3 Upper Floors) (Civil, Elevation, Plumbing & Sanitary, Electrical, Fire Fighting, CCTV and Landscape works) at No. 95-20, Block No. 2, S.P. Bungalow Road, Guntur, Andhra Pradesh.

(Last Date & Time for Submission: on or before 04.08.2026 by 15:00 Hrs)

CONSULTANTS:
Architect

KAREKAR & ASSOCIATES
No. 282, 'KAREKARS', Ground Floor,
14th Cross, 5th Main, HIG, Dollars Colony,
RMV 2nd Stage, Bengaluru 560094
Ph: + 91 9611324432, Email: ayub@karekars.in

Name of The Tenderer: ……..
Address: ……..
……..
……
GSTIN: ……..

NOTICE INVITING TENDER (NIT)

SBI invites **percentage basis Online Tender** from Reputed Construction Firms / Contractors for Proposed Construction of RCC buildings 1 Bungalow for DGM (Ground Floor + 1 Upper Floor) and 16 flats for AGM / CM (Stilt + Ground Floor + 3 Upper Floors) (Civil, Elevation, Plumbing & Sanitary, Electrical Fire Fighting, CCTV and Landscape works), at No. 95-20, Block No. 2, S.P. Bungalow Road, Guntur, Andhra Pradesh.

1.	Name of the work	Tender from Reputed Construction Firms / Contractors for Proposed Construction of RCC buildings, 1 Bungalow for DGM (Ground Floor + 1 Upper Floor) and 16 flats for AGM / CM (Stilt + Ground Floor + 3 Upper Floors) (Civil, Elevation, Plumbing & Sanitary, Electrical Fire Fighting, CCTV and Landscape works), at No. 95-20, Block No. 2, S.P. Bungalow Road, Guntur, Andhra Pradesh.
2.	Estimated cost	**Rs. 22,98,24,759.59 plus GST**
3.	Time allowed for Completion	**18 Months** from the date of the work order issued to the contractor
4.	Quantum of Earnest Money Deposit (EMD)	**Rs.22,98,248.00** Drafts/BCs shall be in favor of "AGM (P&E) LHO Amaravati" Payable at Hyderabad. Original DD / BC should be submitted before **04.08.2026 at 15:00 Hrs. at below mentioned address**
5.	Date and Time where tender forms are available	**From 11.07.2026** at https://bank.sbi/web/sbi-in-the-news/procurement-news and https://etender.sbi
6.	Last date and time of submission of online Tender	**04.08.2026 up to 03:00PM**
7.	Place, date & time for submission of tender Contact person /telephone no/email address.	a) Online submission up to **04.08.2026 up to 15:00 Hrs at https://etender.sbi** b) EMD & Cost of tender Document submission Address: The Assistant General Manager(P&E), State Bank of India, Premises and Estate Department, 2nd floor, Gun foundry Building Local Head Office, Amaravati Abid's Hyderabad – 500001. ph.no 040 - 2338 7503/365 **04.08.2026 Up to 15:00 Hrs** Contact: Assistant General Manager (P&E) 040-2338 7503/853. E-mail: **agmpe.lhoand@sbi.co.in**
8.	Date, Time and Place of opening of Tenders	**04.08.2026 up to 15:30 Hrs** The Assistant General Manager(P&E), State Bank of India, Premises and Estate Department, 2nd floor, Gun foundry Building Local Head Office, Amaravati Abid's Hyderabad – 500001.
9.	Quantum of Security Deposit (percentage)	1. Initial Security Deposit (ISD) - 2% of the Tender value including EMD

<table>
<tr><td></td><td></td><td>2. Retention Money- 10 % of the running bills and total deduction of 5% of value of work including EMD, ISD.</td></tr>
<tr><td>10.</td><td>Terms of payment of Bills, if any (specify the minimum value of work for payment of running account bills)</td><td>Each running bill of Rs. 150.00 Lakhs and above excluding GST.</td></tr>
<tr><td>11.</td><td>(Penalty clause) Liquidated Damages</td><td>@ 0.5% of the value of work per week of delay subject to a maximum penalty of 5% of the value of work would be strictly imposed.</td></tr>
<tr><td>12.</td><td>Validity period of the tender.</td><td>Three (3) Months</td></tr>
<tr><td>13.</td><td>Defect Liability Period</td><td>Twelve (12) Months</td></tr>
<tr><td>14.</td><td>Eligible Taxes</td><td>A) Income Tax & GST IT will be deducted at source as per Govt. Guidelines.
B) Reimbursement of GST will be made only on submission of proper GST invoice as per applicable GST provision. The contractor should comply with the following;
1. Contractor should have GST Registration Number
2. Invoice should specifically/separately disclose the amount of GST levied at applicable rate as per GST provision
3. Contractor should timely file his GST return in accordance with GST provisions to enable the bank to claim the credit of GST paid to the contractor
4. The GST Number of State Bank of India are
For ANDHRA PRADESH State -37AAACS8577K1ZO</td></tr>
<tr><td>15.</td><td>Electronic Payment</td><td>Payment shall be made by way of electronic fund transfer by the Bank. Firm should furnish details of the bank, a/c no, IFSC code</td></tr>
<tr><td>16.</td><td>Agency for arranging online bidding</td><td>e-Procurement technologies Limited, Ahmedabad.
<table><tr><th>Name</th><th>Mobile</th><th>Mail Id</th></tr><tr><td>Sujith Nair</td><td>9510813528</td><td>sujith@eptl.in</td></tr><tr><td>Vishal Khilosiya</td><td>9510813528</td><td>Vishal.k@eptl.in</td></tr><tr><td>Nithya Vallavar</td><td>7859800609</td><td>Nithya@eptl.in</td></tr><tr><td>Laxmi Karli</td><td>7859800624</td><td>Laxmi@eptl.in</td></tr><tr><td>Nandan Valera</td><td>9081000427</td><td>Nandan.v@eptl.in</td></tr><tr><td colspan="3">Mail to - etender.support@sbi.co.in</td></tr></table></td></tr>
<tr><td>17.</td><td>Any additional Information</td><td>The percentage rates should be inclusive of all materials, labour, wages, fixtures, transportation, installation, all taxes (excluding GST), wastages, Octroi, machinery, temporary works such as scaffolding, cleaning, overheads, profit, statutory expenses, incidental charges and all related expenses to complete the works.</td></tr>
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18.	EVALUATION OF PRICE BIDS AND FINALIZATION	1. Only those Bidders who qualify in Prequalification & Technical evaluation would be shortlisted and the online price bid (Percentage rate tender) submitted by the bidder will be opened. 2. The L1 Bidder will be selected on the basis of net total of the price evaluation as quoted in the Online bidding. 3. In case, the L1 amount quoted by two or more contractors is the same, such lowest contractors will again be asked to submit sealed / online "Revised + Percentage Offers" on the original Estimated Cost of tender but the revised percentage shall, in no case, be higher than the percentage quoted during their initial offer for the project. The L1 shall be decided on the basis of revised offers. 4. The process of online rebidding amongst the two or more contractors offering same rates shall continue till L1 bidder is discovered. If required, Bank shall conduct reverse auction to discover the L1 bidder. 5. In case, any of such contractors or all contractors (who have quoted same tender amount in the initial bidding or subsequent bidding) refuse to submit revised offer, it shall be treated as "Withdrawal of tender" by the Contractor before acceptance by PL and the EMD of such contractors shall be forfeited and they shall not be allowed to participate in the re-tendering process for the work. 6. **If the final L1 bid is below 10% of the estimated cost then the L-1 contractor has to submit Additional Security Deposit (ASD)/Additional Performance Guarantee (APG). The amount of such ASD / APG shall be the difference between 90% of estimated cost put to tender and the quoted price.** 7. Bank Guarantee/DD/Banker's Cheque favoring Asst. General Manager, SBI, but drawn on any other Nationalized Bank may also be accepted as ASD / APG. 8. If the L1 bidder refuses to give the PBG, then the EMD will be forfeited and the tender will be re-invited. The L1 bidder will not be allowed to participate in the retendering process.
19.	Pre-Bid Meeting	Will be held on **20.07.2026 @ 15.00 at** **Premises and Estate Department,** **2nd floor, Gunfoundry Building** **Local Head Office, Amaravati** **Abid's Hyderabad – 500001.**

Following documents to be scanned and uploaded: -

1. **Scanned copy of EMD must be uploaded and the same needs to be submitted at given address within due date of tender**
2. **Firm should be visit the website (https://etender.sbi) till last date of submission for changes. corrigendum if any will be published only in https://etender.sbi**
3. **L-1 Tenderer signed copy of entire tender documents should be submitted within 14 days from the date of Price bid opening.**
4. **In case the date of opening of tenders is declared as a holiday, the tenders will be opened on the next working day at the same time.**

PRE-QUALIFICATION OF CONTRACTORS

Contractors for Proposed Construction of RCC buildings, 1 Bungalow for DGM (Ground Floor + 1 Upper Floor) and 16 flats for AGM / CM (Stilt + Ground Floor + 3 Upper Floors) (Civil, Elevation, Plumbing & Sanitary (Internal & External), Electrical (Internal & External) Fire Fighting, CCTV and Landscape works), at No. 95-20, Block No. 2, S.P. Bungalow Road, Guntur, Andhra Pradesh.

1. BRIEF DESCRIPTION OF WORK:

The details given below are indicative and not exhaustive. The following description is provided to apprise the Applicants about the nature, details / scope and are general specifications of work which may be modified by the Bank at a later stage. Detailed specifications, terms and conditions etc. shall be included in the Technical Bid / Price Bid of Tender documents.

Name of work : **Proposed Construction of RCC buildings, 1 Bungalow for DGM (Ground Floor + 1 Upper Floor) and 16 flats for AGM / CM (Stilt + Ground Floor + 3 Upper Floors)** (Civil, Elevation, Plumbing & Sanitary, Electrical, Fire Fighting, CCTV and Landscape works)

Site Address **:** No. 95-20, S.P. Bungalow Road, Guntur, Andhra Pradesh.

Estimated Project cost **:** Rs. **22,98,24,759.59 /-** Plus GST

Completion period for the work: Maximum 18 months

Brief description of the building & work:

State Bank of India intends to construct 1 **Bungalow for DGM** (Ground Floor + 1 Upper Floor) and **16 flats for AGM / CM** (Stilt + Ground Floor + 3 Upper Floors) at Bank's own plot at Survey No. 15&16, No. 95-20, S.P. Bungalow Road, Guntur, Andhra Pradesh. The plot is having an area of 14,993.47 Sq. mtrs. Presently compound wall is constructed on the plot. Road access from the Northeast side. The following area statement table:

Sl. No	Description	Area	Units	Sl. No	Description	Area	Units
1	Total plot area	14993.5	Sqm	**17**	External Barrier free Ramp (1:10) from Finished Ground level to Ground floor on all sides of the building	31.73	Sqm
2	Building footprint area (6.73% of Site Area)	1007.97	Sqm				
3	Open Space (93.27% of Site Area)	13985.5	Sqm				
4	16 flats for AGM / CM			**18**	UG Sump for Domestic Water	25,000	Ltr
5	Stilt - Parking	782.5	Sqm	**19**	UG Sump for Raw Water	20,000	Ltr
6	Ground Floor	782.5	Sqm	**20**	UG Sump for Rainwater	55,000	Ltr
7	First Floor	782.5	Sqm	**21**	Overhead tank for Fire Safety on Terrace	25,000	Ltr
8	Second Floor	782.5	Sqm	**22**	Overhead Tank for treated and domestic (7000 Liters for Treated and 10000 liters for Domestic)	17,000	Ltr
9	Third Floor	782.5	Sqm				
10	Terrace (S.case H Room & Lift)	82.5	Sqm	**23**	1.0M Wide Green Strip	475.0	Sqm
11	**Constructed area of the building**	**3995**	**Sqm**	**24**	1.8M Wide Walkway Pavers	1,008	Sqm
12	1 Bungalow for DGM		Sqm	**25**	Existing Compound Wall Length on all sides of the Site	475.0	RM
13	Ground Floor	225.76	Sqm				

14	First Floor	114.92	Sqm				
15	Terrace Floor (S.case H Room & Lift)	26.94	Sqm				
16	**Constructed area of the building**	**367.62**	**Sqm**				

2. MINIMUM ELIGIBILITY CRITERIA FOR PRE-QUALFICATION

The Firms / Contractors applying must fulfil each of the following criteria as civil construction firm. The applications of the firms/contractors not fulfilling the following criteria will not be considered for further process of pre-qualification.

a) The scanned copy of EMD shall be submitted by the bidders with their online bid. The Original physical form of EMD, in case of DD/BC, shall be submitted by bidders within the due date & time of opening of technical bid. In case the EMD/Bid security in original physical form does not reach to SBI Inviting authority within the above cut-off date, bid shall be rejected and not considered.

b) The applicant should be a well-established and reputed establishment (for a minimum perio1d of 7 years as on 31.03.2026) engaged in the Construction of buildings with all trades mentioned (like Civil Works, Roofing & Waterproofing Works, Plumbing & Sanitary Works Painting & Finishing Works, Flooring & Tiling Works, Electrical, Firefighting, CCTV and landscaping works etc.)

c) Must have a valid PAN of Income Tax Department, EPFO Registration, ESCI Registration, GSTIN number and should have filed income tax returns for the last 3 financial years i.e., **2025-26, 2024-25 & 2023-24**.

d) The Firm should be a reasonably good profit making firm and average annual turnover in last three years ending on 31.03.2026 should not be less than **₹.6.90 Crores**. The Certificate issued by Chartered Accountant (CA) should clearly mention the turnover & net profit of three financial years i.e., **2025-26, 2024-25 & 2023-24**. Certificate must bear date of its issue. Application without CA certificate may be summarily rejected. The year in which no turnover is shown would also be considered for working out the average.

e) SOLVENCY CERTIFICATE: The contractor should have a solvency of **₹6.90 Crs.** issued by any scheduled Bank in India (as per Form – "G") issued not later than 31st March, 2026.

f) The Firm should have successfully completed "similar" works of magnitude as specified below during last 7 years ending 30.06.2026 should be either of the following:

i) Three similar completed works each costing not less than **₹ 9.19 Crore** (excluding GST) having:

ii) Two similar completed works each costing not less than **₹ 11.49 Crore** (excluding GST) having:

iii) One similar completed works each costing not less than **₹ 18.38 Crore** (excluding GST) having:

Site Photographs of completed works as above should be enclosed.

g) Amount mentioned above is for Civil, Works, Roofing & Waterproofing Works, Plumbing & Sanitary Works Painting & Finishing Works, Flooring & Tiling Works Landscape works, Electrical, Firefighting, CCTV works.

h) "**Similar Works**" under this clause shall mean "**Successful completion of comprehensive construction works (inclusive of all trades mentioned above) of Residential buildings/Towers /Institutional / educational building for Central Govt. Dept. or State Govt. Dept. or Semi Govt. Dept. or PSU or Public sector Banks or Public limited (Listed) Company."**

i) Only those Building Works / Projects which are complete in all respects and handed over to the client shall be considered. **Completion Certificates issued by the Competent Authority of the client will only be considered**.

j) **Partial Completion of building work** will not be considered, even if the amount of completed work exceeds the minimum limit as shown at Para 2f(i), (ii) and (iii) and 2(g) above.

k) Office/Commercial will also be considered for pre-qualification.

l) **Consortium / joint venture will not be accepted.**

m) There should not be any adverse noting / comment / report about the applicant by his previous client and / or Bank.

n) **It is mandatory for the bidder to enclose satisfactory completion certificates/s** issued by clients establishing that they have the experience as stated above in **para-2f ('i' to 'iii').**

EVALUATION CRITERIA

Applications will be evaluated in the following manner:

1. The eligibility criteria prescribed above (in respect of experience of similar class of works completed) shall first be scrutinized and the applicant's eligibility for pre-qualification for the work be determined.

2. Only the applicants who meet the initial eligibility criteria specified as above will be further evaluated on the basis of details furnished by them.

3. If necessary, the authorized representatives of SBI will visit any projects / sites which are recently executed / being executed by the applicants, in order to evaluate the performance and quality of work of the applicants. In such case, the applicant will be required to obtain/give them the necessary permission/facilities and arrangements for site visit as required.

4. On the basis of the prequalification criteria mentioned above and after the evaluation of the applicants based on the site visit report, credentials submitted by the applicants, confidential reports obtained from various clientele (wherever necessary), applications will be shortlisted. The shortlisted applicants will be considered as the empaneled contractors subject to verification of relevant documents and only from them the tenders for the construction of captioned project will be invited.

5. Merely fulfilling the prescribed minimum prequalification criteria does not entitle the applicant for short listing, which is subject to the verification of documents/ information furnished by the applicants, inspection of work, quality and timely execution of project, seeking confidential performance reports from the client etc.

6. SBI reserves the right to accept or reject any or all applications without assigning any reason thereof and no correspondence will be entertained in this regard. SBI also reserves the right to restrict the list of prequalified contractors to any number deemed suitably by it. This prequalification is neither an assurance nor binding to SBI to award any job/project to the prequalified contractors.

INSTRUCTIONS TO APPLICANTS

GENERAL INSTRUCTIONS:

1. Please read these instructions carefully before filling up the application form.

2. The application must be submitted in the proforma to be downloaded from our website without editing the text whatsoever. Any violation of this condition shall render the application invalid.

3. The Application form have to be submitted in the prescribed format with Letter of Transmittal along with all the annexures and necessary documents / details as sought in a separate sealed cover supported by prescribed annexures containing other details etc. as mentioned.

4. The applicant should seal and sign each and every page of the application and its annexures / documents failing which their applications may be summarily disqualified.

5. While filling application form please ensure following: -

   - All information called for in the enclosed forms should be furnished against the relevant columns in the forms.
   - If for any reason, information is furnished on separate sheet, this fact should be mentioned against the relevant column.
   - Even if no information is to be provided in a column, a "Nil" or "no such case" or "Not Available" entry should be made in that column.
   - If any particulars/queries are not applicable in case of the applicant, it should be stated as "Not Applicable".
   - The applicants may please note that giving incomplete/unclear information called for in application forms, or making any changes in the prescribed forms, or deliberately suppressing any information, may result in the prescribed formats may result in disqualification of the applicant summarily.

6. Incomplete applications received thus will not be entertained. Delay in submission of any part in postal / courier / hand delivery or any other irregularities at any stage, will not be considered. The SBI will not be responsible for any damage in transit in case of postal / courier / hand delivery

7. Overwriting and using of correcting fluid should be avoided. Corrections, if any, should be made by neatly crossing out and shall be rewritten with initials and date. Pages of the document have to be numbered. Additional sheets, if any added by the contractor, should also be numbered by him. They should be submitted as a package with signed letter of transmittal.

8. The applicant may furnish any additional information, which he/they thinks is necessary to establish his capabilities to successfully complete the envisaged work. He is, however, advised not to furnish superfluous information. No information shall be entertained after submission of Expression of Interest documents unless it is called for by the Employer.

9. References, information and certificates from the respective clients certifying suitability, technical know-how or capability of the applicant should be signed by an officer not below the rank of Superintending Engineer/Chief Project Manager or equivalent.

10. Documents submitted in connection with pre-qualification will be treated as confidential and will not be returned.

11. **LETTER OF TRANSMITTAL**

The applicant should submit the letter of transmittal on the letter head of the applicant attached/appended with Application form along with annexures of pre-qualification document as mentioned / necessitated.

12. **ORGANISATIONAL INFORMATION – BIODATA**

Applicant is required to submit the information in respect of his organization (in Application form) and Biodata of the Directors / Partners / Key associates.

13. **FINANCIALINFORMATION**

Applicant should furnish the following financial information as per the format as mentioned in Form 'A'.

14. Banker's Details, Chartered Accountant, Annual financial statement for the last three years (in Form 'A') should be supported by audited balance sheets and profit and loss accounts duly certified by a Chartered Accountant, as submitted by the applicant to the Income Tax Department.

15. Name and address of the banker's identification of individuals familiar with the applicant's financial standing and a banker's statement on availability of credit.

16. **EXPERIENCE IN SIMILAR WORKS HIGHLIGHTING MAJOR PROJECTS**

Applicant should furnish the following:

i. List of all Similar works successfully completed during the last Seven years (**in Form "B").**

This list is to be substantiated with the documentary evidence such as copies of work orders, certified final bill copy, satisfactory completion certificate obtained from client etc. without which, the projects mentioned in the format may not be considered for scrutiny. List of works completed before seven years may be mentioned in separate

sheet if the applicant intends to do so. Form B-1 may be submitted project wise as supplementary information for the major projects only executed during the last seven years ending 30.06.2026.

ii. List of the 'similar' projects under execution or awarded (**in Form "C"**).

iii. Particulars of 'Similar' Major completed works (mentioned in **Form "B"**) indicating the performance of the applicant duly authenticated/certified by an officer not below the rank of Superintending Engineer/Chief Project Manager or equivalent should be furnished separately for each major work completed. (**in Form "D"**)

17. **ORGANISATIONAL INFORMATION -OTHERS**

Number of Technical and Administrative Employees in the organization and how they would be involved in this work (**in Form "E"**)

18. **CONSTRUCTION PLANT AND EQUIPMENTS:**

The applicant should furnish the list of tools, plant and equipment (in Form "F"). The applicant shall also furnish the particulars of steel shuttering, centering and scaffolding which he proposes to use for carrying out the work on FAST TRACK basis.

19. **TENDER SUBMISSION**

After evaluation of applications for pre-qualification, based on the evaluation criteria, list of qualified / shortlisted contractors will be prepared.

The employer reserves the right to:-

(a) Amend the scope and value of contract to the applicant.

(b) Reject any or all of the applications without assigning any reason.

20. The SBI reserves the right to verify the particulars furnished by the applicant independently. If any information furnished by the applicant is found incorrect at a later date, he/they shall be liable to be debarred from tendering/taking up of work in SBI and the tender/work will be cancelled, whenever it is noticed. The department will not pay any damages to the Company or firm or the person concerned. The Company or Firm or the person will be also debarred for further participation in any tender in the SBI Further, any breach of this condition by the applicant would also render him liable to be removed from the approved list of contractors of SBI.

21. (a) SBI reserves the right to reject any application without assigning any reason and to restrict the list of pre-qualified contractors to any number deemed suitable by it, if too many applications are received satisfying the basic Pre-Qualification criteria.

(b) Even though an applicant may satisfy the above requirements, he would be liable to disqualification if he has:

(i) Made misleading or false representation or deliberately suppressed the information in the forms, statements and enclosures required in the pre-qualification document.

(ii) Record of poor performance such as, abandoning work, not properly completing the contract, or financial failures/ weaknesses etc.

22. The applicants who have down-loaded the document from the website, should read the following important instructions carefully before submitting the documents: -

a) The applicants should see carefully & ensure that the complete document contains the pages in all in the document.

b) The printout of document should be taken on 'A-4' size paper only & the printer settings, such that document is printed as appearing in the web & there is no change in formatting, number of pages etc.

c) The applicant should ensure that no page in the down-loaded document is missing else their tender shall be treated as incomplete and will be summarily disqualified.

d) The applicant should ensure that all pages in the down-loaded document are legible & clear & are printed on a good quality paper.

e) The applicant should ensure that every page of the down-loaded document is signed by applicant with stamp (seal) of the applicant company and all the blanks are filled by the Applicant, suitably**.**

f) The applicant shall furnish a declaration as per the format to this effect that no addition / deletion / corrections have been made in the document submitted and it is identical to the document appearing on Website.

g) The applicant who has downloaded the document from website should read carefully & sign the declaration given on the Form E before submitting the document.

h) In case of any doubt in the down-loaded document, the same should be got clarified from this office before submitting the document.

i) The scanned copy of DD/BC's towards EMD shall be submitted by the bidders with their online bid. The Original physical form of EMD, in case of DD/BC's shall be submitted by bidders within the due date & time. In case the EMD/Bid security in original physical form does not reach to SBI Inviting authority within the above cut-off date, bid shall be rejected and not considered.

j) The bidders who are desirous of participating in tenders shall submit the technical bids through online on or before the last date of tender submission.

k) **Price bid to be submitted online only. Physical submission of price bid will be summarily rejected.**

23. The Company or firm or any other person shall not be permitted to seek pre-qualification for the work in case his near relative(s) (directly recruited or on deputation in SBI is / are posted in any capacity either non-executive or executive employee, near relative(s) for

this purpose is/are defined as–

i) Member of Hindu Undivided family (HUF)
ii) They are Husband and wife
iii) The one is related to other in the manner as father, mother, son(s) & son's wife (daughter-in-law), Daughters(s), Daughter's husband (son-in-law), brother(s), brother's wife, sister(s), sister's husband(brother-in-law)

The applicant (principal contractor) shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him or who are near relative to any executive employee/ Gazette officer in the SBI.

24. Efforts on the part of the applicant or his agent to exercise influence or to pressurize the employer would result in rejection of application. Canvassing of any kind is prohibited.

25. Prospective applicants may contact, **The Assistant General Manager(P&E), State Bank of India, Premised and Estate Department, 2nd Floor Gun Foundry, Amaravati Local Head Office, Abid's Hyderabad – 500001** for any clarification/issue relevant to this notice. However, queries / clarifications (if any) may also be sent to **agmpe.lhoand@sbi.co.in**

LETTER OF TRANSMITTAL

(Performa to be typed on the letter head of the Applicant)

The Assistant General Manager(P&E),
State Bank of India,
Premises and Estate Department,
2nd Floor, Gunfoundry Building,
Local Head Office, Amaravati,
Abids, Hyderabad – 500001.

Sub: Submission of Tender from Reputed Construction Firms / Contractors for **Proposed Construction of RCC buildings, 1 Bungalow for DGM (Ground Floor + 1 Upper Floor) and 16 flats for AGM / CM (Stilt + Ground Floor + 3 Upper Floors)** (Civil, Elevation, Plumbing & Sanitary, Electrical, Fire Fighting, CCTV and Landscape works) at No. 95-20, Block No. 2, S.P. Bungalow Road, Guntur, Andhra Pradesh**.**

Dear Sir,

I/We have read, understood & examined the Prequalification documents, along with other details / formats, the receipt of which is hereby duly acknowledged, including subsequent pre-Bid clarifications/ modifications / revisions, if any, furnished by the SBI and we submit our application/offer for the pre-qualification of contractor for construction of office building. The undersigned is authorized to sign the documents/papers, on behalf of the firm and the document delegating this authority is enclosed with this letter.

2. We certify that we have not made any changes in the contents of the pre-qualification document submitted by us, including its amendments/clarifications provided by SBI. We shall abide by the terms & conditions spelt out in the SBI/ bank's notice/pre-qualification invitation.

3. It is further certified that the contents of our Bid are factually correct. We also accept that in the event of any information/ data / particulars proving to be incorrect, SBI will have the right to disqualify us from any or all bidding process.

4. I/We also understand if any false information is detected at a later stage, including in any future contact made between ourselves and State Bank of India, on the basis of the information given by me/us will be treated as invalid by the Bank.

5. We confirm that we have not induced or attempted to induce any other applicants to submit or not to submit an offer /application for restricting competition. Also, we undertake that we will not resort to canvassing with any official of the Bank, connected directly or indirectly with the pre-qualification process to derive any undue advantage. We also understand that any violation in this regard, will result in disqualification of the applicant from further pre-qualification process.

6. We undertake that we will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage,

commission, fees, brokerage or inducement to any official of the Bank, connected directly or indirectly with the pre-qualification process, or to any person, organization or third party related to the contract in exchange for any advantage in the pre-qualification, Bidding, evaluation, contracting and implementation of the contract. We shall abide by all the laws/rules/regulations pertaining to prevention of corruption in force.

7. We understand that you are not bound to accept any particular or all the offers, you may receive. You may reject all or any offer/proposal/application without assigning any reason or giving any explanation whatsoever. I/We agree that the decision of the State Bank of India in selection of the contractors will be final and binding on me/us.

8. We hereby undertake that our name does not appear in any "Caution" list of RBI / IBA or any other regulatory body.

9. We confirm that we do not have any litigation / cases pending against us in any Bank / PSU / State or Central Govt departments. We also confirm that we have not been blacklisted by any Bank / PSU / State or Central Govt Office/ departments for any reasons, except the undernoted (details should be mentioned along with period and reasons thereof).

10. If commercial bidding is done through the online tender process by the Bank, our authorized representative who would participate in the reverse auction process would be possessing a valid digital certificate for the purpose, on behalf of the firm.

11. I/We hereby certify that none of our relatives as per Bank's instructions are employed in State Bank of India. In case at any stage, it is found that information given by me is false/incorrect, State Bank of India shall have absolute right to take any action as deemed fit, without prior intimation to me.

12. I/We also agree that I/We have no objection if inquiries are made about the works listed by me/us in the accompanying sheets or any other inquiry on the information furnished herewith in the accompanying sheets or in respect of papers/documents submitted.

(Signature)
Stamp
Name:
Date:
In the capacity of (for and on behalf of):

Enclosed: 1. Duly completed application with all enclosures
1. Letter of authority for delegation of signing power

2. NOTICE TO CONTRACTOR

ADDRESS:

_____

_____

_____

PROJECT: Reputed Construction Firms / Contractors for Proposed Construction of RCC buildings, 1 Bungalow for DGM (Ground Floor + 1 Upper Floor) and 16 flats for AGM / CM (Stilt + Ground Floor + 3 Upper Floors) **(Civil, Elevation, Plumbing & Sanitary (Internal & External), Electrical (Internal & External), Fire Fighting, CCTV and Landscape works)**

REF: **CIVIL, ELEVATION, PLUMBING & SANITARY (INTERNAL & EXTERNAL), ELECTRICAL (INTERNAL & EXTERNAL), FIRE FIGHTING, CCTV AND LANDSCAPE WORKS**

Dear Sirs,

1. On behalf of our clients, The Assistant General Manager, (P&E) State Bank of India, Premises and Estate Department, 2nd floor Gunfoundry building Amaravati Local Head Office, Abids, Hyderabad – 500001, we have pleasure in inviting you to E-tender for the aforesaid work.

2. The scope of work broadly as given below is for **Proposed Construction of RCC buildings**, 1 Bungalow for DGM (Ground Floor + 1 Upper Floor) and 16 flats for AGM / CM (Stilt + Ground Floor + 3 Upper Floors) (Civil, Elevation, Plumbing & Sanitary, Electrical, Fire Fighting, CCTV and Landscape works) at No. 95-20, Block No. 2, S.P. Bungalow Road, Guntur, Andhra Pradesh.

3. Pre bid meeting as per date mentioned at NIT will be conducted at below Address: **Premises and Estate Department, Second Floor Gunfoundry Building, SBI LHO Amaravati, Abids, Hyderabad – 500 001**

Name	Mobile	Mail Id
Sujith Nair	9510813528	sujith@eptl.in
Vishal Khilosiya	9510813528	Vishal.k@eptl.in
Nithya Vallavar	7859800609	Nithya@eptl.in
Laxmi Karli	7859800624	Laxmi@eptl.in
Nandan Valera	9081000427	Nandan.v@eptl.in
Mail to - etender.support@sbi.co.in		

4. Tender Documents should be filled and uploaded on the site of M/S e-procurement Technologies Limited.

5. The tenderer must obtain for himself, on his own responsibility and at his own expenses, all the information which may be necessary for the purpose of filling this tender and for entering into a contract for the execution of the same and must examine the drawings and inspect the site of the work and acquaint himself with all local conditions and matters pertaining thereto.

6. Each of the tender document's page is required to be signed by the person or persons submitting the tender in token of his/their having acquainted himself/themselves with the General conditions etc., as laid down. Any tender with any of the documents not so signed will be rejected.

7. The tender documents must be filled in English and all the entries must be made by handwritten. If any of the documents are missing or un-signed, the tender shall be considered invalid.

8. Each and every one of all erasures and additions/alterations made, while filling the tender, must be attested by initials of the tenderer. Failure to comply with either of these conditions will render the tender void. After submission of the tender no advice or any change in rate or conditions will be entertained. All the rates should be quoted both in figures and words. In-case of any discrepancy in rates quoted in words/figures and the amounts, the rate quoted in words shall be taken as final and binding.

9. The tender shall be valid for a period of 90 days from the date of opening.

10. TOTAL SECURITY DEPOSIT: shall comprise of:

    a. Earnest Money deposit
    b. Initial Security deposit
    c. Retention money

    10.1 The intending tenderer shall deposit with The Assistant General Manager, (P&E) State Bank of India, Premises and Estate Department, 2nd Floor Gunfoundry Building Local Head Office, Amaravati, Abids, HYDERABAD – 500001, by Demand Draft a sum of **Rs.22,98,248.00** as the Earnest Money, as a guarantee, which amount shall be forfeited as liquidated damages, in the event of any evasive/direct refusal or delay in starting the work and or signing the contract. The deposit of the unsuccessful tenderers will be returned, without interest, immediately after a decision is taken regarding the award of the contract. The Earnest money of the successful tenderer will be adjusted towards Security Deposit. A tender not accompanied by Earnest money deposit will not be considered.

10.2 The successful tenderer will have to pay further sum equivalent to **2% of his contract value, as Initial Security Deposit (ISD) by means of a D.D./Banker's cheque in favour of AGM (P&E) LHO Amaravati" Payable at Hyderabad within 14 days from the date of issue of work order to commence work. The EMD and Security deposit thus paid shall be held by the State Bank of India as Security deposit, for due execution and fulfillment of the contract, till the completion of the work and defect liability period in all respects and shall not bear any interest.**

10.3 Together with the money paid under clause 9 of NIT, further retention of 10% of the value of the work done will be deducted from every running bill, till total retention, including EMD and ISD paid earlier, comes to 5% of the contract value, and same shall be held by the Bank as Total Security Deposit. On the Architect's certifying the completion of work, 50% of the total security deposit shall be released to the contractor along with the final certificate of payment, and the balance amount will be retained in the manner stated elsewhere for a further period of twelve months after the completion date recorded in completion certificate, issued by the Architects and agreed to by the Bank.

11. Within **14 Days** of the receipt of intimation from the Architects of the acceptance of his/their tender, the successful tenderer shall be bound to sign an agreement, on a stamp paper in

accordance with the Draft Agreement and conditions of contract attached herewith, but the work order or the written acceptance of a tender by the Employer will constitute a binding agreement between the Employer and the person tendering whether such formal contract is or not signed by the contractor.

12. All compensation or other sums of money payable by the contractors to the clients, under the terms of this contract, may be deducted from the Security Deposit or from any sum that may be or may become due to the contractor on any account whatsoever, and in the event of the Security deposit being reduced by reasons of any such deductions, the contractor shall within 15 days of being asked to do so make good in cash or cheque, any sum which have been deducted from his security deposit.

13. The rates quoted by the Contractor shall include all eventualities, such as heavy rain, sudden floods, accidents, fire, riots etc., which may cause damage to the executed work or which may totally wash out the work. Until the completion certificate is issued to the Contractors, neither the Architect nor the clients will be responsible for such damage or wash out of the construction work.

14. Time is the essence of the contract. The work should be completed **within 18 Months** from the date of commencement. The date of commencement shall be as follows

a) 14 Days from the date of issue of work order.

Or

b) The day on which the contractor receives the possession of the site whichever is later.

Or

c) The contractor is asked in writing to take over the possession of the site.

The successful contractor will have to give a CPM/PERT chart of various activities of work to be done so that the work gets completed within the stipulated time. The chart shall be submitted within 14 days from the date of acceptance of the tender.

15. If the contractor fails to complete the work by the Scheduled date of completion or within any sanctioned extended time, he will have to pay liquidated damages at the rate of ½% of contract amount for each week of delay the work remains incomplete beyond the completion (Original / extended date), subject to maximum of 5% of the contract value (without extra items).

16. The quantities contained in the Schedule are only indicative. The work as actually carried out and done will be measured from time to time, for which payment will be made subject to the terms and conditions of contract.

17. The unit prices shall be deemed to be fixed prices. In case of extra items, a record of labour charges paid shall be maintained and shall be presented every month for extra/substituted items regularly to the Architects for checking. The settlement will be made based on figures arrived at jointly and taking into account unit prices of items of work mentioned in the contract assigned to the successful tenderers. In case, of extra items, where similar or comparable items are quoted in the tender, extra rates shall invariably be based on those tender rates to the extent reasonable.

18. Our clients, The Assistant General Manager (P&E), State Bank Of India, Premises and Estate Department, 2nd floor Gunfoundry building, Local Head Office, Amaravati, Abids **HYDERABAD – 500001**, do not bind themselves to accept the lowest or any tender and reserve to themselves the right to accept or reject any or all tenders, either in whole or in part, without assigning any reason whatsoever for doing so.
19. No employee of the SBI bank is allowed to work as a contractor for a period of two years of his retirement from bank service, without the previous permission of the bank. This contract is liable to be cancelled, if either the contractor or any of his employees is found at any time to be such a person who had not obtained the permission of the bank as aforesaid before submission of the tender or engagement in the contractor's service.

20. The tenderer, apart from being a competent contractor must associate himself with agencies of the appropriate class as the case may be.

ARCHITECTS: **KAREKAR & ASSOCIATES**
Manisha Vasan
Chief Architect & Partner
No. 282, 'KAREKARS', Ground Floor,
14th Cross, 5th Main, HIG, Dollars Colony,
RMV 2nd Stage, Bengaluru 560094
Ph: + 91-96 11 32 44 32
Email: ayub@karekars.in

(Annexure- I)

AFFIDAVIT

(To be submitted by bidder on non-judicial stamp paper of Rs.100/-) duly attested by Notary Public)

Affidavit of Mr. ..... S/o ..... R/o .....

I, the deponent above named do hereby solemnly affirm and declare as under:

1. That I am the Proprietor/ Authorized signatory of M/s ……. Having its Head Office/Regd. Office at ……
2. That the information/ documents/ Experience certificates/ Bank Guarantees(s) submitted by M/s……. along with the tender for …… (Name of work) ……to SBI are genuine and true and nothing has been concealed.
3. I shall have no objection in case SBI verifies those from issuing authority(ies). I shall also have no objection in providing the original copy of any of the document(s), in case SBI demands so for verification.
4. I hereby confirm that in case, any document, information and / or certificate submitted by me found to be incorrect / false / fabricated, SBI at its discretion may disqualify / reject / terminate the bid/ contract forfeit the EMD/ all dues and placed under holiday list as per SBI.

I, ..., the Proprietor / Authorised signatory of M/s..... do hereby confirm that the contents of the above Affidavit are true to my knowledge and nothing has been concealed and that no part of it is false.

DEPONENT

Verified at .....this.....day of .....

DEPONENT

ATTESTED BY (NOTARY PUBLIC)

(Annexure- II)

UNDERTAKING
ACCEPTANCE OF TENDER CONDITIONS

From: (To be submitted in ORIGINAL on the letter head of the company by the authorized officer having power of attorney/as per Board Resolution)

To
The Assistant General Manager(P&E),
State Bank of India,
2nd floor, Gunfoundry Building
Amaravati Local Head Office,
Abids Hyderabad – 500001.

Sub: Name of the work & NIT No.:

Sir,

1. This has reference to above referred tender. I/We have read/ viewed all the tender document and bill of quantities, tender drawings, annexures, general conditions, safety condition, technical specifications, special conditions of contact and in all respects in accordance with such conditions so far as they may be applicable. I/ We are pleased to submit our tender for the above work and I/ We hereby unconditionally accept the tender conditions and tender documents in its entirety for the above work.
2. The documents being downloaded from the website and having read and understood all the contents of the Tender Document and Bill of quantities, Tender drawings, Annexures, general conditions, safety condition, technical specifications, special conditions of contact, Amendment till opening of this tender on 04.08.2026 including extended date for submission. However, I /we have visited the website and noticed all amendments, addendum, clarifications uploaded in this tender e-portal till extended date of tender submission if any. The amendments, addendum, clarifications provided on this subject work also incorporated in the offer and have no claim whatsoever it may be.
3. I / We also hereby confirm that I / We have not been blacklisted / debarred from quoting by any Govt. / PSU companies in the last 5 years from the date of Tender Notice either while applying for tender / during the tendering process / during execution.
4. The percentage rates quoted me / undersigned are valid and binding upon me for the entire period of contract and it is certified that the rates quoted are the lowest rates as in any other institution in India.
5. I / We hereby undertake to provide the services as per the directions given in the tender document / contract agreement.
6. I/we are eligible to submit the bid for the subject tender, and I/We are in possession of all the documents required.

Yours faithfully,

(Signature of the tenderer)

With rubber stamp

Dated _____

(Annexure- III)

UNDERTAKING FOR MANPOWER DEPLOYMENT

(To be submitted by bidder on non-judicial stamp paper of Rs.100/-)

This is to certify that We, M/s ……., in submission of this offer confirm that:-

We have carefully gone through the Notice Inviting Tender (NIT) and all the documents, Forms & Annexures, etc. mentioned therein. (Which is sacrosanct) of work of "_____".

(i) Our tender is offered by taking due consideration of all factors including site requirements information and conditions of proposed location of the upcoming project in the detailed Instructions to Bidders to execute the work up to the standards as laid out in the banks requirements and other sections of NIT.

(ii) We agree to employ at our cost adequate number of technical staff during the execution of this work depending upon the requirement of work. For this purpose, the numbers to be deployed, their qualifications, and experience as decided by SBI / Architect shall be final and binding on us. We shall not be entitled to any extra payment in this regard.

(iii) SBI / Architect shall have full power and without giving any reason to us, immediately to get removed any representative, staff and workmen or employees on account of misconduct negligence or incompetence or whose continued employment may in his opinion be undesirable. We shall not claim any compensation on this account.

(iv) The minimum number of Technical Staff required is mentioned in the tender documents. However, the decision of SBI / Architect as to the number of Technical Staff to be adequate for the project and the period for which the required technical staff is required shall be binding on us.

(v) We shall deploy additional manpower as deemed fit and required to complete the project within stipulated completion period, without any additional cost to the bank.

Yours faithfully,

(Signature of the tenderer)

With rubber stamp

Dated _____

APPLICATION FORM

1.	Name of the contractor Firm/ company:	
2.	Type of Organisation (whether Sole Proprietorship, Partnership, private Limited or Co-op. body etc.)	
3.	Year of establishment of the Firm/company	
4.	Whether registered with the registrar of companies / registrar of firms (if so, mention number & date of registration, and submit supporting documents)	
5.	Year since the firm/ company is in the line of business/ activity of construction of multi storeyed residential buildings	
6.	Official/ registered address of the firm/ company	
7.	Correspondence address of the firm/company	
8.	Email-ID of the firm/company	
9.	Landline number (with STD code) of the office/ firm	
10.	Mobile number of the office/ firm/ company	
11.	Name, mobile number & email ID of contact person	
12.	Name/s of partners / proprietor/ directors/ key person of the firm (Details of address, contact number, qualification etc to be submitted at Annexure "C")	
13.	Address of office in Telangana / Andhra Pradesh if available.	
14.	Whether Firm is having ISO Certification? Mention details	
15.	Whether member of any professional body/association. Please give details & enclose certificate viz. IGBC	
16.	GST Registration number (Photocopy to be attached)	
17.	PAN No.	
18.	**EMD DETAILS** DD / BC No & Date Name of the Bank	

	Amount:	
19.	Registration for EPF/ RPFC	
20.	Registration for ESIC	
21.	Professional Tax registration no.	
22.	Educational qualification of the proprietor/ partner/ director/key person	
23.	Average annual turnover of the Company as per Audited Balance Sheets as on 31st March 2024, 2025, 2026. (details of turnover during previous F.Y. to be submitted as per format given in Annexure A)	2023-24: 2024-25: 2025-26: ---------- Average:
24.	Total number of Civil works of Commercial/ Office project completed.	
25.	Details of Similar works completed during the last 7 years for Central Govt. Dept./State Govt. Dept./ Semi Govt. Dept. /PSU/Public sector Banks/Airport Authority of India as per format given in annexure (Copies of work orders & completion certificates must be enclosed)	As per format Annexure B & B1
26.	Value of Single Largest Project for Similar Work for Residential buildings / Towers project completed in the last 7 years for Central Govt. Dept./State Govt. Dept./ Semi Govt. Dept. /PSU/Public sector Banks	
27.	Details of Similar work under execution for Central Govt. Dept./State Govt. Dept./ Semi Govt. Dept. /PSU/Public sector Banks	As per format Annexure C
28.	Financial Information as per format given at Annexure A (Enclose copies of audited balance sheet and profit & loss statements and CA Certificate)	As per format Annexure A
29.	Number of years of experience in the Civil, landscape works of commercial/ office buildings for Central Govt. Dept./State Govt. Dept./ Semi Govt. Dept. /PSU/Public sector Banks.	
30.	Name and address of Bankers and position of financial soundness (Enclose solvency certificate or other relevant papers/documents, refer Annexure J)	As per Annexure J
31.	Details of skilled work force provided.	As per format Annexure E
32.	Details of equipment available with the firm –	As per format Annexure F
33.	Mention is blacklisted and / or blacklisting proceedings pending with any client. Details of the same, with reasons, to be furnished.	

34.	Details of disputes /litigations, if any, during the period of last 07 years	
35.	Whether any penalty imposed by law enforcing agencies such as labour department, sale tax, GST, etc.	
36.	Details of penalty / liquidated damage imposed by any client for defective /delayed/non-completion of work or violation of terms of the contract, during the last 7 years, ended on 30.06.2026. If yes, please provide details thereof, with reasons.	
37.	Whether firm had been barred from participating in the bidding process or kept in cooling period/under suspension by any client, during the last 7 years, ended on 30.06.2026. If yes, please provide details thereof, with reasons.	
38.	Please indicate details of any bankruptcy/winding up of proceedings at any point of time in past	
39.	Covering cum declaration / confirmation letter as per Annexure-E	
40.	Declaration regarding near relatives working in the Bank	
	I hereby confirm that all information, particulars, copies of certificates and testimonials in connection with my empanelment are correct and genuine. I am, therefore, liable to face appropriate actions as deemed fit by the Bank in the event of any of the information, particulars, copies of certificates and testimonials are not found correct and genuine.	

BIO-DATA OF THE DIRECTORS/PARTNERS/ KEY ASSOCIATES

1. Name :

2. Date of Birth :

3. Associates with the organization since:

4. Professional Qualification :

5. Professional Experience :

6. Professional Affiliation :

7. Membership in :

8. Details of Published papers : in Magazine / Journals (if any)

9. Details of cost-effective methods/ : innovative techniques adopted **in the projects**

10. Exposure to new materials/ : Technology

Signature of Applicant

FORM 'A'

To be on letter head of Charted Accountant

FINANCIAL INFORMATION

I. Banker Details

Name of the Bank :
Branch with Address :
City :
Contact person in the Bank :
Contact Details :

II. Details of Chartered Accountant

Name :
Address :
Registration details of accountant :
Contact Number :
E-mail address :

III. Financial Analysis – Details to be furnished duly supported by figures in Balance Sheet/Profit and Loss Account for the last three years duly certified by the Chartered Accountant, as submitted by the applicant to the Income-Tax Department (Copies to be attached).

YEARS	2023-24	2024-25	2025-26
(i) Gross Annual turn-over in Similar works			
(ii) Profit/Loss			
(iii) Financial position:			
(a)Cash			
(b)Current Assets			
(c)Current Liabilities			
(d)Working capital (b-c)			
(e)Current Ratio: (Current Assets/Current Liabilities (b/c))			
(f) Acid Test Ratio: (Quick Assets/Current Liabilities (a/c))			

IV. Income Tax Clearance Certificate

V. Solvency certificate from Bankers (Schedule Bank) of Applicant.

VI. Financial arrangements for carrying out the proposed work

Signature of Charted Accountant
With seal

Signature of Applicant(s)
with Seal

FORM'B'

DETAILS OF ALL 'SIMILAR' WORKS COMPLETED DURING THE LAST SEVEN YEARS ENDING BY 30th June 2026.

1	2	3	4	5	6	7	8	9	10	11	12	13
S. No.	Name of work/ project & location	Owner or sponsoring organizations	Date of Agreement with the owner	Scope of work executed	Built up area of the project in sqm.	Green Building features any Details of LEED/IGBC certification	Cost of project work in Crores	Date of commencement as per contract & actual date of commencement	Stipulated Date of completion & Actual date of completion	Litigation/ Arbitration pending/ In progress with details (if any)	Name and address with contact No. of Officer of client to whom reference shall be made	Remarks

Signature of Applicant

Note:

1. Actual date of completion of the project should be within 7 years ending 30.06.2026 for taking into eligibility consideration. The projects mentioned in the above format shall be sorted in the order of cost of the project (Descending order)
2. Add Separate sheet if Required

FORM- B1

SUPPLEMENTARY INFORMATION ON COMPLETED MAJOR WORKS

1. Name of work
2. Location
3. Client's name and address
4. Consultants name and address.
5. Scope of work.

a. Civil Construction works.
   No of Floors in Basement
   No of Floors In Super Structure
   Height of the Building in Meters
   Landscape works

6. Type of power supply system.
7. Type of equipment in substation & for Civil works.
8. Time taken for
   i. Substructure
   ii. Super Structure.
   iii. Total Project.
9. Specialized service, if any, provided, with cost details,
10. Specialized Tools & Plant deployed for the project.
11. Project Management organization structure.
12. Number of shift and its duration adopted in execution.
13. Systems adopted for timely completion of the project.
14. Details of Green Building Features.

Signature of Applicant

FORM 'C'

'SIMILAR' PROJECTS ON HAND - UNDER EXECUTION OR AWARDED

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Sl. No.	Name of work/ project & location	Client / Owner or sponsor ring organizations	Type of Client / Owner (Mention Govt/ / Semi Govt / PSU / Autonomous / Private)	Date of Agreement with the owner	Built up area of the project in sqm	Cost of project work in Crores	Green Building features any Details of LEED/IGB C Certification	Date of commencement as per contract & actual date of commencement	Stipulated Date of completion	Up to date percentage of progress of work completed	Delay in progress (if any) and reasons thereof	Name and address with contact No. of Officer of client to whom reference shall be made	Remarks (Indicate whether any show-cause notice issued or Arbitration initiated during the progress work)

Signature of Applicant

Note: The projects mentioned in the above format shall be sorted in the order of cost of the project (Descending order)

FORM 'D-1'

PERFORMANCE REPORT FOR 'SIMILAR' MAJOR COMPLETED WORKS (REFERRED TO IN FORM 'B')

1. Name of the work/
   Project & Location.

2. Scope of work.
   a. No of Floors in Basement
   b. No of Floors in Super structure
   c. Total Built up Area

3. Agreement No &Date.

4. Estimated Cost / Tendered Cost

5. Actual Value of work done

6. Date of commencement
   a. Stipulated date of commencement.
   b. Actual date of commencement.

7. Date of completion
   a. Stipulated date of completion.
   b. Actual date of completion.

8. Amount of compensation levied for delayed completion if any.

9. Arbitration Case If any.

10. Performance report based on

Quality of Work,	**: Very Good / Good / Fair /Poor**
Time Management,	**: Very Good / Good / Fair /Poor**
Resourcefulness	**: Very Good / Good / Fair /Poor**
Financial Soundness	**: Very Good / Good / Fair /Poor**
Technical Proficiency	**: Very Good / Good / Fair /Poor**

Superintending Engineer / Chief Project Manager or Equivalent & (Name of Organization), Date

Note:

1. The performance report is to be submitted separately for all major works mentioned in Form'B'.
2. The performance report preferably be submitted in the above Performa. In case, different Performa is used, the applicant shall ensure that the report / certificate shall contain all the above information /details.

FORM ‘D-1 A’

Reputed Construction Firms / Contractors For Proposed Construction of RCC buildings 1 Bungalow for DGM (Ground Floor + 1 Upper Floors) and 16 flats for AGM / CM (Stilt + Ground Floor + 3 Upper Floors) (Civil, Elevation, Plumbing & Sanitary (Internal & External), Electrical (Internal & External) and Landscape works), at No. 95-20, Block No. 2, S.P. Bungalow Road, Guntur, Andhra Pradesh.

NAME AND VALUE OF MAJOR WORKS COMPLETED DURING THE LAST 7 YEARS

Sl. No.	Name of Work /project with address	Name & full postal address of the owner. Specify whether Govt. Under taking along with name, address and contact Nos. of -2-persons (Executive Engineers or top officials of the organization).	Contract amount (Rs.) with copy o f work order & completion certificate from project in-charge)	Stipulated time of completion (months) Enclose clients certificate for satisfactory completion	Actual time of completion (Months)	All the details to pertaining to one work.					If the work is left incomplete or terminated (furnish reasons)	Remarks
						Actual amount of the project cost, if increased, give reasons	Cost of Civil Work	Cost of Landscape work				

Notes:

1. Information has to be filled up specifically in this format only. Please do not write remark “As indicated in
Brochure /Attached Documents”.
2. Date shall be reckoned as on **30.06.2026**
3. For certificates, the issuing authority **shall not be less than an Executive Engineer** or equivalent in charge of the relevant work /project.
4. Partial Completion Certificates works will not be considered.

Furnish the names of three responsible clients/persons to whom the highest value of three major works carried out by the applicant with address and telephone number who will be a position to certify about the quality as well as past performance of your organization.		
NAME OF THE OFFICIAL	**ORGANISATION & ADDRESS**	**CONTACT NUMBERS & EMAIL ID**

FORM‘E’

DETAILS OF KEY TECHNICAL AND ADMINISTRATIVE PERSONNEL EMPLOYED IN THE ORGANIZATION

Sr. No.	Designation	Total Number	Names	Educational Qualification	Professional Experience	Length of continuous service with employer in years
1	2	3	4	5	6	7

Signature of Applicant

Note:

1. Details of Technical personnel shall be provided qualification-wise
2. Organization chart of the company, additional information about Technical and administrative personnel, if any, may be submitted on separate sheet

FORM ‘F’

DETAILS OF PLANT & MACHINERY, MANUFACTURING UNITS, TOOLS AND EQUIPMENTS LIKELY TO BE USED IN CARRYING OUT THE WORK.

Sr. No	Name of the Tools / Machinery / Equipment	Unit	Make / Model / Capacity or Type	Age in years	Condition of the unit	Ownership Status (mention the quantity)			Current location	Remarks
						Presently owned	To be purchased	Leased		
1	2	3	4	5	6	7	8	9	10	11

Signature of Applicant

Note :

1. Use extra sheet if required

FORM ‘G’

SOLVENCY CERTIFICATE WITH BANK'S DETAIL

This is to certify that M/s _____ address _____ is a customer of our bank and banking with us for the last …… years. Presently, the firm has availed undernoted banking facility/ies:

Sl. no.	Facility	Type of a/c	Present balance	Average balance during last 6 months

2. The conduct of firm's & key person's account has found to be satisfactory. As per the basis of credit facilities provided to the firm/ turnover in the accounts/ details available with us, the firm can be treated as good for any engagement up to a limit of Rs._____(Rupees _____).

3. This certificate is issued on the basis of bank's record/ transactions with the bank, without any guarantee or responsibility on the bank or any of the officers, with confirmation that facts mentioned herein as per our record.

(Signature of Branch Manager with Seal)

Note:
1. Banker's solvency certificate should be on the letter head of the scheduled commercial bank.
2. In case of partnership firm, certificate to include names of all partners as recorded with the bank.

Signature of Applicant

FORM -'H'

DETAILS OF THREE RESPONSIBLE CLIENTS / PERSONS TO WHOM THE MAJOR WORKS CARRIED OUT BY THEAPPLICANT

S.No.	Name of the Official	Organization & Address	Contact Numbers	E-mail ID

(Add separate sheet if required)

Notes:

Information has to be filled up specifically in this format.

Indicate other points, if any, to show your technical competence to indicate any important point in your favour.

Name of Authorized Signatory

FORM -'J'

DETAILS OF LITIGATION / ARBITRATION CASES RESULTING FROM THE CONTRACTS EXECUTED IN THE LAST SEVEN YEARS OR CURRENTLY UNDER EXECUTION

Year	Awarded for or against Applicant	Name of Client	Cause of Litigation and Matter of Dispute	Disputed Amount	Actual Awarded Amount

(Add separate sheet if required)
Notes:
Information has to be filled up specifically in this format.
Indicate other points, if any, to show your technical competence to indicate any important point in your favour.

Name of Authorized Signatory

FORM -'K'

DECLARATION REGARDING NEAR RELATIVES WORKING IN THE STATE BANK OF INDIA

Name of Bank Staff Related to Applicant	Designation	Office/Branch & Place of Posting	Relation with the Applicant

(Add separate sheets if required)
Notes:
Information has to be filled up specifically in this format.
Indicate other points, if any, to show your technical competence to indicate any important point in your favour.

Name of Authorized Signatory

3. ARTICLES OF AGREEMENT

This agreement made the …….day of …… between AGM/ DGM ,State Bank of India, ----------(hereinafter called the Bank or SBI / Employer) which expression shall include the successors and assigns) of the one part and M/s. ……... company / partnership for registered under the Indian Companies Act/ Partnership Act having its registered office……. (Hereinafter called 'the Contractors' which expression shall include the present directors / partners and also the directors / partners from time to time as also their respective heirs, legal representatives, administrators and assigns) of the other part.

WHEREAS the employer is desirous of execution of **_____(Name of work)_____** and has caused drawings and specifications describing the works to be done prepared by **Project Architects M/s KAREKAR & ASSOCIATES** having their offices at **No. 282, 'KAREKARS', Ground Floor, 14th Cross, 5th Main, HIG, Dollars Colony, RMV 2nd Stage, Bengaluru 560094, Karnataka** (hereinafter called "the Architect")

AND WHEREAS THE SAID Drawings numbered as mentioned in the tender documents hereinafter mentioned and to be issued from time to time, the specifications and the Schedule of items and quantities have been signed by or on behalf of the parties hereto.

AND whereas the contractors have agreed to execute upon and subject to the condition set forth herein and Schedule of items and quantities, General & special Conditions of Contract, specification etc. contained in the tendered documents including all correspondences exchanged by or between the parties from the submission of tender till the award of work, both letters inclusive, (all of which are collectively hereinafter referred to as "the said conditions"). The works shown upon the said drawing and /or described in the said specification and included in the schedule of Items and Quantities at the respective rates therein set forth amounting to the sum of Rs_____ (Rupees _____in words_____) as there in arrived at or such other sum as shall become payable there under (hereinafter referred to as " the said Contract Amount".

NOW IT IS HEREBY AGREED AS FOLLOWS:

1. In consideration of the said Contract amount to be paid at the times and the manner set forth in the said Conditions, the Contractors shall upon and subject to the said conditions execute and complete the work shown upon the said drawings and described in the said specifications and the schedule of items and quantities.

2. The employer shall pay the Contractors the amount or such other sum as shall become payable, at the times and in the manner specified in the said conditions.

3. The term "the Architect" in the said condition shall mean the said "M/s _____" or in the event of their ceasing to be the Architect for the purpose of this contract for whatever reason, such other person or persons as shall be nominated for that purpose by the Employer, not being a person to whom the Contractor shall object for reasons considered to be sufficient by the Employer provided always that no person or persons subsequently appointed to be Architect under this contract shall be entitled to disregard or over rule any previous decisions or approval or direction given or expressed in writing by the architect for the time being.

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

5. The plans, agreement and documents mentioned herein shall form the basis of this contract.

6. This contract is neither a fixed Lump sum contract nor a piece work contract but is a contract to carry out the work in respect of the entire project on item rate basis to be paid for according to actual measured quantities at the rates contained in the schedule of quantities and rates or as provided in the said conditions.

7. The Bank / Employer reserves to itself the rights of altering the specifications and nature of work by adding to or omitting any item of work or having portions of the same carried out without prejudice to the contract.

8. Time shall be considered as the essence of this contract and the contractor hereby agrees to commence the work soon after the site is handed over to him or from the 14th day after date of issue of formal work order as provided for in the said conditions of contractor whichever is later and to complete the entire work within ____(period of contract) months subject never the less to the provisions for extension of time.

9. All payments by the Employer under this contract will be made only at _____.

10. Any dispute arising under this Agreement shall be referred to arbitration in accordance with the stipulations laid down in the tender.

11. That all the parts of this contract have been read by the contractor and fully understood by the contractor. They further agree to complete the said work to fullest satisfaction of architect / Employer.

12. IN WITNESS WHEREOF the Employer and the contractors have set their respective hands to these presents through their duly authorized official and the said two duplicates hereof to be executed on its behalf of the day and year first herein above written.

Signed on behalf of the	Signed-on behalf of the
STATE BANK OF INDIA	**CONTRACTORS**
In the presence of :	In the presence of :
1. Signature :	1. Signature :
Name :	Name :
Address :	Address :
In the presence of :	In the presence of :
2. Signature :	2. Signature :
Name :	Name :

4. APPENDIX TO GENERAL CONDITIONS OF CONTRACT

APPENDIX TO GENERAL CONDITIONS OF CONTRACT

1.	Earnest Money Deposit (EMD)	: Rs. 22,98,248/-
2.	Initial Security Deposit (ISD)	: 2% of contract value including EMD.
3.	Period of completion	: 18 Months.
4.	Defects Liability period	: 12 months from the day of Virtual Completion.
5.	Agreed Liquidated Damages	: 0.5% of contract amount per week of delay subjected to a maximum of 5% of contract value.
6.	Period of final measurement	: Three months after completion as recorded in the completion certificate.
7.	Minimum value of work to be Executed for issue of interim Certificates for making payment	: Minimum Rs.150.00 Lakhs and above excluding GST
8.a)	Retention money from each bill	: 10% of gross value of each interim bill, subject to 8(b) below.
b)	Total retention money including Earnest money and initial security Deposit	: 5% of the contract value.
9.	Release of Security deposit after Virtual completion	: 50% of the total security to be Released Along. Released along with final certificate of payment, but only after removing all his materials, equipment, labour, huts/force, temporary sheds/stores, all his installations, machinery etc., from the site. Balance payment to be released on submission of Bank Guarantee on any Scheduled Bank, Other than SBI, and its associated banks in the prescribed manner and valid till the completion of defects liability period of 12 months.
10.	Period for honoring certificate	: 15 working days from date of Architects certificate of payment for interim bills and 45 working days for final certificate.
11.	Price Variation Adjustment	: **PVA will not be applicable for the project**

WITNESS :

DATE : SIGNATURE OF THE CONTRACTOR WITH DATE

5. INDEX TO GENERAL CONDITIONS OF CONTRACT

1. Interpretations
2. Scope of Contract
3. Drawings and Specifications
4. Schedule of Quantities
5. Sufficiency of Schedule of Quantities
6. Errors in schedule of Quantities
7. Contractor to provide everything necessary
8. Authorities, Notices, Patent rights and royalties
9. Materials and workmanship to conform to description.
10. The setting out
11. Removal of all offensive matters
12. Opening up works
13. Contractor's superintendence and representative on the work
14. Dismissal of workmen
15. Access to works
16. Employer's representative/PMC
17. Assignment of sub-letting
18. Sub contractors
19. Variations not to vitiate contract
20. Measurement to works
21. Prices of Extras etc., Ascertainment of
22. Unfixed materials

23. Removal of improper work and materials

24. Defects after completion

25. Certificate of virtual completion

26. Other persons engaged by the Employer

27. Insurance in respect of damage to persons and property

28. Contractor's All risk policy

29. Minimum amount of third party Insurance

30. Commencement and completion

31. Delay and extension of time

32. Damages for Non-completion

33. Failure by contractor to comply with Architect's instructions

34. Architect's delay in progress.

35. Supervision of works

36. Prime cost and provisional sums

37. Certificates and payments

38. Notices

39. Termination of contract by the Employer.

40. Termination of contract by the contractor.

41. Matters to be finally determined by the Architects

42. Settlement of dispute (Arbitration)

GENERAL CONDITIONS OF CONTRACT

1. **INTERPRETATIONS:**

In constructing these conditions and the specifications, schedule of quantities and contract agreement, the following words shall have the meaning herein assigned to them except where the subject or context otherwise required:

a. "Employer" shall mean Asst. General Manager (Premises & Estates), State Bank of India, 2nd floor Gunfoundry LHO Amaravati, Abids Hyderabad and shall include his/their heirs, legal representatives, assignees and successors.

b. "Contractor" shall mean and shall include his/their heirs, legal representatives, assignees and successors.

c. "Banks Engineer" shall mean any Engineer who is employed by State Bank of India or any other Engineer appointed from time to time by the Employer, and certified in writing to the Architect and the contractor, to act as Engineer for the purpose of the Contract in place of the said engineer.

d. "Employer's Representative" shall mean Project Management Consultants employed by the Bank/any assistant of the Engineer or any site engineer/ PMC appointed from time to time by the employer to perform the duties set forth in clause 17 hereof whose authority shall be notified in writing to the Architect and Contractor by the EMPLOYER.

e. "Architects" shall mean any Engineer/ representative appointed by **KAREKAR & ASSOCIATES, No. 282, 'KAREKARS', Ground Floor, 14th Cross, 5th Main, HIG, Dollars Colony, RMV 2nd Stage, Bengaluru 560094, Karnataka.**

f. "Works" shall mean the works to be executed in accordance with contract specifications, quantities etc.

g. "Contract" shall mean the Articles of Agreement, the General Conditions, Special Conditions, the Appendix, the Schedule of Quantities, Specifications and drawings, work order etc., attached hereto and duly signed.

h. "Contract Price" shall mean the sum named in the Tender, subject to such amount additions thereto or deductions there from as may be made under the provisions, hereinafter contained.

i. "Site" shall mean the lands and other places as shown on the site plan, on which the works are to be, provided, by the Employer or Architect for the purpose of the Contract.

j. "Drawings" shall mean the drawings referred to in the contract etc., and any modifications of such drawings approved in writing by the Architect and the Bank and such other drawings as may from time to time be furnished or approved in writing by the Architect and Employer.

k. "Notice in Writing" or written notice shall mean a notice in writing, typed or printed characters sent (unless delivered personally or otherwise provided to have been received) by registered post to the last known private or business address or registered office of the address and shall be deemed to have been received, when in the ordinary course of post, it would have been delivered.

l. "Act of Insolvency" shall mean any Act of Insolvency as defined by the Presidency Towns Insolvency Act, or the Provincial Insolvency Act / Insolvency and Bankruptcy code 2016 or any act amending such original.

m. "Net Prices" if in arriving at the Contract Amount, the contractor has added to or deducted from the total of the items of the Tender any sum, either as a percentage or otherwise, then the net price of any items, in the tender, shall be the sum arrived at by adding to or deducting from the actual figure appearing in the Tender, as the price of that item, a similar percentage or proportionate sum. Provided always that in determining the percentage or proportion of the sum so added or deducted by the contractor, the total amount of any Prime cost items and provisional sums of money shall be deducted from the total amount of the Tender. The expression "net rates" or "net prices" when used with reference to the contract or account shall be held to mean rates or prices so arrived at.

n. "Virtual Completion" shall mean that the building is in the opinion of the Architect and Employer, sufficiently completed for occupation by the Employer, in relation to the scope of work of this contract.

o. Words importing persons include firms and corporations. Words importing the singular only, also include the plural and vice versa, where the context requires.

2. SCOPE OF CONTRACT:

The contractor shall carry out and complete the said work in every respect in accordance with this contract with the directions of and to the satisfaction of the Architect and Employer. Architect, with the approval of the Employer, may issue further drawings and/or written instructions, details, directions and explanations, which are hereafter collectively referred to as "Architect's Instructions" in regard to:

a. The variations or modifications of the designs, quality or quantity of works or the addition or omission or substitution of any work.

b. Any discrepancy in the drawings or between the Schedule of Quantities/ or drawings and/or specifications etc.

c. The removal and/or re-execution or any works executed by the contractor.

d. The removal from the site of any material brought there on by the contractor, and the substitution of any other material therefrom.

e. The dismissal from the works of any person employed thereupon.

f. The opening up for inspection of any work covered up.

g. The amending and making good of any defects under clause 24 “Removal of Improper works and Materials”.

The contractor shall forthwith comply and fully execute any work comprised in such Architect’s instruction, provided always that instructions, directions and explanations given to the contractor or his representative upon the works by the Architect shall, if involving a variation, be confirmed in writing by the contractor or within 7 days, and if not dissented from in writing within further 7 days by the Architect, such shall be deemed to be the Architects instructions within the scope of contract.

If compliance with the Architect’s instructions as aforesaid involved work and/or expense and/or loss beyond that contemplated by the contract, then unless the same were issued owing to some breach of this contract by the contractors, the employer shall pay to the Contractor on the Architect’s certificate, the price of the said work (as an extra to be valued as herein after provided) and/or expense and/or loss.

3. **DRAWINGS AND SPECIFICATIONS:**

The works shall be carried out to the entire satisfaction of the EMPLOYER and the Architect, in accordance with the signed contract document, drawings and specifications and such further drawings and details as may be provided by the Architect, and in accordance with such written instructions, directions and explanations, as may from time to be given by the Architect and the bank, whose decision as to the sufficiency and quality of the work and materials shall be final and binding on the contractor. If the work shown on any such further drawings or work that may be necessary to comply with any such instructions, directions or explanations, be in the opinion of the contractor outside the scope of work or reasonably could not be inferred from the contract, he shall before proceeding with such work, give notice in writing to this effect to the Architect and the Bank, and in the event of the Architects and the Bank agreeing to the same in writing, the contractor shall be entitled to an allowance in respect of such extra work as an authorized extra. If the Architect and the contractor fail to agree, as to whether or not there is an extra, then, if the Architect decided that the contractor is to carry out the said work, the contractor shall do so, and the question whether or not there is any extra and if so, the amount thereof, shall failing agreement be settled by Arbitration as hereinafter provided, but such reference shall in no way delay the fulfillment of this contract.

No drawing shall be taken as in itself an order for variation, unless in addition to the Architect’s signature, it bears express works stating that it is intended to be such an order or bears a remark “GOOD FOR CONSTRUCTION”. No claim for payment for extra work shall be allowed, unless the said work shall have been executed under the provisions of clause 8 (Authorities, notices, patents, rights and royalties) or by the authorities, of directions in drawing of the Architect as herein mentioned.

One complete set of the signed drawings and a copy of contract document (specifications and schedule of quantities etc.) shall be furnished by the Architect to the contractor. The Architect shall furnish within such time as he may consider reasonable, one copy of any additional drawings, which in his opinion may be necessary for the execution of any part of the work. Such copies shall be kept at the works, and the Architect or his representatives shall, at all reasonable times have access to the same and shall be returned to the Architect by the Contractor, before the issue of the final certificate. The original contract documents shall remain in the custody of employer.

4. SCHEDULE OF QUANTITIES:

The Schedule of Quantities unless otherwise stated shall be deemed to have been prepared in accordance with the Standard Procedure of the Bank / Architects and shall be considered to be approximate and no liability shall attach to the Architect for any error/variations that may be discovered therein.

5. SUFFICIENCY OF SCHEDULE OF QUANTITIES:

The contract shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the prices stated in the schedule of Quantities and/or the Schedule of Rates and Prices, which rates and prices shall cover all things necessary for the proper completion of the works.

6. ERRORS IN SCHEDULE OF QUANTITIES:

Should any error appear in the Schedule of Quantities, other than in the Contractor's prices and calculations, it shall be rectified and such rectification shall not vitiate the contract but shall constitute a variation of the contract and be dealt with as an authorized extra or deduction.

7. CONTRACTOR TO PROVIDE EVERYTHING NECESSARY:

The contractor shall provide everything necessary for the proper execution of works according to the true intent and meaning of the drawings, specifications and the Schedule of Quantities etc., taken together, whether the same may or may not be particularly shown or described there in, provided the same can be inferred there from. The several document forming the contract are to be taken as mutually explanatory to one another; detailed drawings and figured dimensions in preference to scale, and special conditions in preference to General conditions and particular specifications in preference to General specifications.

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

i) Description of Schedule of Quantities.
ii) Particular specifications and special condition, if any.
iii) Drawings.
iv) C.P.W.D. specifications.
v) Indian Standard specifications of B.I.S.

If there are varying or conflicting provisions made in any document forming part of the contract, the SBI/Architect shall be the deciding authority, with regard to the intention of the document and his decision shall be final and binding on the contractor.

Any error in description, quantity or rate in schedule of quantities or any omission there from shall not vitiate the contract or release the contractor from the execution of the whole or any part of the works expressed therein according to drawings and specifications or from any of his obligations under the contract.

The contractor shall make his own arrangements for providing water, for carrying out the work, at his own cost. If water from any source other than Municipal main is to be used for construction, the same shall be tested at the contractor's cost, and a report submitted to the Architect for his approval, before such water is used for the works. Temporary Electrical connections shall be obtained by the contractor to facilitate execution and completion of work at their cost and all the charges there of should be borne by them.

The contractor shall supply, fix and maintain at his cost, during the execution of any works, all the necessary centering, scaffolding, staging, planking, timbering, strutting, shoring, pumping, fencing, hoarding, watching and lighting during nights as well as by day required not only for the proper execution and protection of the said works, but also for the protection of the public and the safety of any adjacent road, streets, cellars, vaults, pavements, walls, houses, buildings and all other erections, matters or things. The Contractor shall take down and remove any or all such centering, scaffolding, staging, planking, strutting, shoring etc., as occasion shall require or when ordered or so to do, and shall fully reinstate at his own cost and make good all the matters and things disturbed during the execution of the works to the satisfaction of the Architects.

8. AUTHORITIES, NOTICES, PATENT RIGHTS AND ROYALTIES:

The contractor shall conform to the provisions of the statutes relating to the works, and to the regulation and by laws of any local authority, and of any water, lighting and other companies or authorities, with whose systems the structures are proposed to be connected; and shall before making any variation from the drawings or specifications, that may be necessitated by so conforming, give to the Architects a written notice, specifying the variations proposed to be made and the reason for making it and apply for instruction thereon. In case, the contractor shall not within ten days receive such instructions, he shall proceed with the work conforming with the provisions, regulations or by laws in question.

The contractor shall bring to the attention of the Architect all notices required by the said acts, regulations or bylaws to be given to any authority, and pay to such authority or to any Public Officer all fees that may be properly chargeable in respect of the works, and lodge the receipts with the Architects.

The contractor shall indemnify the Employer against all claims in respect of patent rights, designs, trademarks or name or other protected rights in respect of any constructional plant, machine, work or material used for or in connection with works or temporary works and from and against all claims, demands, proceedings, damages, costs, charges, and expenses whatsoever in respect

thereof or in relation thereto. The Contractor shall defend all actions arising from such claims, unless he has informed the Architects, before any such infringement and received their permission to proceed, and shall himself pay all royalties, licence fees, damages, cost and changes of all and every sort that may be legally incurred in respect thereof.

9. **SEIGNIORAGE CHARGES:**

The Seigniorage charges will be recovered from contractor's bill as per the rates prescribed in the contract documents for the materials used on the work only. The Seigniorage charges to be deducted at source at the rates prevailing from time to time as per Government of Andhra Pradesh Department of Mines and Geology Gazatte dated 26th September 2015.

RATES OF SEIGNIORAGE FEE

Sl.No	Name of the Minor Mineral		Unit	Rate of Seignorage fee (in rupees)
1	Building stone, rough stone / boulders, road metal and ballast		M3/MT	75/50
2	Dimensional Stone used for Kerbs & Cubes		MT	100/MT
3	Lime Kankar / Limestone		MT	The rate of royalty as applicable to Limestone (other than LD grade) in respect of major minerals as per the 2nd schedule of the Mines & Minerals (D&R) Act, 1957
4	Marble		M3 / MT	250/100
5	Mosaic chips		MT	45
6	Morrum / Gravel & ordinary earth		M3 / MT	30/20
7	Ordinary sand		M3 / MT	40/27
8	Shingle		M3 / MT	25/17
9	Chalcedoney pebbles		M3 / MT	75/50
10	Fullers / earth / bentonite		MT	150
11	Shale / Slate		MT	150
12	Rehmatti		MT	25
13	Limestone slabs		M2/MT	8/100
14	Brick earth used in the manufacture of bricks including Mangalore tiles			Rs.6000/- per kiln per annum
15	Granite useful for cutting and polishing	Gangsaw above 270 x above 150	Below 270 x below 150	Equal and below
a	Black granite	3000	2300	1200
b	Colour granite	2300	2000	1000

- Or as per the actual. No additional payment will be made.

SCHEDULE II : Rates of Deed Rent

Sl.No	Name of the Mineral	Rate of Deed Rent per hectare per Annum (in Rs.)
1	Black Granite	1,00,000
2	Colour Granite	80,000
3	Limestone other than classified as major minerals used for lime burning or building construction purposes, marble, boulders, building stone including stone used for road, metal, fullers Earth, Ballast Concrete and other constructions purposes, slate and pyllites	50,000
4	Gravel Moorum, Shingle, Limestone Slabs, used for flooring purposes, Chalcedeny pebbles used in the building purposes, Limeshell for burning used for building purposes and rehmatti.	40,000

10. **MATERIALS AND WORKMANSHIP TO CONFORM DESCRIPTION:**

All materials and workmanship shall, so far as procurable be of the respective kinds specified in the Schedule of Quantities and/or specifications and in accordance with the Architect's instructions and the contractor shall on the request of the Architects furnish to them all invoices, accounts, receipts and the other vouchers to prove that the materials comply therewith. The contractor shall at his own cost arrange for and/or carry any test of any materials, which the Architect & Employer may require. The costs of materials used for testing, packing, transportation and testing shall be borne by the contractor and his quoted rates/amounts shall include all such expenses/contingencies.

10a. In case of non-availability of specified Make/brand of any material including steel and cement the alternate make/brand will be given by the Employer/Architect.

11. **THE SETTING OUT:**

The Contractor shall at his own expense, set out the works accurately in accordance with the plans and to the complete satisfaction of the Bank/Architect. The Contractor shall be solely responsible for the true and perfect setting out of the same and for the correctness of the positions, levels, dimensions and alignment of all parts thereof. If at any time any error shall appear during the progress or on completion of any part of the work, the contractor shall at his cost rectify such error if called upon to the satisfaction of the Architects/Employer. The work shall from time to time be inspected by the Architect and/or his representatives, but such inspections shall not exonerate the contractor in any way from his obligation to remedy any defects, which may be found to exist at any stage of the work or after the same is completed, at his own cost.

12. **REMOVAL OF ALL OFFENSIVE MATTERS:**

All soil, filth or other matter of an offensive nature, taken out of any trench, sewer, drain, cesspool or other place shall not be deposited on the surface, but shall at once be carried out away by the contractor to some pits or place provided by them and shall be disposed off as per the rules and regulations of the Local authorities concerned.

13. **OPENING UP WORKS:**

The contractor shall notify the Architect in writing immediately, the trenches or excavation as shown on the drawings are get ready or as soon as any ground is cut into which, from unexpected causes, appears need for immediate attention. After notifying the Architect, he shall await instructions, which shall be given within ten days of receipt of such notice. If the contractor put in any parts of the foundations before he has so notified the Architect and received instructions, he shall be liable to reinstate all such work that may be subsequently, at any time, damaged on account of any defect or insufficiency of the foundations. The Contractor shall at the request of the Architect, within such time as the Architect so desires, open for inspection any work, and should the contractor refuse or neglect, to comply with such request, the employer, through the Architect may employ other workmen to open up the same. If the said work has been covered up in contravention of the Architect's instructions, or if, on being opened up, it be found in accordance with the drawings and specifications, or the instructions of the Architect or otherwise, the expenses of such other workmen shall be borne by and recoverable from the contractor, or may be deducted from any money due or which may become due to the contractor. If the work has not been covered up in contravention of such instruction, and be found in accordance with the said drawings and specifications and instructions, then the expenses aforesaid shall be borne by the Employer and be added to the contract sum, provided always that in the case of foundations or of any other urgent work so opened up and requiring immediate attention, the Architect shall within seven days after receipt of the written notice from the contractor that the work has been opened, make or cause the inspection thereof to be made, and at the expiration of such time, if such inspection shall not have been made, the contractor may cover the same and shall not be required to open it up again, except at the expenses of Employer.

14. **CONTRACTOR'S SUPERINTENDENCE & REPRESENTATIVE ON THE WORKS:**

The contractor shall give all necessary personal superintendence during the execution of the works and so long thereafter as the Architect may consider it necessary until the expiration of the "Defects Liability Period" stated in clause 25. The Contractor shall meet the Architect or his representative, whenever required and so informed by the Architect.

The Contractor shall maintain and be represented at site at all times, while the work is in progress, by a responsible and efficient foreman, approved by the Architect and who must thoroughly understand all the trades entailed and be constantly in attendance while the men are at work. Any directions, explanations, instructions or notices give by the Architect & Employer to such foreman shall be deemed to have been given to the contractor and shall be binding as such on the contractor. The Site Engineer shall be thoroughly conversant with the English /Telugu/Hindi language and should be able to read, write and speak English / Telugu/Hindi.

15. **DISMISSAL OF WORKMEN:**

The contractor shall on the request of the Architect and Employer immediately dismiss from the works any person employed thereon who may, in the opinion of the Architect and Employer be unsuitable or incompetent or who may misconduct himself, and such person shall not again be employed or allowed on the works without the permission of the Architect & Employer.

16. **ACCESS TO WORKS:**

The Architect, the Employer and any person authorized by them shall at all reasonable times have free access to the works and to the workshops, factories or other places where materials are being prepared or constructed by the contract and also to any place where the materials are lying or from which they are being obtained. The Contractor shall give every facility to the Architect and the Employer and their representatives for inspection and examination and test of the materials and workmanship. No person, unless authorized by the Architect or the Employer, except the representatives of Public authorities, shall be allowed on the works at any time. If any work is to be done at a place other than the site of works, the contractor shall obtain the written permission of the Architect for doing so.

17. **EMPLOYER'S REPRESENTATIVE/PMC:**

The Employer may appoint an assistant to the Engineer, any Site Engineer or Project Management Consultant (PMC), who shall be the representative of the Employer. The duties of the Employer's representatives are to watch and supervise the works and to test any materials to be used and of workmanship employed in connection with the works. He shall have no authority either to relieve the contractor of any of his duties or obligations under the contract, or except those expressly provided hereunder, to order any work involving delay or any extra payment by the Employer or any variation of or in the works.

The contractor shall afford the Employer's representative every facility and assistance for examining the works and materials and checking and measuring item and materials. Neither the Employer's representative nor any assistant to the Architect shall have power to revoke, alter, enlarge or relax the requirements of this contract, or to sanction any new-work, additions, alterations, deviations or omissions unless such an authority may be specially conferred by a written order of the Architect and Employer.

The Employer's representative shall have to give notice to the Contractor or his representative about the non-approval of any work or materials and such works shall be suspended or the use of such materials should be discontinued until the decision of the Architect is obtained. The work will from time to time be examined by the Architect or the Employer's representative, but such examinations shall not in any way exonerate the contractor from the obligation to remedy any defects, which may be found to exist at any stage of the work or after the same is completed. Subject to the limitations of the clause, the contractor shall take instructions only from the Architect and Employer.

18. **ASSIGNMENT OF SUB-LETTING:**

The works included in the contract shall be executed by the contractor and the contractor shall not directly or indirectly transfer, assign or underlet the contract or any part/share thereof or interest therein without the written consent of the Architect and Employer, and no undertaking shall relieve the contractor from the full and entire responsibility of the contract or from active superintendence of the works during their progress.

19. **SUB-CONTRACTORS:**

All specialists, merchants, tradesmen, and others, executing any work or supply and fixing any goods for which prime cost prices or provisional sums are included in the Schedule of Quantities and/or specifications, who may be nominated or selected by the Architect and employer and hereby declared to be sub-contractors employed by the Contractor, are herein referred to as nominated sub-contractors. No nominated sub-contractors shall be employed on or in connection with the works, against whom the contractor shall make reasonable objection or (see where the Architect and contractor shall otherwise agree), who will not enter into a contract provided.

a. The nominated sub-contractors shall indemnify the contractor against the same obligations in respect of the sub-contract as the contractor is under, in respect of this contract.

b. The nominated sub-contractors shall indemnify the contractor against claims in respect of any negligence by the sub-contractor, his servants or agents or any misuse by him or them of any scaffolding or other plant, the property of the contractor or under any Workman's Compensation Act in force.

c. Payment shall be made by the contractor to the nominated sub-contractor, within 14 days of receipt of the Architect's certificate, provided that before any certificate is issued, the contractor shall upon request furnish to the Architect proof that all nominated sub-contractor's account included in the previous certificates have been duly discharged; in default whereof the Employer may pay the same upon a certificate of the Architect and deduct the amount thereof from any sums due to the contractor. The exercise of this power shall not create any contract between Employer and Sub-contractor.

20. **VARIATIONS NOT TO VITIATE CONTRACT:**

The contractor shall when directed in writing by the Architect, omit from or vary works shown upon the drawings or described in the specifications or included in the priced schedule of quantities, but the contractor shall not make any alterations or additions to or omissions from the works or any deviations from the provisions of the Contract without such authorizations or direction in writing from the Architect and Employer.

No claim for any extra item or deviations shall be allowed, unless it shall have been executed by the Authority of the Architect and Employer as herein mentioned. Any such extra item or deviation is hereinafter referred to as an authorized extra item or deviation. No variations i.e., additions, omissions or substitutions shall vitiate the contract.

The rate of items not included in the bill of quantities shall be settled by the Architect and Employer in accordance with the provisions of clause 22, hereof.

21. MEASUREMENTS OF WORKS:

The Architect/PMC may from time to time intimate the Contractor that he requires the works to be measured and the contractor shall forthwith attend or send a qualified agent to assist PMC/Architect's representative in taking measurements and calculations, and to furnish all particulars or give all assistance required by either of them.

Should the contractor not attend or neglect or omit to send such an agent, then the measurements and calculations, and to furnish all particulars or give all assistance required by either of them.

Should the contractor not attend or neglect or omit to send such an agent, then the measurements taken by the PMC/Architects representative approved by them shall be taken to be the correct measurements. The mode of measurements wherever not mentioned in contract documents be taken in accordance with the Indian Standard of Method of measurements of building works (I.S.1200 – 1958) and its revisions, if any. In case of any discrepancy between various contract documents on mode of measurements, the mode given in Bill of Quantities will take precedence over others.

The contractor or his agent may at the time of measurement take such notes and measurements as he may require.

All authorized extra works, omissions and all variations made without the Architect's knowledge, if substantially sanctioned by him in writing shall be included in such measurements.

22. PRICES FOR SUBSTITUTIONS/EXTRA ETC., ASCERTAINMENT OF:

Should it be found after the completion of the works from measurements taken (in accordance with the previous paragraph) that any of the quantities or amounts specified for the works in the priced schedule of quantities of work thus ascertained are less or greater than the amounts and/or tender or that any variations, is made, and any substituted/ extra (new) items have been executed, the valuation of such quantities/items, amounts or variations, unless previously or otherwise agreed upon, shall be made in accordance with the following rules:

a. The net rates or prices in the original tender shall determine the valuation of the extra (additional quantities and or extra/substituted item of work), where that work is of a similar character and executed under similar conditions of the work priced therein. This applied to extra and substituted items of work to the extent, they are similar in nature to the items in the contract.

b. The net prices given in the original ender shall determine the value of the items omitted, provided if omissions vary the conditions under which any remaining items of work are carried out, the prices for the same shall be valued under thereof.

c. Where extra/substituted item of works are not of similar character (either partly & fully) and/or executed under similar conditions as aforesaid or where the omissions vary the conditions under which any remaining items of works are carried out or if the amount of any omission or additions relative to the amount of the whole of the contract works or to be any part thereof shall be such that in the opinion of the Architects the net rate or price contained in the priced schedule of quantities or tender or for any item of the work involves less or more beyond that reasonably contemplated by the Contractor or is by reason of such omission or addition rendered unreasonable for in-applicable, the Architect shall fix in consultation with the Employer such other rates or prices as in the circumstances he shall think reasonable and proper, which shall be final and binding on the contractor. For extra and substituted items this will apply for portions of the items for which, items of similar nature are not available in the contract.

d. Where extra and or substituted items of work cannot be properly measured or valued, the contractor shall be allowed based on the net local day work rates and wages for the district and prevalent market rates for materials etc., at the time of ordering that item; provided that in either case vouchers for wages paid specifying the daily time (and if required by the Architect, the workmen's name) and materials employed at or before the end of the week following that in which the work has been executed.

The measurements and valuations in respect of the extra and substituted items of work shall be completed within the "Period of final measurement" or within 3 (three) months from the completion of the contract works as defined under clause No.26 (certificate of virtual completion.

23. UNFIXED MATERIALS:

When any materials intended for the works shall have been placed at site by the contractor, such materials shall not be removed there from (except for the purposes of being used on the works) without the written authority of the Architect and Employer and when the contractor shall have received payment in respect of any certificate in which the architect shall have stated that he has taken into account the value of such unfixed materials on the works such materials shall become the property of the Employer and the Contractor shall be liable for any loss or damage to any such materials.

24. REMOVAL OF IMPROPER WORK AND MATERIALS:

The Architect shall, during the progress of the works, have power to order in writing from time to time the removal from the works, within such reasonable times as may be specified in the order, of any materials which in the opinion of the Architect and Employer are not in accordance with the specifications or the instructions of the Architect and Employer; and the substitution with proper materials and the removal and proper re-execution of any work, which has be executed with materials or workmanship, not in accordance with the contract/drawings and specifications or instructions etc., the contractor shall forthwith carry out such orders at his own cost. In case of default on the part of the contractor to carry out such orders, the Employer shall have the power to employ and pay other persons to carry out the same and all expenses consequent thereon or

incidental thereto shall be borne by the Contractor, and shall be recoverable from the contractor by the Employer, or may be deducted by the Architect, from any money due or may become due to the contractor for this work or on any other account.

Instead of this procedure for work not done in accordance with the contract, the Architect and Employer may allow such work to remain, and in that case may make allowance for the difference in value together with such further allowance for damages to the Employer, as in his opinion may be reasonable. This allowance shall be recoverable from the contractor by the Employer, or may be deducted by the Architect, from any money due or may become due to the contractor for this work or on any other accounts. The decision of Architects in these matters shall be final and binding on the contractor.

25. DEFECTS AFTER COMPLETION:

Any defect, shrinkage, settlement or other faults which may appear with in the "Defects Liability Period" stated in the Appendix on Page 10 i.e. within 12 months after the virtual completion of the works arising in the opinion of the Architect and the Bank, from materials or workmanship not in accordance with the contract, shall upon the directions and writing of the Architect and Employer and within such reasonable time as shall be specified therein, be rectified and made good by the Contractor at his own cost. In case of default, the Employer may employ any other person to amend and make good such defects, shrinkage, settlements or other faults. All damages, loss and expenses consequent therein or incidental thereto shall be made good and borne by the contractor and such damage, loss and expenses shall be recoverable from him by the employer or may be deducted by the Employer, the damages, loss and expenses from any sums that may be due to the contractor or amount retained under condition 38 (Certificate and payment) and in event of the amount retained being insufficient recover the balance from the amount held against EMD & Security deposit or any other amount due or may became due later.

26. CERTIFICATE OF VIRTUAL COMPLETION:

The contractors shall intimate in writing to the Architects, as and when the works are complete in all respects in order to enable the Architect to intimate the Employer to take possession of the same. The works shall not be considered as virtually completed, until the Architect has certified in writing that the same have been "Virtually completed" and accepted by the employed. The defects liability period shall commence, only from the date of such virtual completion certificate. On successful completion of entire works covered by the contract to the full satisfaction of the SBI, the contractor shall ensure that the following works have been completed to the satisfaction of the SBI.

a) Clear the site of all scaffolding, wiring, pipes, surplus materials, contractor's labour, equipment and machinery.

b) Demolish, dismantle and remove the contractor's site office, temporary works, structures including labour sheds/camps and constructions and other items and things whatsoever brought upon or erected at the site or any land allotted to the contractor by the SBI and not incorporated in the permanent works.

c) Remove all rubbish, debris etc from the site and the land allotted to the contractor by the SBI and shall clear, level and dress, compact the site as required by the SBI.

d) Shall put the SBI in undisputed custody and possession of the site and all land allotted by the SBI.

e) Shall hand over the work in a peaceful manner to the SBI.

f) All defects/imperfections have been attended and rectified as pointed out by the SBI to the full satisfaction of SBI.

Upon the satisfactory fulfilment by the contractor as stated above, the contractor shall be entitled to apply to the Architect/Consultant for the certificate. If the Architect/Consultant is satisfied of the completion of the work, relative to which the completion certificate has been sought, the Architect/Consultant shall within fourteen (14) days of the receipt of the application for virtual completion certificate, issue a VCC in respect of the work for which the VCC has been applied. This issuance of a VCC shall be without prejudice to the SBI's rights and contractor's liabilities under the contract including the contractor's liability for defects liability period nor shall the issuance of VCC in respect of the works or work at any site be construed as a waiver of any right or claim of the SBI against the contractor in respect of works or work at the site and in respect of which the VCC has been issued.

27. OTHER PERSONS ENGAGED BY THE EMPLOYER:

The Employer reserves the right to use the premises and any portions of the site for the execution of any work not included in this contract which he may desire to carry out through other persons, and the contractor is to allow all reasonable facilities for the execution of such work, except by special arrangement with the Employer. Such work shall be carried out in such a manner a not to impede the progress of the works included in the contract, and the contractor shall not be responsible for any damage or delay which may happen to or be occasioned by such work.

28. INSURANCE IN RESPECT OF DAMAGE TO PERSONS AND PROPERTY:

The contractor shall be responsible for all injury to persons, animals or things and for all structural and decorative damage to property, which may arise from operation or neglect of himself or any of his or sub-contractor's employees, whether or any other cause whatever in any way connected with the carrying out of this contract. This clause shall be held to include, inter alia any damage to buildings, whether immediately adjacent or otherwise, any damage to roads, caused to the buildings and works forming the subject of this contract by frost or other inclement weather. The contractor shall indemnify the employer and hold him harmless in respect of all and any expenses arising from any such injury or damage to persons or property as aforesaid and also in respect of any claim made in respect of injury or damage under any acts of government or otherwise, and also in respect of any award of compensation or damages consequent upon such claim.

The Contractor shall reinstate all damages of every sort mentioned in this clause, so as to deliver up the whole of the contract works complete and perfect in every respect and so as to make good or otherwise satisfy all claims for damage to the property of third parties.

The contractor shall indemnify the Employer against all claims which may be made against the Employer, by any member of the Public or other party, in respect of anything which may arise in respect of the works or in consequence thereof and shall at his own cost, effect and maintain until one month after the works are taken over by the Employer or three months after the date of

completion of the contract with an approved office, a policy of Insurance in the joint names of the Employer and the contractor against such risks and signing of the contract. The contract shall also indemnify the employer against all claims which may be made upon the Employer whether under the Workmen's compensation act or any other statute in force during the currency of this contract or at common law in respect of any employees of the contractor or of any sub-contractor and shall at his own expense effect and maintain until one month beyond the virtual completion of the contract, with an approved office. A policy of Insurance in the joint names of the Employer and the Contractor against such risks and deposit such policy or policies with the Architects from time to time, during the currency of the contract. In default of the contractor insuring as provided above, the Architect on behalf of the Employer may so insure and may deduct the premiums paid from any money due or which may become due to the contractor.

The contractor shall be responsible for anything which may be excluded from the Insurance Policies above referred to and also for all other damages to any property arising out of and incidental to the negligent or defective carrying out of this contract however, such damage shall be caused.
The Contractor shall also indemnify the Employer in respect of any costs, charges or expenses arising out of any claim or proceedings and also in respect of any Award of or compensation of damages arising there from.

The Employer with the concurrence of the Architect shall be at liberty and is hereby empowered to deduct the amount of any damages, compensations, costs, charges and expenses arising or occurring from or in respect of any such claims of damages from any sums due or to become due to the contractor.

29. **CONTRACTOR'S ALL RISK POLICY:**

The contractor shall within 14 days from the date of commencement of the work insure the works at his cost and keep them insured until one month after the works are taken over by the Employer or three months after the date of completion whichever is earlier, against loss or damage by fire and usual risks other than fire against which insurers generally provide cover in a CONTRACTOR'S ALL RISK POLICY, with an insurer to be approved the Architects, in the joint names of the Employer and contractor (the name of the former being placed first in the policy), progressively for the full amount of the contract, in three stages, beginning with 1/3 of the contract value, and for any further sum as called upon to do so by the Architect, with the prior written consent of the Employer, the premium of such further sum being allowed to the contractor as an authorized extra. Such policy shall cover the property of the Employer only and Architects and surveyor's fees for assessing the claim and in connection with his services generally in reinstatement and shall not cover any property of the contractor of any subcontractor or employee. The contractor shall deposit the policy and receipts for the premiums paid with the Architects, within twenty-one days of the date of commencement of work, unless otherwise instructed, as provided above failing which the employer or the Architect on his behalf may insure and may deduct the premium paid from any money that may be due or that may become due to the contractor. The contractor shall as soon as the claim under the policy is settled, or the work reinstated by the insurers should they elect to do so, proceed with all due diligence with the completion of the works in the same manner as though the fire or other such risk had not occurred and in all respects under the same conditions of contract.

The contractor in case of rebuilding or reinstatement after fire or other such usual risk shall be entitled to such extension of time for completion as recommended by the Architect.

Please refer Special Conditions of Contract, clauses.

30. **MINIMUM AMOUNT OF THIRD-PARTY INSURANCE:**

Such insurance shall be effected with an insurer and in terms approved by the SBI which approval shall not be reasonably withheld and for at least the amount stated below. The contractor shall, whenever required, produce to the Architect/Consultant the policy or policies of insurance cover and receipts for payment of the current premium.

The minimum insurance cover in case of death is **Rs.25.00 lakhs** per occurrence and in case of injuries proportional paid by the contactor. After each occurrence contractor will pay additional premium necessary to make insurance valid for subsequent occurrences also.

31. **COMMENCEMENT AND COMPLETION:**

The contractor shall be allowed admittance to the site on the "Date of Commencement" stated in the Appendix, and he shall thereupon and forthwith begin the works and shall regularly proceed with and complete the same (except such painting or other decorative work as the Architect may desire to delay) on or before the 'Day of Completion" started in the Appendix subject nevertheless to the provisions for extension of time hereinafter contained.

32. **DELAY AND EXTENSION OF TIME:**

If in the opinion of the Architect the works be delayed:

a. by force majeure, or

b. by reason of any exceptionally inclement weather, or

c. by reason of proceedings taken on threatened by or dispute with adjoining or neighbouring owners or public authorities arising otherwise, than through the contractor's own default, or

d. by the works or delays of the contractors or tradesmen engaged or nominated by the Employer or Architect and not referred to in the Schedule of Quantities and/or specifications, or

e. by reason of civil, commotion, local combination of workmen or strike or lock-out affecting any of the buildings/traders, or

f. by reason of the Architect's instructions as per clause 2, or

g. In consequence of the contractor not having in due time, necessary instructions from the Architect, for which he shall have specifically applied in writing ahead of time, giving reasonable time to prepare such instructions.

The Architect shall make a fair and reasonable assessment for extension of time, for completion of the contract works which may be approved by the Employer.

In case of such strike or lock-out, the contractor shall as soon as possible, give written notice thereof to the Architect, but the contractor shall nevertheless constantly use his endeavours to prevent delay and shall do all that may reasonably be required, to the satisfaction of the Architect to proceed with the work.

33. DAMAGES FOR NON-COMPLETION:

If the contractor fails to complete the works by the date stated in clause 31 (date of completion) or within any extended time certified under clause 32 (extension of time) and if the Architect shall certify in writing on or before the date of issue of the certificate for the last payment to which the contractor may become entitled hereunder that the works could have been reasonably completed by the said date or within the said extended time, then the contractor shall pay to the Employer or allow the employer to recover from dues to the contractor on any account the sum stated in clause 16 of "Notice to contractors" (Page 6) (liquidated damages and not by way of penalty), subject to a maximum amount of 5% as stated in Appendix of General Conditions of contract (page 10) and as stated in clause 16 of "Notice to contractors" (Page 6) and such damages may be deducted from any money due or which may become due to the contractor.

The deduction of such sums shall not, however, absolve the contractor of his responsibility and obligations to complete the work in its entirety.

34. FAILURE BY CONTRACTOR TO COMPLY WITH ARCHITECT'S INSTRUCTIONS:

If the contractor after receipt of written notice from the Architect requiring compliance with such further drawings and/or Architects instruction, fails within seven days to comply with the same, the Architect and Employer may employ and pay other persons to execute any such work whatsoever as may be necessary to give effect thereto and all costs incurred in connection therewith shall be recoverable from the contractors by the employer on a Certificate by the Architect as a debit or may be deducted by him from any money due or which may become due to the contractors.

35. ARCHITECT'S DELAY IN PROGRESS:

The Architect may delay the progress of the works in case of rains or otherwise, without vitiating the contract and grant such extension of time with the approval of the Employer for the completion of the contract as he may think proper and sufficient in consequence of such delay, and the contractor shall not make any claim for compensation or damage in relation thereto.

36. PRIME COST AND PROVISIONAL SUMS:

a. Where "Prime Cost" (P.C.) prices or provisional sums of money are considered for any goods or works in the specifications or Schedule of quantities or deviations hereof, the same are exclusive of any trade discounts, or allowances, discount for cash, or profit which the contractor may require and or carriage and fixing.

b. All goods or work, for which prime cost prices or provisional sums of money are considered may be selected or ordered from any manufacturers or firms, at the discretion of the Architect or the Employer. The Employer reserves to himself the right of paying directly for any such goods or work and the Architect may deduct the said prices or sums from the amount of the contract. Should any goods or works for which prime cost prices or provisional sums are considered or portions of same be not required, such prices or sums, together with the profits allowed for such additional amount as the Contractor may have allowed for carriage and fixing will be deducted in full from the amount of the Contract. Whether the goods be ordered by the Contractor or otherwise, the contractor shall at his own cost fix the same, if called upon to do so, and the contractor shall also receive and sign for such goods and be responsible for their safe custody as and from the date of their delivery upon the works.

c. In cases in which provisional quantities of items/materials are contained in the contract, the contractor shall provide such materials and or execute such items to such amounts or to greater or lesser amounts as the Architect shall direct in his schedule of quantities.

d. No prime cost sum or sums (or any portion thereof) shall be included in any certificate for payment to the contractor until the receipted accounts relating to them have been produced by the contractor to the Architect. Such accounts shall show all discounts and any sum or sums in respect of such discounts shall be treated as a trade discount. Provided always, that should the contractor in lieu of producing such receipted accounts, request the Architect in writing to issue a certificate to the Employer for such sum or sums, due either on account or in settlement to a sub-contractor direct, the Architect shall, upon satisfying himself that the sub-contractor is entitled to the same, so issue the certificate and such sum or sums be deducted from the amount of the contractor, at the settlement of accounts and any profit or sum to which the contractor is properly entitled, in respect of such sub-contract, and which is in conformity with the terms of contract as though the amount of such certificates to the sub-contractor has been included in a certificate drawn in favour of the contractor.

e. If the contractor neither produces the receipt nor gives authority to the Architect to issue a certificate in favour of such sub-contractor direct, the Architect may upon giving the contractor SEVEN DAYS NOTICE in writing of his intentions to do so, issue to the sub-contractor such certificate direct to the Employer and obtain a receipt from the sub-contractor, which receipt shall be deemed as a discharge for the amount of such certificates, as though given by the contractor. In such event, the contractor shall not be allowed any profit he may have added in the Schedule of Quantities upon such sub-contract.

f. The exercise of the option before referred to by the Contractor and the issue of certificates, as before described to sub-contractor direct of certificates by the Architect, shall not however, relieve the contractor from any of the liabilities in respect of insufficient, faulty of in completed work of the sub-contractor for which he may be liable under the terms of the contract.

37. **CERTIFICATES AND PAYMENTS:**

The contractor shall be paid by the Employer after due checking and after making necessary correction from time to time, by installments under Interim Certificates to be issued by the Architect on account of the works executed by the contractor based on the joint measurements taken by the PMC, the Architects representative and the contractors representative when in the opinion of the Architect, work to the approximate value named in the Appendix on Page 10 as "Value of work for Interim Certificates", (or less at the reasonable discretion of the Architect & Employer) has be executed in accordance with the Contract, subject however, to a retention of the percentage of such value named in the Appendix hereto mentioned as "Retention Percentage for Interim Certificates", until the total amount retained shall reach the sum named in the appendix as Total Retention Money, after which time the installments shall be upto the full value of the work subsequently so executed plus such amount as he may consider proper on account of materials delivered upon the site by the contractor for use in the work and available on the date of billing.

And when the works have been virtually completed and the Architect shall have certified in writing that they have been so completed, the contractor shall be paid by the Employer after satisfying himself in accordance with the certificate to be issued by the Architect, the sum of money named in the Appendix as 'Instalment after Virtual Completion' being a part of the said Total Retention Money.

The Contractor shall be entitled to the payment of the final balance (balance security deposit/retention money) in accordance with the final certificate to be issued in writing by the Architect at the expiration of the period referred to as 'The Defects Liquidation Liability period' in appendix on page 10 hereto, from the date of virtual completion or as soon after the expiration of such period as the work shall have been finally completed and all defects made good according to the true intent and meaning hereof, whichever shall happen, provided always that the issue by the Architect of any Certificate during the progress of the works or after the completion shall not relieve the contractor from his liabilities in cases of fraud, dishonesty or fraudulent concealment relating to the works or materials or any matter dealt within the certificate, and in case of all such defects and insufficiencies in the works or materials, which reasonable examination would have disclosed. No certificate of the Architect shall by itself be conclusive evidence that any works or materials to which it relates are in accordance with the contract.

The Architect shall have power to withhold any Certificate, if the works or any parts thereof are not being carried out to his and employers satisfaction. The Architect may by any certificate make any correction in any previous Certificate, which shall have been issued by him. Payment upon the Architect's Certificates shall be made within the period named in the Appendix as 'Period of Honoring of Certificates, after such certificates have been delivered to Employer.

38. **NOTICES:**

Notices for the Employer, the Architect, or the Contractor may be served personally or by being left at or sent by registered post / Email to the last known place of abode or business of the party to whom the same is to be given or in the case of the contractor by being left on the works. In case of a company or corporation, notices may be served at or sent by Email / registered post to the

Registered Offices of the Company or Corporation. Any notice sent by registered post / Email shall be deemed to be served at the time, when in the ordinary course of post it would be delivered.

39. **TERMINATION OF CONTRACT BY THE EMPLOYER:**

If the contractor being an individual or a firm, commit any act of insolvency, or shall be adjudged as Insolvent or being an incorporated Company shall have an order for compulsory winding up made against it or pass an effective resolution for winding up voluntarily or subject to the Supervision of the Court and of the Official Assignee of the Liquidator in such acts of insolvency or winding up, shall be unable within seven days after notice to him requiring him to do so, to show to the reasonable satisfaction of the Architect that he is able to carry out and fulfill the contract, and to give security thereof, if so required by the Architect.

Or if the contractor (whether an individual, firm or incorporated Co.) shall suffer execution to be issued.

Or shall suffer any payment under this contract to be attached by or on behalf of any of the creditors of the contractor.

Or shall assign or sublet this contract without the consent in writing of the Architects/Employer first obtained.

Or shall charge or encumber this Contract or any payments due or which may be due to the Contract there under.

Or if the Architect shall certify in writing to the Employer that the contractor,

a. has abandoned the contract or

b. has failed to commence the works, or has without any lawful excuse under these conditions suspended the progress of the works for 14 days, after receiving from the Architect written notice to proceed, or

c. has failed to proceed with the works with such due diligence and failed to make such due progress as would enable the works to be completed within the time agreed upon, or

d. has failed to remove materials from the site or to pull down and replace work for 7 days after receiving from the Architect written notice that the said materials or work were condemned and rejected by the Architect under these conditions, or

e. has neglected persistently to observe and perform all or any of the acts, matters or things by this contract to the observed and performed by the Contractors for 7 days after written notice shall have been given to the contractor requiring the contractor to observe or perform the same, or

f. has to the determent of good workmanship or in defiance of the Architect's instructions to the contrary, sublet any part of the contract.

Then and in any of the said cases the Employer with written consent of the Architect, may notwithstanding any previous waiver, after giving 7 days notice in writing to the contractor, determine the contract, but without hereby affecting the powers of the Architect to continue in force as full as if the contract has not been so determined and as if the works subsequently executed has been executed by or on behalf of the contractor.

And further, the Employer under recommendations of the Architect, by his Agents, or servants may enter upon and take possession of the works and all plants, tools, scaffoldings, sheds, machinery, and other equipment and materials also laying upon the premises or the adjoining lands or roads, and use the same as his own property or may employ the same by means of his own servants and workmen in carrying on and completion the works or by employing any other contractors or other persons to complete the works and the contractor shall not in any way interrupt or do not act, matter or thing to prevent or hinder such other contractor or other persons or person employed for completing and finishing or using the materials and plant for the works. When the works shall be completed or soon thereafter as convenient, the Architect shall give a notice in writing to the contractor to remove his surplus materials and plant, and should the contractor fail to do so, within a period of 14 days, after receipt thereof by him, the Employer shall sell the same by publication and shall give credit to the contractor for the amount realized. The Architect shall thereafter ascertain and certify in writing under his hand when (if anything) what shall be due to or payable by the Employer for the value of the said plant and materials so taken possession of by the Employer, and the expense or loss, which the Employer shall have incurred due to the contractor, and the amount which shall be so certified shall thereupon be paid by the Employer to the contractor or by the contractor to the Employer, as the case may be.

40. **TERMINATION OF CONTRACT BY CONTRACTOR:**

If payment of the amount payable by the Employer under certificate of the Architect as provided for hereinafter shall be in arrears and unpaid for 30 (thirty) days after notice in writing requiring payment of the amount, as aforesaid shall have been given by the Contractor to the Employer, or if the Employer obstructs the issue of any such certificates, or if the employer commits any Act of insolvency, or if the Employer (being an incorporated company) shall have an order made against him or pass an effective.

In arriving at the amount of such payment, the net rates contained in the contract shall be followed, or where the same may not apply, valuation shall be made in accordance with clause 22 thereof.

41. Matters to be finally determined by the Architects and the Bank (Called excepted matters) – (refer 43(a) below), which shall be final, conclusive and binding on the following matters:

a) Instructions
b) Transactions with local authorities
c) Proof of quality of materials

d) Assigning or under letting of the contract,
e) Certificate as to the causes of delay on the part of the contractor and justifying extension of time or otherwise,
f) Rectification of defects pointed out during the defects liability period.
g) Notice to the contractor to the effect that he is not proceeding with due diligence.
h) Certificate that the contractor has abandoned the contract.
i) Notice for determination of the contract by the Employer.

42. **ARBITRATION:**

a. When the contractor is dissatisfied with the decision of the Architect/Employer, the contractor is required to give a notice to the Employer within 30 days of the receipt of such decision, for the appointment of the Arbitrator for the settlement of the outstanding disputes.

b. Asst. General Manager (P&E Dept) shall be appointed to refer those disputes for adjudication to a sole arbitration.

c. It is also a term of the contract that if the contractor does not make any demand for Arbitrator in respect of any claims within 90 days of receiving the intimation from the Bank that the final bill is ready for payment, the claims if any received after 90 days period shall be absolutely barred from reference to the Arbitrator.

d. All disputes or differences of any kind whatsoever, which shall at any time arise between the parties hereto touching or concerning the works or the execution or maintenance thereof this contract, or the rights touching or of this contract, effect thereof, or to the rights or liabilities of the parties arising out of or in relation thereto, whether during progress or after determination, foreclosure or breach of the contract (other than those in respect of which the decision expressed to be final and binding in cases listed out in condition 40 above), Architects shall, after written notice to either party to the contract and to the appointing Authority, who shall be appointed for this purpose by the employer refer those disputes for adjudication to a sole arbitrator, to be appointed as hereinafter provided.

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

f. The contractor shall on receipt by him of the names as aforesaid, select any one of the persons named to be appointed as a sole arbitrator and communicate his name to be appointed as a sole arbitrator to the Appointing Authority, within thirty days of receipt of the names by him. The Appointing Authority shall thereupon without any delay appoint the said person as the sole arbitrator. If the contractor fails to communicate such selection as provided above within the period specified, the Appointing Authority shall make the selection and appoint the selected person as the sole arbitrator.

g. If the Appointing Authority fails to send to the contractor the panel of three names as aforesaid within the period specified, the contractor shall send to the appointing authority a panel of three names of persons, who shall be unconnected with either party. The Appointing Authority shall on receipt by him of the names as aforesaid select any one of the persons named and appoint his as the sole arbitrator. If the Appointing Authority fails to select the person and appoint him as the sole arbitrator within 30 days of receipt by him of the panel and inform the contractor accordingly, the contractor shall be entitled to appoint one of the persons from the panel as the sole arbitrator and communicate his name to the Appointing Authority.

h. If the Arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacates his office due to any reasons whatsoever, another sole arbitrator shall be appointed as aforesaid.

i. The work under the contract, shall however, continue during the arbitration proceedings and no payment due or payable to the contractor shall be withheld on account of such proceedings.

j. The arbitrator shall be deemed to have entered on the reference, on the date he issues notice to both the parties, fixing the date of first hearing.

k. The arbitrator may from time to time, with the consent of the parties, enlarge the time for making and publishing the award.

l. The Arbitrator shall give a separate award in respect of each dispute or difference referred to him. The Arbitrator shall decide each dispute in accordance with the terms of the contract and give a reasoned award. The venue of arbitration shall be such a place, as may be fixed by the Arbitrator in his sole discretion.

The fees, if any, of the Arbitrator, if required to be paid before the award is made and published, shall be paid half and half by each of the parties. The costs of the reference and of the award including the fees, if any, of the Arbitrator, who may direct to any by whom and in what manner such costs or any part there of shall be paid and may fix or settle the amount of costs to be so paid.

m. The award of the Arbitrator shall be final and binding on both the parties.

n. Subject to aforesaid, the provisions of the Arbitration and Conciliation Act, 1996, or any statutory modifications or re-enactments thereof, and the rules made thereunder, and for time being in force, shall apply to the arbitration proceedings under this clause.

6. INDEX TO SPECIAL CONDITIONS OF CONTRACT

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2. Contractor to visit site
3. Execution of work (Prices to include)

4. R.C.C Work

5. Schedule of Quantities

6a. Quantities liable to vary

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59. Special conditions of contract

60. B.I.S. Codes

61. Conditions for engaging Electrical Sub-Contractor

SPECIAL CONDITIONS OF CONTRACT

1. **INSPECTION OF DRAWINGS:**

Before filling in the tender, the contractor will have to check up all drawings and Schedule of quantities and will have to get immediate clarifications from the Architect on any point, that he feels is vague or uncertain. No claim/damages or compensation will be entertained on this account.

2. **CONTRACTOR TO VISIT SITE:**

Each tenderer must, before submitting his tender, visit the site of works, so as to ascertain the physical site conditions prices and availability and quality of materials according to specifications before submitting the quotations. No excuse regarding non-availability of any materials or changes in the price will be entertained or extra allowed on that account.

The existing adjacent buildings belonging to Govt/private which are in close proximity of the proposed construction, hence the contractor shall cater for all arrangements to carry out the work without causing any disturbance to the occupants by providing screens with bamboo matting or other suitable material approved by Architects/Engineer. The contractor shall ensure that no dust or construction material falls near/around the existing buildings.

2.1 Personnel Safety Measures for Labour

2.1.1 This shall be ensured as per the CPWD Safety Code given in "General conditions of contract for CPWD works - 2014".

2.1.2 The Contractor will take adequate precautions to prevent danger from electrical equipment i.e. no material will be so stacked or placed as to cause danger or inconvenience to any person or the public.

2.1.3 All necessary fencing and lights will be provided to protect the public.

2.1.4 All electric machines to be used in the construction will conform to the relevant Indian Standards (IS) codes, will be free from patent defect, will be kept in good working order, will be regularly inspected and properly maintained as per IS provision and to the satisfaction of the Engineer-in-charge.

2.1.5 The contractor will provide, erect and maintain informatory/safety signs, hoardings written in English, Hindi, Local Language wherever required or as suggested by the Engineer-in-charge.

2.2 Plantation/preservation/conservation measures

2.2.1 The contractor will take reasonable precaution to prevent his workmen and employees from removing and damaging any flora (plant/vegetation) from the project area.

2.2.2 All fossils, coins, articles of value of antiquity, structures and other remains or things of geological or archaeological interest discovered on any project location during excavation/construction shall be the property of the Government, and shall be dealt with as per provisions of the relevant legislation. The contractor will take reasonable precaution to prevent his workmen or any other persons from removing and damaging any such article or thing. He will, immediately upon discovery thereof and before removal inform the Engineer-in-charge of such discovery and carry out the official instructions of Engineer-in-charge for dealing with the same, till then all work shall be stopped.

2.2.3 The contractor shall make at his own cost all necessary arrangements for maintaining water level, in the area where works are under execution low enough so as not to cause any harm to the works or problems in carrying out with the execution and the rates for all items of work shall be considered as inclusive of pumping out or bailing out water, if required, for which no extra payment shall be made. This will include water coming from any source, such as rains, accumulated water, floods, leakages from sewer and water mains, sub-soil water table being high or due to any other cause whatsoever. The contractor shall make necessary provision of pumping, dredging, bailing out water coming from all above sources and excavation and other works shall be kept free of water by providing suitable system approved by Engineer-in-charge.

2.2.4 The contractor shall not store/dump construction materials or debris near the boundary wall or external roads. All demolition and construction waste shall be managed as per the provisions of the Construction and Demolition Waste Management Rules 2016.

2.2.5 The contractor shall get prior approval of construction management Plan CMP from PMC; The CMP will elaborate the construction strategies and all activities such as; Installation of Cranes Design and Methodology, Site for Worker hutments, Batching plant, Construction material storage, Debris storage.

2.2.6 The contractor shall take appropriate protection measures like covering the building periphery with Green Horticulture Fabric /plastic sheets /or other similar materials to ensure that no construction material dust fly outside the building area.

2.3 IGBC India - Design Guidelines to be followed during excavation stage

Construction Activity Pollution Prevention- Site Erosion and Sedimentation control Plan

2.3.1 Create and implement an erosion and sedimentation control plan for all construction activities associated with the project. The plan must conform to erosion and sedimentation control requirements of Local Standards and Codes (OR) National Building Code of India (NBC), Part 10, Section 1, Chapters 4 & 5, whichever is more stringent. The plan shall meet the following objectives:

2.3.2 Prevent sedimentation of storm sewer or receiving streams and/ or air pollution with dust and particulate matter.

2.3.3 Minimize site disturbance such as soil pollution due to spilling of the construction material and its mixing with rainwater.

2.3.4 Use staging and spill prevention and control plan to restrict the spilling of the contaminated material on site.

2.3.5 Topsoil, if any shall be stripped to a depth of 300 mm from areas proposed to be occupied by buildings, roads, paved areas and external services. Topsoil is rich in organic content and is essential to establish new vegetation. It shall be stockpiled to a height of 400 mm in designated areas and shall be reapplied to site during plantation of the proposed vegetation.

2.3.6 Topsoil shall be separated from sub-soil debris and stones larger than 50 mm diameter.

2.3.7 The stored topsoil may be used as finished grade for planting areas. Sediment basins, contour trenching, mulching, soil stabilization methods may also be used to protect the top soil from erosion during construction.

2.3.8 Specify and limit construction activity in pre-planned/designated areas.

2.3.9 Consider employing strategies such as temporary and permanent seeding, mulching, earth dikes, silt fencing, sediment traps and sediment basins.

2.3.10 Stabilize the slopes of the excavated area to prevent erosion.

2.3.11 Provide photographic documentation of the above measures. (Min 18 relevant photographs)

2.4 Construction Waste management guidelines during Construction:

2.4.1 The project is aiming to divert construction, demolition and land clearing debris from landfill disposal and redirect recyclable recovered resources back to the manufacturing process or to redirect reusable materials to appropriate sites. Currently, the project is aiming to divert more than 75% of the construction, demolition and land clearing debris (by weight or by volume) from landfill disposal. The following measures are to be taken during the excavation stage:

2.4.2 Designate an area on site to segregate the waste generated on site.

2.4.3 Typically the waste generated can be segregated as Concrete Debris, Steel waste, Brick waste, tile waste, wood waste, glass waste etc.

2.4.4 Show documented evidence in form of site photos and maintaining records of the waste generated in tons on weekly basis.

2.4.5 Keep the waste segregation area clean with properly marked divisions.

2.4.6 Ensure that all the segregated waste collected on site as directed above is cleared on periodic basis for recycling.

2.4.7 Debris shall be transported to other sites for back filling. Documented evidence in the form of letter issued by the receiving contractor / site is required.

2.4.8 Other recyclable waste shall go back to the scrap vendor or manufacturer of recycling.

2.4.9 Documented evidence in the form of letter issued by the receiving/recycling agency is required for all waste types. Documented evidence in form of photos has to be provided.

3. EXECUTION OF WORK (PRICES TO INCLUDE):

i) The whole of the work as described in the Contract (including the Schedule of Quantities, the specifications and all drawings pertaining thereto) and as advised by the Architect & employer from time to time is to be carried out and completed in all its parts to the entire satisfaction of the Architect & Employer. Any minor details of construction, which may not have been definitely referred to in this contract, but which are usual in sound building, road and all construction practice and essential to the work, are deemed to be included in this contract. Rates quoted in the Schedule shall be inclusive of all freights, taxes, such as octroi, Sales tax, Royalties, duties, excise, turnover tax, sales tax on works contract, etc., as well as transportation, so as to execute the contract as per the rules and regulations of Local Bodies, State Government and Government of India. Any increase in these taxes and rates, during pendency of contract, shall be borne by the contractor and no extra claim on this account will be entertained.

The rates quoted in the tender should also include all charges for:

a)
1. Carrying
2. Hauling
3. Labour
4. Fixing
5. Watering
6. Cleaning
7. Making good and
8. Maintenance etc.

b) The contractor should arrange timely at his cost for all required.

i) Plant, machinery, scaffolding, formwork, ladders, ropes, nails, spikes, shuttering, temporary supports, platforms, tools, all materials etc., required for executing the work, and protecting them from weather and other normal/natural causes.

ii) Covering/protecting for the walling and other works, during inclement weather, strikes etc., as and when necessary and or as directed.

iii) All temporary canvas covers/covering, lights, tarpaulin, barricades, water shoots etc.

iv) All stairs and steps, thresholds and any other requisite protection for the works.

v) All required temporary weather-proof sheds at such places and in a manner approved by the Architect, for the storage and protection of materials, against the effects of sun and rain.

vi) All required temporary fences, lighting/signboards etc., guards, approaches and roads as may be necessary for execution of the contract works and for safegaurding the public.

vii) The whole of necessary plant and machinery like bull dozers, graders, road rollers, bitumen heating plants, blowers, pumps, concrete mixers, hoists, vibrators, scaffolding, formwork, tackle, cartage, labour etc., and removal of the same at the completion of works.

viii) Dewatering by bailing out or pumping out the water from foundation/trenches during the progress of work anywhere on site, to the satisfaction of the Architect & Employer: and clearing of the site.

c) The Architect & Employer will be the sole judge in deciding as to the suitability or otherwise of the tools/formwork/machinery or plant that may be brought to the work site by the contractor for the proper execution of the work.

d) The rates quoted by the tenderer in the Schedule of Probable items of work will be deemed to be for the finished work.

4. **R.C.C.WORKS:**

The contractor shall carry out all the RCC works, including formwork, strictly in accordance with drawings, details, relevant BIS specifications, and instructions of the Architects/Employer/Consulting Engineer. If any changes have to be made in the RCC designs, the contractors shall carry out the same without any extra charge. The Architect & Employer's decision in such cases shall be final and shall not be open to arbitration.

5. **SCHEDULE OF QUANTITIES:**

The Schedule of quantities forms part of the contract, but the Employer reserves the right to modify the same or any part thereof as per variation clause stated herein below. The contractor shall not be allowed any compensation or damages for the work which is so omitted or cancelled or added or substituted by the Architect & Employer.

6.a. **QUANTITIES LIABLE TO VARY:**

This clause applies for unlimited variations (+ or -) for items of foundations and those executed below plinth level. For all other items, only in case where + variations of any item exceeds 100% of Quantities of respective items given in the schedule of quantities of the contract, such additional quantities of those items shall be treated as extra items and valued as per clause 45 of special

conditions of contract, considering of that rates for these items cannot be derived from the contracted items of work.

The quantities indicated in the bill of quantities are only approximate, and hence may vary on either side (+ or -) for accomplishing the works enunciated under the scope of works, in accordance with designs, drawings and specifications and or instructions of the Architect & Employer. Variations may also occur, consequent upon addition or deletion or substitution of particular items, change of designs or specifications during the course of execution. The contractor, in either case, is bound to carryout the modified quantities upto +100% (plus one hundred percent) variation, without any enhancement in rates and at the same rates as per accepted original tendered rates.

b. **FILLING OF TENDERS:**

The rates and amounts given for all the items. The contractor should fill + / - % in the given column in online e tender (on the total estimated value).

7. **ACCESS FOR INSPECTION:**

The contractor is to provide at all times, during the progress of the works and the maintenance period, means of access with ladders, gangways etc., and the necessary attendants to move and adopt the same as directed for the inspection or measurement of the work by the Architect and Employer or any other agency employed by the client.

8. **DIMENSIONS:**

In all cases figured dimensions are to be accepted in preference to scaled sizes. Large scale details shall take precedence over small scale details/drawings. In case of any discrepancy, the contractor shall ask for a clarification, before proceeding with the work. Accordingly, if any work is executed without prior clarification, it is liable to be rejected and shall not be paid for,

9. **PROGRAMME OF WORKS:**

The contractor on starting the work shall furnish to the Employer and Architect a PERT/CPM programme, for carrying out the work stage by stage in the stipulated time, for the approval of Architects and Employer, and follow strictly the approved time schedule by incorporating changes, if any, so authorised by the Architect and Employer, to ensure the completion of construction work ins stipulated time. A graph or chart on individual item/group of items/trades of work shall be maintained, showing the progress both in terms of quantities and value, week by week. The contractor shall submit to the Employer and Architect a weekly progress report stating the number of skilled and unskilled labourers employed on the work, working hours done, quantity of cement, steel and other major items of materials (quantity and value wise) used and corresponding place, type and quantity of work done during the period.

The contractor must inform the Architects, 10 days in advance of requirement of respective drawings and details by him, from time to time. The contractor shall strictly adhere to the approved programme and arrange for the materials and labour etc., accordingly.

Despite repeated instructions, if the contractor fails to show satisfactory progress of the work, the Employer/Architect may take suitable action as deemed fit, including levying of liquidated damages not exceeding ½% of contract price for delay of every week or part thereof, subject to a limit of total liquidated damages levied under this clause to 5% of contract price without prejudice to any terms and conditions of the contract.

10. **OFFICES, STORES, SHEDS ETC., ON THE SITE:**

a. The contractor shall erect and maintain entirely at his own expense properly lighted, ventilated waterproof and lockable aircooled offices for the Architect's/ Employers representatives and for his own staff respectively on such parts as the Architects shall indicate. Separate offices for Architects and Employers representatives shall be constructed having minimum area of 20 Sqm, as per the sketch plan and specifications, which will be given by the Architects before starting the work. Contractor shall also provide and maintain, at his own cost, adequate water supply, closets and sanitary accommodation for exclusive use of Architect & Employer's representatives at site. In case, these offices have been provided with AC/GI sheet roofing, the same shall have false ceiling as directed. These offices shall be provided by the contractor with adequate numbers of windows, tables, chairs, steel cupboards, fans, lights and attendants etc., as directed by the architects. Necessary permission from various authorities will be obtained by the contractor and necessary fees shall be paid by the contractor prior to constructing such offices, and as well for stores, huts for labourers or any other temporary structures required for the due execution of work. Any penalty levied by local authorities, for not following their bye-laws/regulations etc., in the matter, will be borne by the contractor. The contractor shall pay for the Electricity and Water charges consumed. All these offices shall be demolished, and the materials shall be taken away from site and ground, left in good and proper order on completion of work, as required and directed.

b. The contractor shall provide for all necessary storage on the site, in a specified area for all materials, in such a manner that all such materials, tools etc., shall be duly protected from damages by weather or any other cause. Stores for storage of cement shall have all weatherproof floors, walls and roof and have proper locking arrangements and must be secure. All these must be maintained till the work is completed and so certified by the Architect. Necessary and adequate watch and ward for all such accommodations and stores shall be provided for by the contractor at his cost and same included in the rates/amounts quoted by him. All such stores shall be cleared away and the ground left in good and proper order on completion of this contract unless otherwise expressly mentioned herein.

c. All materials which are stored on the site such as cement, brick, metal sand etc., shall be stacked in such a manner as to facilitate rapid and easy checking of quantities of such materials and prevent deterioration in quality due to water etc.

d. In addition to the offices provided to Architect's Employer's representative, contractor shall provide accommodation for Project Management Consultants as specified.

11. **WATER AND ELECTRICITY:**

Contractor shall make his own and adequate arrangements for water required for drinking and construction purposes and also for required electric supply at site for satisfactory execution and completion of the work, at his own cost. The contractor shall get the water used for construction purpose tested periodically as per relevant BIS codes at his cost, and shall get the same approved from Architect and clients before using such water for the work.

12. **PROCUREMENT OF MATERIALS:**

Contractor shall procure all the materials including cement and steel required for the work from the open market. Time is the essence of the contract. Acceptance of the completion date by the contractor shall mean that he has taken into consideration the availability of all materials of approved make and quality in sufficient quantities at respective markets/sources, to enable him to complete the entire work in the stipulated period.

Contractor will get samples of all materials approved by the Architect and employer, before placing order/purchase/procurement. They shall conform to relevant B.I.S. codes and or tender specifications as applicable.

For all materials, the contractor shall quote for the best quality of the materials of best make/source or supply and they should be got approved by the architect and employer, before procurement.

In case sufficient quantities of approved quality materials from approved sources are not available in time, contractor may have to procure the same from neighboring areas even with longer leads, as required and directed, at no extra cost. In case approved good quality sand is not available consistently throughout the duration of the contract period, best quality of sand locally available may have to be screened and washed, as directed by the Architect and Employer depending upon the use of sand in different items of work, at no extra cost. The materials will be, however as per relevant BIS Codes and wherever applicable.

13. **SANITARY ACCOMMODATION IN SITE:**

The contractor shall provide and maintain at his own cost and expense adequate closet and sanitary accommodation for the use of his workmen and others in accordance with the rules and regulations of the relevant local authrorities/labour laws.

14. **FACILITIES TO OTHER CONTRACTORS:**

The contractor shall give full facilities and co-operation to all other contractors working at site doing plumbing, Electrical, civil works etc., as directed by the Architect & Employer and shall arrange his programme of work, so as not to hinder the progress of other works. The decision of the Architect & Employer, on any point of disputes between the various contractors, shall be final and binding on all parties concerned.

15. **TESTING:**

The contractor shall, as and when directed by the Architect & Employer, arrange to test materials and/or portions of the work at site in any approved laboratory at his own cost, in order to provide their soundness and efficiency. The contractor shall transport all the materials from site to the approved laboratory at his own cost. The contractor shall carryout all the mandatory tests as per list attached at the frequencies stated therein. Even after such tests, any materials brought to site or incorporated in the works are found to be defective or unsound or not as per approved samples, the contractor shall remove the same and re-erect at his own cost and without any additional time/period for the same, with reference to the date fixed for completing the work. In case these tests are not carried out at the frequencies stated, then proportionate costs of materials not so tested, including cost of testing and quantities of items of work executed with such materials, if otherwise accepted for retention in the work, will be deducted from the dues to the contractor. The deductions will be worked out by the Architect/client and shall be final and binding on him.

Tolerance on various material and items of work shall be allowed laid down in the documents below and the order of precedence shall be:

a) Relevant Indian Standards Specifications.
b) CPWD norms.
c) Manufacturer's Specifications.

In absence of above Architect's decision basing on the general practice being following shall be final.

16. **TESTING OF CONCRETE:**

The contractor shall make his own arrangements for testing of the concrete blocks at site or in any approved laboratory from time to time, as required by the Architects/ Employer and all the costs of testing and conveyance shall be borne by the Contractor. At least, six blocks of 150 x 150 x 150mm per 20 cum of RCC work or part thereof, for each day's work (subject to the condition that a minimum quantity of 0.5 cum of particular grade/type of concrete is laid on that day) must be taken in steel molds as directed and tested. The Architect & Employer reserves the right to test the blocks at the cost of the contractor, in the event of the contractor failing to do so. It shall be contractor's sole responsibility to ensure that the blocks are cast, got tested from specifically approved laboratory/test house etc., in time and results reach the Architect, well before measurements for the corresponding work are to be recorded. For any failure in this regard, shall result in rejection of corresponding work (for which the blocks were not cast or tested in time) and such work shall be dismantled fully along with linked up works and redone to required specifications/quality etc., EXCLUSIVELY at contractor's cost. Without any addition time beyond the stipulated/extended time for completion, as the case may be. Application of clauses 15 above in such cases shall EXCLUSIVELY rest within the discretion of the Architect.

17. **SITE MEETINGS:**

A senior representative of the contractor shall attend weekly meetings at works site; and in additions, meetings as and when arranged by Architect & Employer to discuss the progress of the work and sort out problems, if any, and ensure that the work is completed in the stipulated time.

18. **CUSTODY AND SECURITY OF MATERIALS:**

The contractor shall be responsible for the custody and security of all materials and equipment at site and he will provide full time watchman/watchmen to look after his materials, stores, equipments etc., including cement and steel at site and ensure that at no time unauthorized persons gains any access at works site.

19. **CEMENT:**

Cement shall be procured by the Contractor from the manufacturers only; however in case of urgency smaller quantity of cement say less than one lorry can be purchased from authorized dealers after getting the make and quality approved by the Employer and Architect. The brands shall be **ULTRATECH/ ACC/ RAMCO/ MAHA/ NAGARJUNA/ COROMANDAL/ BHARATI** or any other manufacturer as approved by Architect and the Bank. The contractor should purchase the cement in adequate quantity, quite in advance, in order to have sufficient stocks (not less than the requirement of next fortnight) at site all the time. He will construct cement storage shed of adequate capacity with watertight walls, floor, roof and secure locking arrangements and locking as required and directed. Empty bags will be contractor's property. Contractor's Site Engineer shall maintain cement account at site, showing cement received with details of invoices, etc., quantity used daily (with brief details of items/location of works on which used), and progressive consumption and balance at site. This register will be checked periodically by Architect & Employer representative. Actual cement consumption will be periodically checked with the theoretical cement consumption.

20. **STEEL:**

Steel shall be procured by the contractor from **SAIL/ VSP/ JSW/ TATA**. The contractor shall produce necessary cash vouchers in support of the purchases and also test certificates, for conforming the quality. All wastages, rolling margins, site to site transportation shall be borne by the contractor. Contractor shall maintain at site, steel account showing – steel received at site (consignment wise and section wise) and steel used (section wise) for work corresponding to each of the bills, etc., which shall be subject to checking by client/ Architect 75% of the value of the steel physically available at site in good condition and quantities limited to actual requirements of next 30 days (reckoned from date of corresponding bill) plus 1% for wastage and variation will be paid. This exercise is to be section-wise. Theoretical quantity of consumption of steel shall be actual quantities measured plus 10% towards wastages and variations (rolling margins) and on this basis, balance quantities at site may be provisionally arrived at. All scrap steel at site and unused steel at site to the extent not required on the work shall be contractor's property and contractor will be allowed to take it away after measurements/weight, and after getting necessary permission in writing from the Architect & Employer. In case of any discrepancy between the actual quantity of steel lying at site and the balance quantity as per record, the decision of the Architect/client shall be final and binding.

22. **PVA CLAUSE FOR MATERIAL AND LABOUR – No price variation will be applicable for the project.**

23. **TREASURE TROVE:**

Should any treasure, fossils, minerals, or works or art of antiquation interest be found during excavation or while carrying out the works, the same shall be the property of the Employer. The Contractor shall give immediate notice to the Architect & Employer about finding of any such treasure and hand over the same on demand to the Employer.

24. **NOTICES:**

The contractor shall give all notices and pay all necessary and relevant fees and shall comply with all Acts and Regulations, for the successful completion of the contract work.

25. **STATUTORY REGULATIONS:**

The whole of the work including sanitation and electrical is to be complied with, as per the requirements and bylaws of the relevant statutory authorities, including Contract Labour (Regulation and Abolition) Act, 1970.

26. **MEASUREMENT TO BE RECORDED BEFORE WORK IS COVERED UP:**

The contractor shall take joint measurements with the Employer's representative (Project Management Consultant or any Engineer identified by the Bank and Architect's representative before covering up or otherwise placing beyond the reach of measurement any item of work. Should the contractor neglect to do so, the same shall be uncovered at the contractor's expense or in default thereof, no payment or allowance shall be made for such work or the materials with which the same was executed.

27. **WORKING AT NIGHT OR ON HOLIDAYS:**

The contractor can carry out major work at night, only with prior permission of the Site Engineer of Employer/Architect and with proper supervision. However, all concrete work will be carried out only during the day light.

WORKS AT NIGHT:

If the contractor is required to do preliminary works at night, in order to complete the work within the Time Schedule, the contractor shall provide and maintain at his own cost necessary and sufficient barricades/ lights etc., to enable the work to proceed satisfactorily without danger. Approaches to the site also shall be sufficiently lighted by the contractor.

28. **WORKING ON HOLIDAYS:**

No work shall be done on Sunday or other Bank holidays that may be notified by the Architect & Employer, without the specific sanction in writing of the Architect & employer or his representatives.

29. **ACTION WHERE THERE IS NO SPECIFICATION:**

In case of any item/class of work, for which there is no specification mentioned (either in part or full), the same will be carried out in accordance with the relevant CPWD specifications (only for the specifications missing in the contract) and if not available even there (either in part or full) in, relevant standards of BIS shall be followed (only for the portions of specifications missing in the contract specifications and CPWD specifications). Indian standard specifications, subject to the approval of the Architect & Employer.

30**.** **REPORTING OF ACCIDENT TO:**

The contractor shall be responsible for the safety of all persons employed by him on the works and shall report serious accidents to any of them, whenever and wherever occurring one the works, to Employer who shall make every arrangement to render all possible assistance. This shall be without prejudice to the responsibility of the Contractor, under the Insurance clause of the General Conditions. Contractor shall take all the precautions as detailed in the safety code attached separately.

31. **CLEARING THE SITE ON COMPLETION/DETERMINATION OF WORKS:**

The contractor shall clear the site of works as per the instructions of the Architect. The site of works shall be cleared of all men, materials, sheds, huts etc., belonging to the contractor. The site shall be delivered in a clean and neat condition, as required by Architect, within a period one week after the job is completed. In case of failure by the contractor, the Employer, under advice to the Architect, have the right to get the site cleared to his satisfaction at the risk and cost of the contractor.

31. **POSSESSION OF BUILDINGS / WORK COMPLETED:**

The contractor shall hand over to the Employer possession of the completed works in stages, as and when required, and as directed by the Architect & Employer.

The Employer will take over the possession of completed works in stages as directed by the Architect, and defects liability period will commence only from the date of final handing over of all the work accordingly.

Please refer Appendix to General Conditions of contract.

32. **TYPOGRAPHIC, CLERICAL AND OTHER ERRORS:**

The Architects/Employer's clarification regarding partially omitted particulars or typographical, clerical and other errors shall be final and binding on the contractors.

33. **INFORMATION TO BE SUPPLIED BY THE CONTRACTOR:**

The contractor shall furnish to the architect & Employer the following from time to time:

a. Detailed industrial statistics regarding the labour employed by him, etc., every month (within 5th of succeeding month),

b. The Power of Attorney, name and signature of his authorized representative, who will be in charge for the execution of work.

c. The list of technically qualified persons (to be approved by the Architect) employed by him for the execution of the work within 15 days from date of start of work,

d. The total quantity and quality of materials used for the works, every month within 5th of succeeding month.

e. The list of plant and machinery employed for this work, every month. Copy of log books shall also be submitted every month (within 5th of succeeding month).

Last para of clause 33:

Failure to submit any of these details in time, shall be treated as a breach of the contract and likely to result in,

i) Levying a fine of Rs.500 for each default for each month, and or

ii) Withholding payments, otherwise due.

iii) For the periods for which name of technically qualified persons are not given or for which such persons are not employed, recoveries shall be made at Rs.7,500/- per month for each month of default.

In all these matters the decision of the Architect shall be final and binding.

34. BENCHMARKS:

The contractor shall construct and maintain proper benches at different places at site as required and directed by the Architect, so that levels can be checked accurately at all times during the progress of work. In case benches are disturbed for any reason whatsoever, necessary rectification shall be carried out by the contractor at his cost as directed by the Architect & Employer.

35. FORCE MAJEURE:

Neither party shall be held responsible by the other for breach of any condition of this Agreement, attributable to any "Act of God", Act of State, Strike, lock-out or control or any other reason, beyond the control of the parties and any breach of clauses arising from such Force Majeure conditions as aforesaid shall not be regarded as breach of the provisions of this Agreement.

36. ARCHITECT'S DRAWINGS AND INSTRUCTIONS:

A set of major drawings, along with the contract documents shall be provided to the contractor. If any clarification or further drawings are required by the Contractor during or before the start of construction work, the contractor shall inform the Architects and the Bank sufficiently in advance in writing to provide the same. Working details will be given to the Contractor from time to time, during the progress of work, as and when required. In case, any other drawing/detail is required by the contractor, he will give a minimum of fifteen days notice to the Architect.

37. COMPLETION OF WORK AND LIQUIDATED DAMAGES:

The work shall be completed in **18 months**, and reckoned as under:

(a) 14 days from the date of issue of work order.

or

(b) The day on which the contractor receives the possession of the site – whichever is later.

or

(c) The contractor is asked in writing to take over the possession of the site.

Time is the essence of the Contract. The Contractor shall strictly adhere to the programme/chart agreed to. In case the contractor fails to complete the work as mentioned above, the liquidated damages may be imposed at the rate of 0.5% per each week (or part thereof) of delay, subject to a maximum of 5% of contract amount.

38. BILLS OF PAYMENTS:

The minimum value of work for interim payments will be Rs.150.00 lakhs and above excluding GST, as stated in Appendix. The contractor shall submit interim bills, once a month on the basis of joint measurements recorded at site by the contractor's, Employer's and the Architects representatives. The bill will be certified by the Architect within 15 working days from the date of submission of the bill by the contractor, and the Employer will make payment as stated in the Appendix to General Conditions of Contract. All such interim payments shall not be considered as an admission of the due performance of the contract or any part thereof in any respect and shall not preclude the requiring of bad unsound and imperfect or unskilled work to be removed and taken away and reconstructed or re-erected at contractor's cost, all as per Employer and Architect's instruction and directions.

39. WORKMANSHIP:

Quality of materials and workmanship shall conform strictly to specifications given/stipulated in the tender/contract, and contractor will ensure that the best quality of work will be done to the satisfaction of the Architect and Employer, with strict control on the materials, workmanship and supervision.

40. SCHEDULE OF QUANTITES:

Quantities mentioned in the Schedule of Quantities, included in the contract, are approximate and are subjected to variations as per actual site conditions & requirements and as directed by the Architect & Employer. The work shall be executed and completed accordingly.

41. **SITE SUPERVISION:**

i) The Contractor shall either himself supervise the execution of the contract or shall appoint competent and experienced engineers on his own for supervision of the Work. Where the Contractor is not a qualified engineer or even if he is so qualified but in the opinion of the Architect / Employer, cannot give full attention to the Works, the Contractor shall at his own expense employ adequate engineers to supervise the Work and to receive instructions from the Architect & Employer. The following shall be the minimum number of engineers to be employed for the contract:

Sl. No	Requirement of Technical Staff		Minimum experience (Years)	Designation Technical Staff	Rate at which recovery shall be made from contractor in the event of not fulfiling
	Qualification	Number (of Civil + E&M component)			
1	Graduate Engineer	1	20 (and having experience of one similar nature of Work)	Project Manager	Rs. 60,000/- per month
2	Graduate Engineer	1	12 (and having experience of one similar nature of Work)	Deputy Project Manager	Rs. 40,000/- per month
3	Graduate Engineer or Diploma Engineer	1+1	5 or 10 respectively	Project/ Site Engineer	Rs. 25,000/- per month
4	Graduate Engineer or Diploma Engineer	1+1	2 or 5 respectively	Project Planning / quality/ billing Engineer	Rs. 20,000/- per month

ii) On acceptance of the tender, the Contractor shall furnish within 14 days to Architect & Employer for approval, site set up with list of engineers, supervisors and other staff to be employed by him with their date of joining, along with proof of their respective qualifications and bio- data.

iii) Non- deployment or less qualified staff deployed by a Contractor is a serious breach of terms of contract. Therefore, for the first time Contractor shall be warned in writing and necessary recoveries as per the rate mentioned in the table above shall be affected. Notwithstanding the above and the recovery that may be made by Employer's, the Contractor shall always be required to deploy adequately trained personnel, at all times during the pendency of the Contract.

42. **ENGAGEMENT OF APPRENTICES:**

The Contractor shall during the currency of the contract, when called upon by the clients, engage and also ensure engagement by sub-contractors and others employed by the contractor in connection with the works such number of apprentices in the categories mentioned in the act and for such period as may be required by the clients. The contractor shall train them as required under the Apprentice Act 1961 and the Rules made thereunder and shall be responsible for all obligations of the clients under the said Act, including the liability to make payment of apprentices, as required under the said Act.

43. **RATES:**

Contractor shall quote **ABOVE / BELOW** in **% (percentage)** on total estimated amount.

44. **INCOME TAX AND GST:**

Income tax and GST TDS shall be deducted at source by the client from the contractor's interim and final bill payments as required by law. The GST will be paid Extra.

45. **EXTRA/SUBSTITUTED ITEM RATES:**

Such items shall be executed as per directions/instructions of the Architects of the employer.

The work on extra/substituted items shall be started only after the receipt of written order from the client/Architect. Rates for additional/extra or substituted (altered) items of work, which are not covered in the contract cannot be derived from the contract item rates either in full or partly, shall be calculated on the basis of actual costs plus 15% for overhead and profit etc., only to the extent not derivable from the contract item rates.

46. SERVICES DRAWINGS/ SHOP DRAWINGS/ CATALOGUE:

After getting approval from the Architect & Employer, the contractor shall submit to the concerned local authorities necessary services drawings showing layouts etc., for getting approval of the schemes. On completion, the contractor shall arrange to get Drainage Completion Certificate and other Certificate necessary for obtaining Building Completion certificate. The contractor shall furnish completion drawings of all services in triplicate, showing the work as actual executed, along with levels. Contractor shall submit for approval 4 copies of shop drawings/ catalogue/ equipment characteristics/ manufacturer's specifications, drawings etc., as and when required and directed by the Architect & Employer. Costs of all these are deemed to have been included in the respective item rates quoted by the contractor and nothing extra shall be paid on account of any of these requirement/ acts.

47. FORECLOSURE OF CONTRACT DUE TO ABANDONMENT OR REDUCTION IN SCOPE OF WORK

If any time after acceptance of the tender, Employer decides to abandon or reduce the scope of Work for any reason whatsoever and hence not require the whole or any part of the Works to be carried out, the Architect & Employer shall give notice in writing to that effect to the Contractor. The compensation, if any payable for such foreclosure of Work will be discussed mutually between

Employer and the Contractor and settled after taking into consideration the actual financial loss, if any, suffered by the Contractor on account of foreclosure of the contract, which in no case shall exceed 2% of cost of incomplete work on the date of closure. The Contractor shall have no claim to any payment of compensation or otherwise whatsoever on account of any loss of profit or advantage which he might have derived, but for the foreclosure of the whole or part of the Works or reduction in Scope of work. Employer shall have the option to take over the Contractor's materials or any part thereof, either brought to the site or for which the Contractor is legally bound to accept delivery from the suppliers.

48. CARRYING OUT PART WORK AT RISK & COST OF CONTRACTOR

If Contractor:

i. At any time makes default during currency of Work or does not execute any part of the Work with due diligence and continues to do so even after a notice in writing of 7 Working days in this respect from the Architect & Employer; or

ii. Commits default in complying with any of the terms and conditions of the contract and does not remedy it or takes effective steps to remedy it within 7 Working days even after a notice in writing is given in that behalf by the Architect / Employer; or Fails to complete the Work(s) or items of Work with individual dates of completion, on or before the date(s) so determined, and does not complete them within the period specified in the notice given in writing in that behalf by the Architect / Employer.

iii. The Architect & Employer without prejudice to any other right or remedy against the Contractor which have either accrued or accrue thereafter to Employer, by a notice in writing to take the part Work / part incomplete Work of any item(s) out of his hands and shall have powers to:

(a) Take possession of the site and any materials, constructional plant, implements, stores, etc., thereon; and/or

(b) Carry out the part Work / part incomplete Work of any item(s) by any means at the risk and cost of the Contractor.

iv. Employer shall determine the amount, if any, recoverable from the Contractor for (a) non-completion of part of the Work or (b) for removal of any item(s) from the Contractor and got executed at the risk and cost of the Contractor, by third parties. Employer shall be entitled to recover such loss / damages from payments due to the Contractor. The liability of Contractor on account of loss or damage suffered by Employer because of action under this clause shall not exceed 10% of the tendered value of the Work.

v. The certificate of the Architect / Employer as to the value of Work done shall be final and conclusive against the Contractor provided always that action under this clause shall only

be taken after giving notice in writing to the Contractor. Provided also that if the expenses incurred by the Employer are less than the amount payable to the Contractor at his agreement rates, the difference shall not be payable to the Contractor.

vi. Any excess expenditure incurred or to be incurred by Employer in completing the part Work/ part incomplete Work of any item(s) or the excess loss of damages suffered or may be suffered by Employer as aforesaid after allowing such credit shall without prejudice to any other right or remedy available to Employer in law or as per agreement be recovered from any money due to the Contractor on any account, and if such money is insufficient, the Contractor shall be called upon in writing and shall be liable to pay the same within 30 days.

vii. If the Contractor fails to pay the required sum as per this clause within the aforesaid period of 30 days, the Employer shall have the right to sell any or all of the Contractors' unused materials, constructional plant, implements, temporary building at site etc. and adjust the proceeds of sale thereof towards the dues recoverable from the Contractor under the contract and if thereafter there remains any balance outstanding, it shall be recovered in accordance with the provisions of the contract. In the event of this action being adopted by the Employer, the Contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any engagements or made any advance on any account or with a view to the execution of the Work or the performance of the contract.

49. SUSPENSION OF WORK

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

(a) On account of any default on the part of the Contractor

ii. If the contractor, except on account of any legal restraint upon the employer preventing the continuance of the works, or on account of any of the causes mentioned in the clause "Extension of time" or in the case of certificate being withheld or not paid when due, shall suspend works or in the opinion of the Architects, shall neglect or fail to proceed with due diligence in the performance of his part of the contract or if he shall more than once make default in the respects mentioned in clause 24 (removal of improper work and materials), the Employer through the Architect shall have the power to give notice

in writing to the contractor required that the works be provided within a reasonable manner, and with reasonable dispatch, such notice shall not be unreasonably given and must signify that it purports to be a notice under the provisions of this clause and must specify the acts or defaults on the part of the contractor upon which it is based. After such notice shall have been given, the contractor shall not be at liberty to remove from the site of works, or from any ground contiguous thereto, the site of works, or from any ground contiguous thereto, any plant or materials belonging to him which shall have been placed thereon for the purpose of work, and the Employer shall have lien upon such plants / machineries and materials to subsist from date of such notice being given until the notice shall has been complied with, provided always that such line shall not under any circumstances subsist after the expiration of 30 (thirty) day from the date of such notice given, unless the employer shall have entered upon and taken possession of the works and site, as hereinafter provided.

iii. If the contractor shall fail for seven days after such notice has been given, to proceed with the works as therein prescribed, the Employer may enter upon and take possession of the works and site, and of all such plants, machinery and materials thereon intended to be used for the works, and the Employer shall retain and hold a lien upon all such plants, machinery and materials until the work shall have been completed, under powers hereinafter conferred upon him;

iv. If the Employer shall exercise the above power, he may engage any other person to complete the works and exclude the contractor, his agents and servants from entry upon or access to the same, except that the contractor or any person appointed in writing may have access at all times during the progress of the works to inspect, survey and measure the works. Such written appointments or a copy thereof shall be delivered to the Architects before the person appointed comes on to the works and the Employer shall take such steps as in the opinion of the Architect may be reasonably necessary for completion the works, without undue delay or expenses using for that purpose the plant, machinery and materials above mentioned in so far as they as they are suitable and adopted to such use.

v. Upon the completion of the works, the Architects shall certify the amount of the expenses properly incurred consequent on and incidental to the default of the contractor as aforesaid and in completion the works by other persons.

vi. Should the amount so certified as the expenses properly incurred be less than amount which should have been due to the contractor upon the completion of the works by him, the difference shall be paid to the contractor by the Employer, should the amount of the former exceed the later, the difference shall be paid by the contractor to the Employer. The Employer shall not be liable to make any further payments or compensations to the contractor for or on accounts of the proper use of the plant for the completion of the works under the provisions herein before mentioned other than such payments as is included in the contract.

vii. After the works shall have been so completed by persons other than the contractor, under the provisions herein before contained, the Architect shall give notice to the contractor

to remove his plant and all surplus materials as may not have been used in the completion of the works from the site.

viii. If such plant and materials are not removed within a period of 14 days after the notice shall have been given, the Employer may remove and sell the same, holding the proceeds less the cost of the removal and sale, to the credit of the contractor. The Employer shall not be responsible for any loss sustained by the Contractor from the sale of the plant in the event of the Contractor not removing it after notice.

(c) Or For proper execution of the Works or part thereof for reasons other than the default of the Contractor;

(c) Or For safety of the Works or part thereof.
The Contractor shall, during such suspension, properly protect and secure the Works to the extent necessary and carry out the instructions given in that behalf by the Architect / Employer.

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

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

50. CONTRACTOR LIABLE FOR DAMAGES, DEFECTS DURING DEFECT LIABILITY PERIOD

i. If the Contractor or his working people or servants break, deface, injure or destroy any part of building in which they may be working, or any building, road, road kerb, fence, enclosure, water pipe, cables, drains, electric or telephone post or wires, trees, grass or grassland, or cultivated ground contiguous to the premises on which the Work or any part is being executed, or if any damage happens to the Work while in progress, from any cause whatever or if any defect, shrinkage or other faults appear in the Work within twelve months after a certificate final or otherwise of its completion shall have been given by the Architect / Employer as aforesaid arising out of defect or improper materials or workmanship the Contractor shall upon receipt of a notice in writing on that behalf make the same good at his own expense or in default the Architect / Employer cause the same to be made good/ repaired/ rectified by other workmen and deduct the expense from any sums that may be due or at any time thereafter may become due to the Contractor, or from his Retention Money. The Retention Money of the Contractor shall not be refunded before the expiry of twelve months from the actual date of completion indicated in the completion certificate or till the final bill has been prepared and passed whichever is later.

ii. The materials as well as the workmanship and finish of the whole of the contract Works

shall be best of their kind, and should any materials be brought upon the Site or on the land or property of the Company or on the places where any operations are being carried out in connection with the Works, which are in the judgement of the Architect / Employer of an inferior description and improper to be used in the Works, the said materials shall be removed. All inferior workmanship or finish shall be amended by and at the cost of Contractor forthwith, or within such period or periods as the Architect / Employer direct, and the Contractor shall pull down, amend and reconstruct any Work he may have erected upon an insufficient foundation, or that he may have insufficient cured and protected against immediate and further injury whether arising or likely to arise in the future from weight pressure, action of water or otherwise, on being required to do so by the Architect / Employer.

51. PERMISSION:

The contractor shall also obtain necessary permission for using explosive (if required and specifically permitted by the Architect and Employer in writing), as per rules and regulations of relevant authorities, and all other approvals from the relevant authorities shall be obtained by the contractor at no extra cost.

52. MAINTAINING REGISTERS AT SITE:

The contractor shall maintain registers for consumption of various specials, testing of materials etc., in the proforma which shall be given by the Architect & Employer from time to time.

LIST OF REGISTERS / RECORDS TO BE MAINTAINED AT SITE BY THE CONTRACTOR FOR THE FOLLOWING MATERIALS / ITEMS

1. Cement
2. Steel
3. Anti – termite chemical
4. Test Reports
5. Brick work
6. Hindrance
7. Labour wages
8. Site Order Book

53. AGREEMENT:

The successful contractor shall be required to enter into an agreement in accordance with the Draft Agreement and Schedule of Conditions etc., within 14 days from the date the contractor is advised by the Architect & Employer that his tender has been accepted. The contractor shall pay for all stamps and legal expenses incidental thereto. However, the written acceptance of the tender by the Employer, will constitute as a binding contract between the Employer and contractor, whose tender has been accepted, whether such formal agreement is or is not subsequently executed.

54. INSURANCE:

The contractor shall provide insurance in respect of damage to persons and property and firm insurance as per clause 27 and 28 of General conditions of contract. In addition he will also insure

against riots and civil commotion. The insurance shall also cover third party and all the persons working at site and visitors including contractor's, worker's, Architect's and clients people, other contractor's workers etc. The contractor shall indemnify the Employer against any claim or compensation or mishaps of whatsoever nature at site during the progress of work.

The contractor shall prove to the Architect/Client from time to time that he has taken out all the insurance policies as required and directed and has paid the necessary premium for keeping the policies valid as per clause 27 & 28 of the General Conditions of Contract.

In case of failure by the Contractor or sub-contractor to effect and keep in force the insurance policies, then the client, without being bound to, may pay such premiums as may be necessary and deduct the same from any money due or which may become due to the contractor or recover the same as a debt due from the contractor.

55. INDEBTEDNESS AND LIENS:

The contractor agrees to furnish the Employer from time to time, during the progress of the work as requested, verified statement showing the contractor's total outstanding indebtedness in connection with the work covered by the contract. Before final payment is made, the Employer may require the contractor to furnish the Employer with satisfactory proof that there are no outstanding debts or liens in connection with the contract. If during the progress of the work, the contractor shall allow any indebtedness to accrue to sub-contractor or other and shall fail to pay or discharge same within five (5) days after demand, then the Employer may withhold any money due to the contractor until such indebtedness is paid, or apply the same towards the discharge thereof.

56. WORK PERFORMED AT CONTRACTOR'S RISK:

The contractor shall take all necessary precautions and shall be responsible for the safety of the work and shall maintain all lights, guards, signs, barricades, temporary passages or other protection necessary for the purpose. All work shall be done at the contractor's risk and if any loss or damage shall result from fire or from any other cause, the contractor shall promptly repair or replace such loss or damage free from all expenses to the Employer. The Contractor shall be responsible for any loss or damage to materials, tools or other articles used or held for use in connection with the work. The work shall be carried on to Employer or others and without interference with the operation of existing machinery or equipment, if any.

57. PHOTOGRAPHS:

The contractor at his own cost shall take photographs of site and individual buildings during the progress of the work as directed by the Architect/Client and submit two copies of each photograph of a minimum size 20 cm x 15 cm to the client/Architect.

58. INSPECTION BY THE CHIEF TECHNICAL EXAMINERS (VIGILANCE):

The proposed work covered under this tender, during the progress and/ or after completion, can also be inspected by the Chief Technical Examiner/ Technical Examiner or Officers of the Central Vigilance Commission, Government of India, on behalf of Architect & Employer to ascertain that

the execution of the work has been done with materials and workmanship all as stipulated in the contract and as directed.

Contractor shall afford all reasonable facilities to the above vigilance staff and also provide them with ladders, tapes, plum bob, level etc., as required and directed and also necessary labourers skilled/unskilled to enable them to complete their inspection/study/technical scrutiny and no extra shall be admissible to the contractor on this account.

59. SPECIAL CONDITIONS OF CONTRACT:

In the event of any discrepancy with clauses mentioned anywhere else in the tender with the clauses mentioned within special conditions of contract, the clauses mentioned within the special conditions of contract shall supersede there mentioned elsewhere.

60. BIS CODES

It is compulsory for the contractor to keep all the B.I.S. codes mentioned in this tender document at his cost at the site to ensure the proper supervision/ quality of work and materials. All relevant BIS codes shall be strictly complied with.

61. CONDITIONS FOR ENGAGING ELECTRICAL SUB- CONTRACTOR:

As the scope of works involves Electrical works; the Bidder shall have either of the following.:

The bidder themselves should have a valid Electrical contractor license of appropriate voltage issued by Andhra Pradesh State Govt. under clause 45 of Electricity Rules 1956 or as amended from time to time.

OR

With prior approval from SBI/Architect should engage an Electrical Contractor for execution of Electrical works, who has the above mentioned licence and requisite experience. In such cases, the main agency shall give an undertaking in the Technical Bid that he would engage an Electrical Contractor who possesses a valid Electrical contractor licence of appropriate voltage issued by Andhra Pradesh State Govt. under clause 45 of Electricity Rules 1956 or as amended from time to time and the same contractor shall execute the work till completion.

Under such cases the **Electrical Contractor** should have successfully completed "similar" magnitude of electrical works as specified below during last 7 years ending 30.06.2026 should be either of the following:

i) Three similar completed works each costing not less than **₹ 0.80 Crore** (excluding GST) having:

ii) Two similar completed works each costing not less than **₹ 1.0 Crore** (excluding GST)

having:

iii) One similar completed works each costing not less than **₹ 1.6 Crore** (excluding GST) having

7. PRE-CONTRACT INTEGRITY PACT

(TO BE STAMPED AS AN AGREEMENT)

General

This pre-Bid pre-contract Agreement (hereinafter called the Integrity Pact) is made on ……. day of the ……. month of 2026, between, on the one hand,

The State Bank of India a body corporate incorporated under the State Bank of India Act, 1955) having its Corporate Centre at State Bank Bhavan, Nariman Point, Mumbai through its……..Department / Office at …… (Hereinafter called the "SBI", which expression shall mean and include, unless the context otherwise requires, its successors) of the First Part and M/s represented by Shri …… MD & Chief Executive Officer (hereinafter called the " CONTRACTOR which expression shall mean and include, unless the context otherwise requires, its / his successors and permitted assigns of the Second Part.

Whereas the SBI proposes to appoint a CONTRACTOR for **Proposed Construction of RCC buildings, 1 Bungalow for DGM (Ground Floor + 1 Upper Floors) and 16 flats for AGM / CM (Stilt + Ground Floor + 3 Upper Floors)** (Civil, Elevation, Plumbing & Sanitary, Electrical and Landscape works), at No. 95-20, Block No. 2, S.P. Bungalow Road, Guntur, Andhra Pradesh.

and the CONTRACTOR is willing to offer/has offered the services and WHEREAS the CONTRACTOR is a private company/public company/Government undertaking/partnership, constituted in accordance with the relevant law in the matter and the SBI is an Office / Department of State Bank of India performing its functions on behalf of State Bank of India. NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to:

- Enabling the SBI to obtain the desired service / Equipment/ product at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement; and

- Enabling CONTRACTORs to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and the SBI will commit to prevent corruption, in any form, by its officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:

1. **Commitments of the SBI**

1.1. The SBI undertakes that no official of the SBI, connected directly or indirectly with the contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favor or any material or immaterial benefit or any other advantage from the CONTRACTOR,

either for themselves or for any person, organization or third party related to the contract in exchange for an advantage in the bidding process, Bid evaluation, contracting or implementation process related to the contract.

1.2. The SBI will, during the pre-contract stage, treat all CONTRACTORs alike, and will provide to all CONTRACTORs the same information and will not provide any such information to any particular CONTRACTOR which could afford an advantage to that particular CONTRACTOR in comparison to other CONTRACTORs.

1.3. All the officials of the SBI will report to the appropriate authority any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.

1.4. In case any such preceding misconduct on the part of such official(s) is reported by the CONTRACTOR to the SBI with full and verifiable facts and the same is prima facie found to be correct by the SBI, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the SBI and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by the SBI the proceedings under the contract would not be stalled.

2. **Commitments of CONTRACTOR.**

2.1. The CONTRACTOR commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its Bid or during any pre contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following:

2.2. The CONTRACTOR will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favor, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the SBI, connected directly or indirectly with the bidding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.

2.3. The CONTRACTOR further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favor, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the SBI or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the contract or any other contract with State Bank of India for showing or forbearing to show favor or disfavor to any person in relation to the contract or any other contract with State Bank of India.

2.4. Wherever applicable, the CONTRACTOR shall disclose the name and address of agents and representatives permitted by the Bid documents and Indian CONTRACTORs shall disclose their foreign principals or associates, if any.

2.5. The CONTRACTOR confirms and declares that they have not made any payments to any agents/brokers or any other intermediary, in connection with the is Bid/contract.

2.6. The CONTRACTOR further confirms and declares to the SBI that the CONTRACTOR is the original SIs in respect of Equipment / product / service covered in the Bid documents and the CONTRACTOR has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the SBI or any of its functionaries, whether officially or unofficially to the award of the contract to the CONTRACTOR, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.

2.7. The CONTRACTOR, at the earliest available opportunity, i.e. either while presenting the Bid or during pre-contract negotiations and in any case before opening the financial Bid and before signing the contract, shall disclose any payments he has made, is committed to or intends to make to officials of the SBI or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.

2.8. The CONTRACTOR will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, Bid evaluation, contracting and implementation of the contract.

2.9. The CONTRACTOR will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.

2.10. The CONTRACTOR shall not use improperly, for purposes of competition or personal gain, or pass. on 'to others, any -information provided by the SBI as part of the business relationship, regarding plans, technical proposals and business details, including information contained in any electronic data device / carrier. The CONTRACTOR also undertakes to exercise due and adequate care lest any such information is divulged.

2.11. The CONTRACTOR commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.

2.12. The CONTRACTOR shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.

2.13. If the CONTRACTOR or any employee of the CONTRACTOR or any person acting on behalf of the CONTRACTOR, either directly or indirectly, is a relative of any of the officers of the SBI, or alternatively, if any relative of an officer of the SBI has financial Interest/stake in the CONTRACTOR’s firm, the same shall be disclosed by the CONTRACTOR at the time of filing of tender.

The term 'relative' for this purpose would be as defined in Section 2 (77) of the Companies Act 2013.

2.14. The CONTRACTOR shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the SBI.

3. **Previous Transgression**

3.1. The CONTRACTOR declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact, with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise / Public Sector Banks in India or any Government Department in India or RBI that could justify CONTRACTOR’s exclusion from the tender process.

3.2. The CONTRACTOR agrees that if it makes incorrect statement on this subject, CONTRACTOR can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

4. **Sanctions for Violations**

4.1. Any breach of the aforesaid provisions by the CONTRACTOR or any one employed by it or acting on its behalf (whether with or without the knowledge of the CONTRACTOR) shall entitle the SBI to take all or any one of the following actions, wherever required:

i. To immediately call off the pre contract negotiations without assigning any reason and without giving any compensation to the CONTRACTOR. However, the proceedings with the other CONTRACTOR would continue, unless the SBI desires to drop the entire process.

ii. To immediately cancel the contract, if already signed, without giving any compensation to the CONTRACTOR.

iii. To recover all sums already paid by the SBI, and in case of an Indian CONTRACTOR with interest thereon at 2% higher than the prevailing Base Rate of State Bank of India, while in case of a CONTRACTOR from a country other than India with interest thereon at 2% higher than the LIBOR. If any outstanding payment is due to the CONTRACTOR from the SBI in connection with any other contract for any other stores, such outstanding could also be utilized to recover the aforesaid sum and interest.

iv. To encash the advance bank guarantee and performance bond/warranty bond, if furnished by the CONTRACTOR, in order to recover the payments, already made by the SBI, along with interest.

v. To cancel all or any other Contracts with the CONTRACTOR. The CONTRACTOR shall be liable to pay compensation for any loss or damage to the SBI resulting from such cancellation/rescission and the SBI shall be entitled to deduct the amount so payable from the money(s) due to the CONTRACTOR.

vi. To debar the CONTRACTOR from participating in future bidding processes of the SBI or any of its Subsidiaries for a minimum period of five years, which may be further extended at the discretion of the SBI. To recover all sums paid, in violation of this Pact, by CONTRACTOR to any middleman or agent or broker with a view to securing the contract. Forfeiture of Performance Bond in case of a decision by the SBI to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

vii. Intimate to the CVC, IBA, RBI, as the SBI deemed fit the details of such events for appropriate action by such authorities.

4.2. The SBI will be entitled to take all or any of the actions mentioned at para 6.1(i) to (x) of this Pact also on the Commission by the CONTRACTOR or any one employed by it or acting on its behalf (whether with or without the knowledge of the CONTRACTOR), of an offence as defined in Chapter 20 of the Bharatiya Nyaya Sanhita or Prevention of Corruption Act, 1988 or any other statute enacted for prevention of corruption.

4.3 The decision of the SBI to the effect that a breach of the provisions of this Pact has been committed by the CONTRACTOR shall be final and conclusive on the CONTRACTOR. However, the CONTRACTOR can approach the Independent Monitor(s) appointed for the purposes of this Pact.

5. Fall Clause

The CONTRACTOR undertakes that it has not supplied/is not supplying similar service / product / equipment / systems or subsystems at a price lower than that offered in the present Bid in respect of any other Ministry/Department of the Government of India or PSU or any other Bank and if it is found at any stage that similar Equipment/product/systems or sub systems was supplied by the CONTRACTOR to any other Ministry/Department of the Government of India or a PSU or a Bank at a lower price, then that very price, with due allowance for elapsed time, will be applicable to the present case and the difference in the cost would be refunded by the CONTRACTOR to the SBI, if the contract has already been concluded.

6. **Facilitation of Investigation**

In case of any allegation of violation of any provisions of this Pact or payment of commission, the SBI or its agencies shall be entitled to examine all the documents including the Books of Accounts of the CONTRACTORs and the CONTRACTORs shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

7. **Law and Place of Jurisdiction**

This contract is subject to Indian Law. The place of performance and jurisdiction is at Guntur.

8. **Other Legal Actions**

The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

9. **Validity**

9.1. The validity of this Integrity Pact shall be from date of its signing and extend up to 5 years or the complete execution of the agreement to the satisfaction of both the SBI and the CONTRACTOR, including warranty period, whichever is later. In case Contractor is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract, with the successful CONTRACTOR by the SBI.

9.2. Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact shall remain valid. In this case, the parties will strive to come to an agreement to their original intentions.

10. The parties hereby sign this Integrity Pact at_____ on _____

For SBI	FOR Contractor
Name of the Officer	Chief Executive Officer
Designation	
Office/Department/Branch	

8. SPECIFICATION FOR CIVIL WORK

MATERIALS GENERAL

A. DISMANTLING WORKS

B. EXCAVATION/SOIL TREATMENT

C. PLAIN, REINFORCED CEMENT/PRECAST CONCRETE

D. BRICK MASONRY

E. RUBBLE MASONRY

F. CEMENT PLASTERING

G. FLOORING

H. TEAK WOOD, FLUSH DOORS, WPC DOORS & FIRE-RESISTANT DOORS

I. UPVC & ALUMINIUM PARTITION WALLS, DOORS, WINDOWS & VENTILATORS AND CEMENT FIBER BOARD PARTITION WALLS.

J. WATER PROOFING

K. PAINTING/POLISHING WORK

L. ELEVATION WORKS

M. STEEL WORKS

N. EXTERNAL DEVELOPMENT WORKS

O. STRONG ROOM DOORS & VENTILATORS

SPECIFICATIONS FOR CIVIL WORK

MATERIALS – GENERAL

a. All the materials required in the construction shall conform to the relevant latest Indian Standards specifications unless otherwise indicated. For patented products, the specifications and instructions of the manufacturers will be followed. In case where there are no specifications, then Architects/Employers instructions will be followed. In Case of any discrepancy/dispute regarding specifications, Architect and Employer's decision will be final and binding.

b. Materials shall be transported, landed and stored at the site or elsewhere in such a manner as to prevent any damage, deterioration or contamination.

c. The samples of all materials shall be got approved by the Architect and Employer prior to ordering and shall be kept at site office of the Architect & Employer. The materials brought to site shall conform in all respects to the approved samples. Any work executed, without approval for the materials, is liable to be rejected. Accordingly, it will be paid either at tender rates or reduced rates or not to be paid at all, at the discretion of Architect & Employer, whose decision will be final and binding.

d. The Architect & Employer shall have an option to have any materials tested at the contractor's cost to find out whether they are in accordance with the specifications. All Bills, vouchers, test certificates shall be produced for inspection on demand by the Architect & Employer to ascertain the quality/ suitability of materials.

e. The materials shall be stacked at site as directed by the Architect & Employer.

f. Any materials rejected by the Architect & Employer, shall be removed by the contractor from the site within 24 hours at his own cost.

g. The contractor shall include the elements of wastage of materials in his rates for various items.

h. The Architect & Employer shall have the power to cause the contractors to purchase and use such material from any particular source at his opinion be necessary for proper execution of work.

A. DISMANTLING WORKS:

PREAMBLE

Contractor to ensure the following while quoting their rates for all items:

1. The Contractor should provide MS Scaffolding for all the Items with the following specifications : Providing and fixing double scaffolding system (cup lock type) made with 40 mm dia M.S. tube 1.5 m centre to centre, horizontal & vertical tubes joining with cup & lock system with M.S. tubes, M.S. tube challies, M.S. clamps and M.S. staircase system in the scaffolding for working platform etc. and maintaining it in a serviceable condition for the required duration as approved and removing it there after .The scaffolding system shall be stiffened with bracings, runners, connection with the building etc wherever required for inspection of work at required locations with essential safety features for the workmen etc. complete as per directions and approval of Architect / Bank Engineer.
2. The Contractor should provide Shop drawings for all items whichever necessary as per the direction of Architect / Bank Engineer Example following items: Structural Glazing, Curtain wall Glazing , ACP Panelling, Gate, etc.
3. The Contractor should engage qualified Engineers on the site From the Start of the Project to Completion of the Project as per Clause no. 41 under special conditions of contract.
5. The Contractor should Provide site office (Minimum 20 Sqmt) with Toilet for Site Engineer before commencement of the work.
6. The Contractor should Earmark the Proposed 1.55 Acr land out of 3.7 Acrs land as per the drawing issued by Architect / Bank Engineer.
7. The Contractor should mark centre line and Footings of Columns with Total station survey instrument.
8. Water and Power supply for the Entire Construction shall be arranged by the Contractor at his own cost.
9. The Contractor shou
ld get the Permissions from Water Board and Sewerage Board if any required related to Sanitary and Plumbing works at his own cost.

A.1. Site Clearance

Clearing the site including uprooting of rank vegetation, grass, brush wood, small and large trees in two to four numbers (Permission to be taken from the local Authorities for removal of trees) and saplings of girth and removal of rubbish etc. including getting out and disposal of removed rank vegetation, grass etc up to any lead and lift, including cost of transportation of excavated material/debris outside the Bank's premises to approved Municipal dumping area or Contractors own dumping area as directed by Architect / Bank's Engineer. The rate shall be inclusive of all the material ,labour, hardware, transportation necessary required for the complete execution of the item as directed by the Architect / Bank's Engineer.

A.2. RCC Super Structure Dismantling

Dismantling manually or by mechanical means all RCC members in super structure viz columns, beams, slab, Pardis, RCC walls, water tanks etc. with all related equipment, at all

height and location. The steel in the RCC structures shall be separated from the concrete and stack-up separately. The contractor should take care that dismantling of structure should not cause any damage to the existing structures near the building and even take care of dust control, noise control etc. Blasting is not permitted. The Rate including cost of transportation of dismantled material/debris outside the Bank's premises to approved Municipal dumping area or Contractors own dumping area as directed by Architect / Bank's Engineer. All the work shall be carried out as instructed by Architect / SBI.

The rate includes cutting of MS reinforcement steel bars using mechanical cutter and stacking the same as directed at site and carting away unserviceable material / debris to a place approved by Municipal Corporation.

A.3. **Dismantling of Stone / Block / Brick Masonry**

Dismantling manually or by mechanical means all type of Stone / brick / block masonry in the entire building including plastered walls, parapet on terrace, compound wall etc. in existing sub structure and superstructure at all height and location. The contractor should take care that dismantling of structure should not cause any damage to the existing / adjacent structures near the building and even take care of dust control, noise control etc. Blasting is not permitted. The Rate including cost of transportation of dismantled material/debris outside the Bank's premises to approved Municipal dumping area or Contractors own dumping area as directed by Architect / Bank's Engineer. All the work shall be carried out as instructed by Architect / SBI.

The rate to include carting away unserviceable material / debris to a place approved by Municipal Corporation. The work also includes levelling the ground after carting away.

A.4. **Dismantling doors, windows & Gates**

Dismantling doors, windows and clerestory windows (steel or wood) shutter including chowkhats, architrave, holdfasts etc. complete and stacking within 50 metres lead : Of area 3 sq. metres and below & Of area beyond 3 sq. metres.

A.5. **Barricading**

Providing and erecting in position 3.00 to 6.00 metre high temporary barricading at site; using minimum 50x50x3 mm (or as required as per structural drawing of Architects/Engineer-in-charge) hollow MS tube posts/ horizontal members/ bracings covered with 1.63 mm thick GI corrugated sheet. The sheet shall be fixed with 30x5 mm MS flat by suitable welding / riveting. MS channel ISLC 75 @ 5.70 kg/m, 50 cm long shall be provided at the bottom having oval shaped holes of size 50x25 mm at both ends with 50 cm long MS angle 40x40x6 mm bracing. Suitable arrangement shall be made to fix the barricading to avoid from overturning by providing 250 mm long expansion fasteners at both ends.

The work shall be executed as per drawing/ direction of Engineer-in-Charge which includes writing and painting, arrangement for traffic diversion such as traffic signals during construction at site for day and night, glow lamps, reflective signs, marking, flags, caution tape as directed by the Engineer-in- Charge. The barricading provided shall be retained in position at site continuously i/c shifting of barricading from one location to another location as many times as required during the execution of the entire work till its completion. Rate include its maintenance for damages, painting, all incidentals, labour, materials, equipment’s and works required to execute the job. The barricading shall not be removed without prior approval of Engineer-in-Charge.

(Note :- One time payment shall be made for providing barricading from start of work till completion of work i/c shifting. The barricading provided shall remain to be the property of the contractor on completion of the work).

A.6. **Nylon Safety Nets**

Providing, Fixing and maintaining in position, Nylon safety Nets (75 mm X 75 mm square with 10 mm thick nylon rope.) having width of 4.5 mts. placed alongside periphery of the Building with suitable supporting MS structure of minimum 50 mm Dia MS pipes duly anchored on slab with 10 mm thick base plate and anchor fastener (Hilti) 4 Nos. at all corners, and free end of pipe to be tied up with upper floor column with the help of nylon rope 16 mm dia. same supporting system is to be followed for every 4.5 Mtrs. in such a way to have a proper slope during Construction, and removing and re-fixing part of the same as and when required / necessary for smooth progress of the work for individual layers & same should be maintained with cleanliness. All complete as approved by the Architect / Engineer-in-charge.

(Note: - Onetime payment shall be made for providing Safety Net from start of work till completion of work i/c shifting as required and directed. The Safety Net provided shall remain property of the contractor on completion of the work).

B. EXCAVATION:

B – 1. EXCAVATION AND EARTH WORK:

B.1.1. Examination of the Site:

The contractor shall visit and ascertain the nature of the ground to be excavated and the works to be done and shall accept all responsibility for the cost of the work involved.

B.1.2. Setting out:

The contractor shall set out the center line of the building or other involved works after clearing the site and get the same approved from Architect & Employer. It shall be the responsibility of the Contractor to install substantial reference marks, bench marks etc., and maintain them as long as required by the Architect & Employer. The Contractor shall assume full responsibility for proper setting out, alignment, elevation and dimension of each and all parts of the work.

B.1.3. Ground level and Site level:

Before starting the excavation, the requisite block levels of the entire plot shall be taken by the contractor, in consultation with the Architect & Employer, and a proper record of these levels kept, which shall be jointly signed by the contractor and the Architect & Employer. A block level plan showing all ground levels of the plot shall be prepared and shall jointly be signed by the contractor and the Architect & Employer. The levels shall be taken at intervals of 3M, or even less, as required and directed.

B.1.4(a) Excavation and Preparation of foundation for concreting:

Excavation shall include removal of all materials of whatever nature at all depths and whether wet or dry, necessary for the construction/foundation and sub-structure (including mass excavation for underground reservoirs, where applicable) exactly in accordance with lines, levels, grades and curves shown in the drawings or as directed by the Architect & Employer. The bottoms of excavation shall be levelled both longitudinally and transversely or sloped as directed by the Architect & Employer.

Should the contractor excavate to a greater depth or width than shown on the drawings, he shall at his own expense fill the extra depth or width in cement concrete in proportion as directed by Architect & Employer but in no case with concrete of mix leaner than 1:4:8 cement concrete, at no extra cost.

The contractor shall report to the Architect & Employer when the excavations are ready to receive concrete. No concrete shall be placed in foundations until the contractor has obtained Architect and Employer's approval. In case, the excavation s done through different strata's of soil and if the same are payable as per provisions in the Schedule of Quantities, the contractor shall get the dimensions/levels/ heights of each of the strata recorded/decided by the Architect & Employer for payment. If no specific provision is made for different strata in the schedule of quantities, it will be presumed that excavation shall be in all types of soil and the contractor's rate shall cover for the same viz., for all types of sol (only excluding hard rock, when so specifically provided for).

After the excavation is passed by the Architect & Employer and before laying the concrete, the contractor shall get the depth and dimensions of excavations and levels (and nature of strata as applicable as per Schedule of Quantities like hard rock, soft rock etc.,) and measurements recorded from the Architect & Employer.

Measurement of Excavation in Rock:

Excavated soft/disintegrated rock and hard rock should not be mixed up and shall be stacked separately for purpose of payment. (Even otherwise they shall be stacked separately, and not mixed up with soils). Minimum of the quantities arrived at from

i) Levels/pit measurements for sheet rock.

ii) Volume based on stack measurements reduced by 40% to account for voids in stacks for Boulders/overtops.

shall be considered for purpose of payment.

B.1.4(b) The contractor shall be responsible for safe custody of these stacks, till the same are taken over by the Employer or completion of work, whichever is earlier. The rates quoted for excavation shall include costs of all these and nothing extra shall be paid towards the same.

B.1.5 **Shoring:**

The sides of the excavations should be timbered and shored in such a way as is necessary to secure them from falling in, and the shoring shall be maintained in position as long as necessary. The contractor shall be responsible for the proper design of the shoring to hold the sides of the excavation in position and ensure safety against injury to persons. The shoring shall be removed as directed after the items for which it is required are completed. In case the contractor wants to step/slope the sides of foundation suitably, in lieu of shoring, he should get prior approval for it from the Architect & Employer and nothing extra shall be paid for same and as well for the additional back fill necessitated by it, viz., items of excavations and backfilling be limited to excavations as per plans only and no quantities involved in making slopes and consequent back filling will be paid for.

B.1.6. **Earthwork for leveling of the area:**

Before earthwork is started, the area coming under cutting and filling shall be cleared of shrubs, rank vegetation, site grass, brushwood and trees and saplings of all girths, and rubbish removed outside the periphery and as directed by the Architect & Employer. The roots of trees shall be removed to a minimum depth of 600mm below ground level or 300mm below formation level whichever is lower and the hollows filled up with approved earth, levelled and rammed to the satisfaction of the Architect & Employer.

Under no circumstances undermining or undercutting be allowed. The final surface shall be neatly dressed and compacted to the required levels. Any extra cutting done, shall be filled back with approved earth, duly consolidated at contractor's cost. During the execution of the work, the natural drainage of the area shall be maintained by the contractor.

The approved earth from cutting shall be directly used for filling as directed. The filling shall be done in layers of not more than 150mm, each layer watered and consolidated with roller, not less than 10 M.T. roller. The earth used for filling shall be free from all roots, rubbish, grass, and all lumps and clods shall be broken before filling. The top surface of finally finished area shall be neatly dressed and compacted.

B.1.7 **Protection:**

If instructed by the Architect & Employer all foundation pits, and similar excavations shall be provided with strong fence and marked with red lights at night to avoid accidents. Adequate protective measures shall be taken to see that the excavation does not affect or damage adjoining structures. All measures required for the safety of the excavations, the people working in and near the foundation trenches, property and the people in the vicinity shall be taken by the contractor at his own cost, he being entirely responsible for any injury and damage to property caused by his negligence or accident due to his constructional operations.

B.1.8 **Stacking of excavated materials:**

All materials excavated will remain the property of the Employer and rate for excavation includes sorting out of useful materials and stacking them on site as directed. Materials suitable and useful for back filling, plinth filling or leveling of the plot or other use shall be stacked in convenient places but not in such a way as to obstruct free movement of men, animals and vehicles or encroach on the area required for constructional purposes.

B.1.9 **Backfilling:**

All shoring and formwork shall be removed after their necessity ceases and trash/slush of any sorts shall be cleaned out from the excavation. All space between foundation masonry or concrete and the sides of excavation shall be refilled to the original surface with approved excavated materials in layers, each not exceeding 150mm in thickness, watered and rammed. The filling shall be done after concrete or masonry is fully set and done in such a way as not to cause undue thrust on any part of the structure. Where excavated materials are to be used for refilling, it shall be brought from the place, where it is temporarily stacked, and used in refilling.

No excavation of foundations shall be filled in or covered up, until all measurements of excavations, masonry, concrete and other works below ground level are jointly recorded. Black cotton soil shall not be used for back filling or in plinth filling. In case back filling is done without recording measurements of foundation work, the contractor will have to remove back filling at his cost for taking measurements. Otherwise, the foundation work will not be measured and will be paid for.

B.1.10 **Dewatering:**

Rate for excavation shall including bailing or pumping out water, which may accumulate in the excavation during the progress of work either from seepage, springs, rain or any other cause whatsoever, and diverting surface flow, if any, by bunds or any other appropriate means. Pumping out water shall be done in such an approved manner as to preclude the possibility of any damage to the foundation trenches, concrete of masonry or any adjacent structure. When water is out water shall be from auxiliary pits of adequate size, dug slightly outside the building excavations, the depth of auxiliary pit shall be more than the working foundation trench levels. The auxiliary pit shall be refilling with approved excavation materials after the dewatering is over.

The excavation shall be kept free from water:

a. During inspection and measurement.

b. When concrete and/or masonry are in progress and till they come above the natural water level and

c. Till the Architect & Employer consider that the concrete/mortar is sufficiently set.

B.1.11 Rates quoted for excavation shall include all these (A.1.1. to A.1.10) operations to the extent required for completing the work please see A.3 also, unless otherwise specifically provided for.

B.1.12 **Surplus excavated materials:**

The item of removal of surplus excavated materials shall only be undertaken by the contractor when specific instruction in this regard has been obtained from the Employer/Architect. The contractor must also secure the approval of the Architect & Employer regarding the quantity of surplus materials to be removed prior to commencement of this item of work. The contractor shall dispose of surplus excavated materials anywhere with in the site as required and as directed. He will spread the same in layers of 150mm each and as directed. Contractor will take the decision of Architect & Employer for disposal of surplus excavated material and no extra will be paid for double handling of the same, if any. Wherever surplus or unsuitable material is to be disposed off outside the site, it shall be dumped and spread at the places to be specifically approved and as directed by the Architect & Employer, with all leads and lifts (unless otherwise provided for), and shall be paid as a separate item, as stated in the schedule of quantities.

B – 2 **ROCK EXCAVATION:**

B.2.1 **Ordinary Soft rock comprises of:**

a. Limestones, sandstones, laterite or disintegrated rock which can be split or be quarried with crow bars or wedges.

b. Unreinforced cement concrete, stone masonry in cement mortar.

B.2.2. **Hard rock comprises of:**

a. Any rock or cement concrete for the excavation of which the use of mechanical plant or blasting is required, or which cannot be removed with iron crow bars.

b. Reinforced cement concrete below ground level.

c. Where blasting is prohibited for any reasons, the excavation has to be carried out by chiselling, wedging or any agreed method.

d. Rock which requires chiselling/blasting/compressor.

B.2.3 Hard rock encountered in excavation work shall be removed by chiselling or wedging as directed by the Architects/Employers and no blasting is permitted.

B.2.4 Rock excavation shall comply with the specifications for excavation, except that it shall be of soft or hard rock.

B.2.5 Rock excavation will be measured and paid for quantities computed from (i) pit measurement/levels or (ii) by stack measurements reduced by 40% to account for voids, whichever is less.

B –3 **RATES TO INCLUDE FOR EXCAVATION ITEMS:**

Apart from other factors mentioned elsewhere in this contract, rates for the item of excavation shall also include for the following:

B.3.1. Clearing the site of all bushes, grass, roots of tress etc., and carting away from the site.

B.3.2. Setting out works, profiles etc., as required.

B.3.3. Providing shoring and shuttering to avoid slipping/sliding of soil and to protect adjacent structures, and subsequently removing the same.

B.3.4. Bailing and pumping out water as required and directed.

B.3.5. Excavation at all depths (unless otherwise specified in the schedule of quantities) and removal of all materials of whatever nature, wet or dry, with all leads (unless otherwise provided for) and necessary for the construction, foundation, underground reservoir etc., preparing bed for laying concrete, for roads etc., and completing the work.

B.3.6. Sorting out useful excavated material and conveying beyond the structure and stacking them neatly on the site for back filling or reuse etc., as directed.

B.3.7. Necessary protection including labour, barricades, materials and equipments etc., to ensure safety and protection against all risks and accidents.

Please see A.1.11.

B – 4 **MODE OF MEASUREMENT:**

B.4.1 Excavation for foundation of columns, beams, walls, and the like shall be measured and paid net as per drawing, dimensions of concrete (bed concrete where so specified) at the lowest level. In regard to length and breadth and depth shall be computed from the concerned excavation levels and ground level taken before excavation. Any additional excavation required for working space, formwork, planking, dewatering and strutting etc., shall not be measured and paid for separately but rates quoted for excavation shall include for all these factors. No increase in bulk after excavation shall be paid for. Excavation beyond dimensions of mass concrete for foundation as per drawing or below required depth shall not be paid for. Any excavation beyond required level shall be filled back with cement concrete of mix not leaner than 1:4:8, at his cost.

B.4.2 Measurement for general excavation/filling in roads/areas shall be made on sectional measurement by taken levels jointly before starting the work and after completion of the work and shall be worked out on average area method. This will give the total quantity of excavation. Levels shall be taken at 3m intervals or closer as required and directed by the Employer & Architect.

B.4.3. In the case of filling by murrum brought from outside, the quantities will be worked out from levels, as stated above, and shall be calculated/checked with lorry measurements, after deducting 20% for shrinkage. In case of inadequate information regarding lorry measurement and/or number of lorry trips, Employers/Architect's decision will be final and binding.

B.4.4 In case of all fillings, in exposes and open areas, 10% deduction will be made from the total quantities in the running bills, out of which 5% will be deducted permanently and balance 5% will be paid after expiry of the defects liability period of one year or one monsoon, whichever is more and after making good levels, surface etc., as required and directed.

B.4.5 In case of soft and hard rock, payments shall be limited to minimum of the quantities arrived at from levels or stack measurements (after deducting 40% for voids). The material shall be stacked on fairly level ground and places, as directed. All depressions over the required final levels will be made good by P.C.C. of mix not leaner than 1:4:8 as directed, at no extra cost.

B.4.6 The quantity of excavated materials disposed off outside the premises will be worked out on the basis of total quantity of excavation less follows:

B.4.6.1. Quantity of excavated (other than rock) materials used for filling (on the basis of levels).

B.4.6.2. Quantity of rock excavation (Stack measurements less 40% or level basis).

B.4.6.3. Quantity of excavated materials disposed of within the site (on the basis of levels).

The quantity worked out on these basis will be checked with lorry measurements, with deduction of 20% for looseness/shrinkage. In case of any discrepancy, Architect & Employer's decision will be final and binding.

B.4.7. Total quantity of excavation and filling will be finalised on the basis of levels only. The total quantity of excavation will be checked by adding quantities of the following items:

B.4.7.1. Material used for filling wherever required (on level basis).

B.4.7.2. Rock excavation minimum of quantity arrived from stack measurements with 40% voids) or based on levels.

B.4.7.3. Surplus/unsuitable material disposed within site on level basis (deducting 10% voids if consolidated, otherwise deducting 20%). In case of lock 40% voids will be deducted.

B.4.7.4. - do – disposed outside site (on lorry measurements and by deducting 20% for looseness/shrinkage if transported by lorries, otherwise on basis of levels and by deducting 10% voids if the fill is consolidated – otherwise 20% voids shall be considered.

In case of any discrepancy, the decision of Employer & Architect shall be final and binding for the above sub-divisions A.4.7.1, A.4.7.2, A.4.7.3 & A.4.7.4 as stated above.

B.4.8. Whenever the contractor is instructed to reuse the excavated rock for works such as mansonry, soiling, filling etc., the measurement for such items shall be the same/equivalent as that of rock measured under excavation items earlier. The contractor will not be paid for double handling of such excavated materials.

B – 5 SOIL TREATMENT:

Soil treatment for pre-construction termite control shall confirm to the following:

B.5.1.

Chemicals	Concentration
Chlorophyriphos Emulsifiable Concentrate 20%	1% strength applied in oil solution or water emulsion.

A daily record shall be maintained by the contractor indicating quantities of chemical brought to site, used on work with location/stage of treatment (the quantum/ area of work done) and the upto date quantity of chemical consumed for the work and upto date balance at close of work on that day. This record book shall be property of the employer.

B.5.2. **Method of application and treatment - All as per IS 6313 (Part – II) – 1981.**

B.5.2.1 **Conditions of formations:**

Barrier shall be complete and continuous under the whole of the structure to be protected. All foundations shall be fully surrounded by and in close contact with barrier of treated soil. Each part of the area treated shall receive the prescribed dosage of chemical.

B.5.2.2. **Time of Application:**

Soil treatment should start when foundation trenches and pits are ready to take mass concrete in foundations. Laying of mass concrete should start when the chemical emulsion has been absorbed by the soil and the surface is quite dry. Treatment should not be carried out, when it is raining or when the soil is wet with rain or subsoil water. The foregoing requirement applies also in the case of treatment to the filled earth surface within the plinth area before laying the sub-grade for the floor.

B.5.2.3. **Disturbance:**

Once formed, treated soil barriers shall not be disturbed. If, by chance treated soil barriers are disturbed, immediate steps shall be taken to restore the continuity and completeness of the barrier system.

B.5.2.4. The chemical emulsions shall be applied uniformly at the prescribed rate in all the stages of the treatment. A suitable hand operated compressed air sprayer or watering can should be used to facilitate uniform dispersal of the chemical emulsion. On large jobs, a power sprayer may be used to save labor and time.

In the event of waterlogging of foundation, the water shall be pumped out and the chemical emulsion applied when the soil is abosrbent.

B.5.2.5. Treatment for Masonry foundations and Basements as per clause 6.2 of IS 6313 (Part II) – 1981.

B.5.2.6. Treatment for RCC Foundations and Basements as per clause 6.3 of IS 6313 (Part II) – 1981.

B.5.2.7. Treatment of top surface of plinth filling as per clause 6.4 of IS 6313 (Part II) – 1981.

B.5.2.8. Treatment of junction of the wall and the floor as per clause 6.5 of IS 6313 (Part II) – 1981.

B.5.2.9. Treatment of soil along external perimeter of building as per clause 6.6 of IS 6313 (Part II) - 1981.

B.5.2.10. Treatment of soil under Apron along External perimeter of the building as per clause 6.7 of IS 6313 (Part II) – 1981.

B.5.2.11. Treatment for walls retaining soil above floor level as per clause 6.8 of IS 6313 (part II) – 1981.

B.5.2.12. Treatment of soil surrounding pipes, waster and conduits as per clause 6.9 of IS 6313 (Part II) – 1981.

B.5.2.13. Treatment for expansion joints as per clause 6.10 of IS 6313 (Part II) – 1981.

B.5.3. **Guarantee : 10 years (as per form enclosed on requisite stamp paper)**

In the unlikely event of any re-treatment becoming necessary subsequently during the guarantee period, necessary inspection and re-treatment, as required, shall be carried out, free of cost, by the contractor.

B.5.4. **The rate to include:**

The contractor should include in his rates given in schedule of quantities in Sq.meter area basis, all the stages of treatment, Viz., bottom of foundations, sides of trenches, underside of the floors, underside/damp proof courses, outer faces of external walls upto plinth protection, and around all pipe lines at ground level etc., and finally the back fill all around and in the building as per detailed specifications mentioned above. Where the rate of applications of the insecticide has not been specified clearly, the rates of application of chemical should be so governed that during the guarantee period, no trouble may arise. Payment will be made on the plinth area measurement of ground floor only, and the rate for the same should include all the stages of work as mentioned above and no extra on any account will be entertained.

C. PLAIN AND REINFORCED PRECAST CONCRETE WORK:

C.1. **APPLICATION OF SPECIFICATIONS:**

C.1.1 Not withstanding what is stated in the specification herein, detailed architectural and structural drawings and notes appended there on shall be deemed to form part of the specifications and to supersede these, in case of any discrepancy.

C.2. **GENERAL:**

C.2.1 The structural and architectural drawings shall be studied thoroughly and any discrepancy in the dimensions on the drawings or any other point not clear to the contractor shall be brought to the notice of Architect & Employer well in advance, and got decided from them before further proceeding with the work.

C.2.2. No concrete works shall be carried out in the absence of authorized and qualified supervisor of the client/Architect.

C.3. **MATERIALS:**

C.3.1. **General:**

C.3.1.1. All the materials constituting the concrete shall conform to the relevant latest Indian Standard Specifications, unless otherwise indicated.

C.3.1.2. Materials shall be transported, handled and stored on the site or elsewhere in such a manner as to prevent damage, deterioration or contamination.

C.3.1.3. All the materials such as sand, coarse aggregates, cement and water shall be got tested in any NABL approved laboratory, as directed by the Employer & Architect, before starting the concrete work. During construction also all these materials will have to be tested, as often as deemed necessary by the Employer & Architect.

C.3.2. **Cement:**

Cement shall be ordinary Portland cement 43 grade and of approved brand confirming to IS 1812 – 1989 unless otherwise specified. The contractor shall procure cement of makes – **ULTRATECH/L&T/BIRLA/NAGARJUNA**. The contractor may use ordinary Portland Cement of 53 grade of the makes specified above by obtaining written permission from the Architects/Bank. It shall be stored by the contractor in a dry, watertight and properly ventilated structure as per specified conditions. The cement shall be stacked on a dry raised platform, 1'-0" above the floor level and shall be stacked in the sequence of receipt of consignments. Not more than 10 bags should be kept in one stack. Any cement which has deteriorated, caked or which has been damaged due to any reason whatsoever shall not be used. Cement, concerning which there is any doubt, shall be got tested by the contractor at his cost and used, only if found satisfactory. Condemned/damaged cement shall be removed immediately from the site by the contractor at his cost.

Daily account of receipt and use of cement bags shall be maintained by the contractor in the proforma approved by the Architects/Employer and got checked by the Employer's Engineer at site. Cement should be used in the order in which it is received at site. Cement stored for more than three months shall be got tested, before using it in the work.

C.3.3. **Sand:**

Sand shall be well graded, coarse in texture, clean, hard and free from salt, earth, clay or any other harmful material. Before starting the work, the contractor shall get samples of sand, locally available from different sources, if required, and the same shall be got tested as per latest relevant B.I.S. codes for concrete work and to get the final approval of Employer & Architect. During the course of the construction or for any reasons it is observed that the sand, procured by the Contractor from previously approved source, is not upto the approved standard or it is not available in sufficient quantity required for the entire project, then the contractor will have to make such alternative arrangements to procure the sand of approved quality from any other source, even with longer lead at no extra cost. Sand shall be screened and washed, if required, as directed by the Employer & Architect/at no extra cost. Field tests shall be carried out regularly and as directed, to ensure the suitability/quality of the same. Silt content should not exceed 8% by volume or 5% by weight, and should be free from other deleterious materials. When sand is mixed by volume, necessary allowance shall be made for bulkage, as required and directed to give correct mixture.

C.3.4. **Coarse Aggregate:**

Coarse aggregates shall consist of hard, dense, durable uncoated crushed Granite rock. It shall be free from soft, friable, thin or long laminated pieces. All aggregates should generally confirm to IS 383 – 1970. For reinforced cement concrete, the maximum size shall be not more than 20mm and minimum shall not be less than 5mm and shall be uniformly graded to the approval of Employer & Architect. If locally available coarse aggregate is not suitable or is not sufficient in quantity, the contractor shall have to procure it from any other source, even with longer leads at no extra cost. As and when directed by Employer & Architect, aggregates shall be washed by approved methods at contractor's cost. Necessary tests shall be carried out, as and when required to ascertain about the suitability and grading of the aggregated, by the contractor at his cost.

C.3.5. **Water:**

Water shall be clean, fresh and free from organic or inorganic matters in solution or suspension in such amounts, that may impair the strength or durability of the concrete. Water fit for drinking will generally be found suitable for use in concrete and plastering work. However water shall be tested periodically for its use in construction work.

C.3.6. **Reinforcement:**

C.3.6.1. **Mild steel bars:**

Mild steel reinforcement bars shall conform to I.S.432 – 1982 "Part I" Fe 410 – S, other qualities of steel shall not be acceptable.

C.3.6.2. **High strength deformed bars:**

Where deformed high strength reinforcement bars are specified, the contractor shall use tor steel, accompanied by a test certificate from the manufacturer, conforming to IS – 1786 – 1986 and shall be Fe 550D grade. Contractor shall get steel reinforcement tested at his cost as and when required and directed by Employer & Architect.

Steel shall be from the main manufacturers i.e., **SAIL/ VSP/JSW/TATA** or any other manufacturer as approved by Architect & Employer.

C.3.6.3. **Cleaning of reinforcement:**

Before steel reinforcement is placed in position, the surface of the reinforcement shall be cleaned of loose rust or scaling, dust, grease and any other objectionable substances as required and directed.

C.3.6.4. **Bar bending schedule of reinforcement:**

On receipt of structural drawings, contractor shall prepare bar bending schedules of reinforcement and shall get it approved by the Employer & Architect, in advance before starting the work.

C.3.6.5. **Cutting and Reinforcement:**

Before steel reinforcement bars are cut, the contractor shall study the lengths of bars required as per drawings and shall carry out cutting, only to suit the sizes required as per drawings so that the wastage is minimum.

C.3.6.6. **Placing and Security:**

Reinforcement bars shall be accurately placed and secured in position and firmly supported or wedged by precast cement mortar concrete blocks of suitable mix, thickness and size, at sufficiently close intervals, so that the bars will not sag between the supports or get displaced during the placing of concrete or any other operation of the work. It is most important to maintain reinforcement in its correct position without displacement and to maintain the correct specified cover. The contractor shall be responsible for all costs for rectification required in case the bars are displaced out of their correct position.

C.3.6.7. **Binding wire:**

The reinforcement shall be securely bound wherever bars cross/lap or whenever required with 2 strands of suitable length of 18 gauge soft annealed steel wire.

C.3.6.8. **Welding:**

Welding of bars, in place of splicing, shall not be carried out, unless specifically authorised in writing by architect & employer, and the welding shall be as per relevant I.S. code of practice. However, no extra payment shall be allowed for the same.

C.3.6.9. **Bends etc:**

Bends, cranks, curves, etc., in steel reinforcement shall be carefully formed and shall strictly confirm to the drawings/requirements, care being taken to keep bends out of winding. Otherwise, all rods shall be truly straight. If any bend/crank shows signs of cracking, such rods/bars shall be removed immediately from the site. For bending of bars to any curvature, minimum radius of 9 times diameter of the bar shall be used, unless otherwise specified in the drawings. However, in respect of standard hooks, the radius of bends shall be two times the diameter of bar. Heating of reinforcement of bars to facilitate bending will not be permitted. The bars shall always be bend cold. In case of mild steel reinforcement bars of larger sizes, where cold bending is not possible, they may be bent by heating, but only with written permission of the Architect & employer. Bars when bent shall not be heated beyond cherry red colour, and after bending shall be allowed to cool slowly, without quenching. The bars damaged or weakened in any way in bending shall not be used on the work. High strength deformed bars shall in no case be heated to facilitate bending or cranking.

C.3.6.10 **Inspection of Reinforcement:**

No concreting shall be commenced until the Architect & Employer have inspected the reinforcement in position and their approval obtained. A notice of atleast 72 hours shall be given to the Architect & Employer by the Contractor for inspection of reinforcement. If in the opinion of the Architect & Employer any material is not in accordance with the specification or the reinforcement is incorrectly spaced/bend or otherwise defective, the contractor shall immediately remove such materials from the site and replace with new ones and rectify any other defects in accordance with the instruction of the Architect and Employer and to their entire satisfaction.

C.3.6.11 **Net Measurement:**

Reinforcements shall be placed as shown on the structural drawings and payment will be made based on and limited to the net measurements, as per drawings. The contractor shall allow in his quoted rates for all wastages and rolling margins, which will not be paid for. The measured length of all the bars shall be converted into weight, as per standard weights given in latest I.S.Schedule. In case the weights of any bar/bars are less than the required weight (beyond rolling margins specified by B.I.S.) the same shall not be used on work. If used, the same shall be replaced with proper ones, at no extra cost.

C.3.6.12 **Cover for Reinforcement:**

Unless otherwise specified in drawings, cover shall be measured from outer surface of the main reinforcement and shall be as follows:

a. For beams and lintels – 25mm or dia of the bar, whichever is higher.

b. For slabs, chajjas, canopies, pardas – 15mm or dia of the bar, whichever is higher.

c. Columns – 40mm, or dia of bar, whichever is higher.

d. Footings – 50mm.

e. Cover blocks shall be of (1:1½:3) P.C.C. and of thickness, not less than the cover specified. Cover blocks of 1:2 cement mortar may be allowed, if specifically permitted by the Architect. PVC cover blocks of required cover is also allowed.

C.3.6.13. Rates quoted for reinforcement, in addition to any factors mentioned elsewhere, shall also include for:

a. Stock piling of reinforcement as described.

b. Decoiling, straightening (coiled bars, bent bars).

c. Removal of rust and every other undesirable substances, using wire brushes etc., as required/directed.

d. Cutting to required lengths, labour for bending and cranking, forming hooked ends (if required), handling, hoisting, placing in position, tying binding with binding wire and every thing necessary to fix reinforcement in work as per drawings/requirements.

e. Cost of binding wire required as described.

f. Fabricating and fitting reinforcement, in any structural member, irrespective of its location, shape, dimension and level.

g. Cost of precast concrete/mortar cover blocks of proper size or nylon spacers to maintain cover and holding reinforcement in position.

h. Work at all levels.

C – 4 **FORM WORK:**

C.4.1. **Materials and design:**

Contractor shall get the materials, sizes/arrangements and method of supports, details of joinery, and design of formwork for beams, slabs, columns etc., approved by Architect, before starting the formwork.

C.4.2. **Design of Form work:**

i) Form work shall be adequately designed to support the full weight of workers, reinforcement, freshly placed concrete, effects of tamping/vibrating, etc., without yielding/settlement or deflection, and to ensure good and truly aligned concrete finish in accordance with the construction drawings.

ii) The formwork shall be so designed that the sides of the beams can be first struck, leaving the soffit of beams and supporting props in positions. Props shall be designed to allow accurate adjustment and to permit of their being struck without jarring the concrete.

iii) The design of form work shall be got approved from the Architect & Employer before starting this item of work.

C.4.2.1 The form work shall be of approved plywood (Marine or boiling waterproof) and not less than 12mm thick and with proper supports as may be approved by Architect & Employer. As an alternative sufficiently rigid steel shuttering with appropriate supports may be used, as may be approved by Architect & Employer at no extra cost. In every case, joints in the shuttering are to be such as to prevent loss of liquid from concrete. In case of steel shuttering, the joints must be perfectly close and sealed with craft paper or any other types of approved sealing materials. If any particular material or materials are specified in the Schedule of Quantities for form work, only such particular/ specified material or materials shall be used in the work. The form work shall be constructed so as to remain sufficiently rigid during placing and vibrating/tamping of the concrete. All shuttering and framing must be adequately stayed and properly supporting the concrete during period of hardening. The forms shall have sufficient strength and rigidity to hold concrete and withstand the forces/pressure of people and machinery working ramming and vibration, and more so when the concrete is tamped/vibrated. The surface of all forms in contract with concrete shall be clean, rigid, watertight, and smooth. Suitable devices shall be used to hold corners, adjacent ends and edges of panels of other forms together in accurate alignment.

C.4.2.2. The form work shall conform to the shape, lines and dimensions to suit the RCC members, as shown in the drawings and be so constructed. A camber of 6mm in all directions, for every 5 meter span, in shuttering for all slabs and beams shall be given to allow for unavoidable sagging, due to self weight (including concrete, workers, machinery etc)/compaction of other causes.

C.4.2.3. Temporary openings or windows shall be provided at the base of column forms, and at other points, where necessary to facilitate cleaning and observation, immediately before concrete is deposited. These shall be properly closed, before placing concrete in position.

C.4.2.4. **Vertical centering/staging:**

The vertical shuttering shall be carried down to such solid surface as is sufficiently strong to afford adequate support and shall remain in position until the newly constructed work is able to support itself. Props shall be steel tubes with extension pieces and securely braced against lateral displacement. The spacing of steel tubes shall be designed to carry loads imposed on it without undue deflection of the members, supported by the props. The spacing and sizes of

props shall be approved by the Architect & Employer and any alterations suggested by them shall be carried out at contractor's expense. Pipe bracing shall be provided, as required/directed, without extra cost. The contractor shall allow in his rates for providing props and struts upto any height as shown in the working drawings issued to the contractor from time to time. Wooden props and bracing can only be allowed under special sanction of the Architect & Employer.

C.4.2. **Design of form work:**

i) Form work shall be adequately designed to support the full weight of workers, reinforcement, freshly placed concrete, effects of tamping/vibrating, etc., without yielding/settlement or deflection, and to ensure good and truly aligned concrete finish in accordance with the construction drawings.

ii) The form work shall be so designed that the sides of the beams can be first struck, leaving the soffit of beams and the support props in position. Props shall be designed to allow accurate adjustment and to permit of their being struck without jarring the concrete.

iii) The design of form work shall be got approved from the Architect & Employer before starting this item of work.

C.4.3. **Water tightness:**

It is the contractor's responsibility to ensure that the forms are checked for water tightness during progress of shuttering work and also just before concreting operation starts and to make good deficiencies, if any. If instructed by the Architect & Employer, building paper will have to be used, without any extra charge for the same, viz., to have adequate water tightness.

C.4.4. **Cleaning and treatment of forms:**

All rubbish, particularly chippings, shavings and sew dust, etc., shall be removed from the interior of the forms, before the reinforcement is placed in position and as well before the concrete is placed. The form work to be in contact with the concrete shall be cleaned and thoroughly wetted or treated with an approved composition before placing concrete. Care shall be taken that such approved composition is kept out of contact with reinforcements. Interior of all moulds and boxes must be thoroughly washed (water) with hose pipe or otherwise so as to be perfectly clean and free from all extraneous matter before depositing of concrete. Prior approval of the form work should be obtained from Architect/Employer, before placing reinforcement on the form work.

C.4.5. **Stripping:**

Form shall be left in place until their removal is authorised by the Architect & Employer and shall then be removed with due care, so as to avoid injury to concrete and or workmen. In no circumstances the forms shall be struck, until the concrete developes a strength of at least twice the stress, to which the concrete may be subjected to at the time of striking. The strength referred to shall be that of concrete, using the same cement and aggregates with the same proportions, and cured under conditions of temperature and moisture similar to these existing on the work. Where possible, the form work should be left longer, as it would assist in more effective curing.

C.4.6. **Stripping time:**

In normal circumstances (general where temperatures are above 20 degrees C and where ordinary Portland cement is used) forms shall be struck after expiry of the following periods, unless otherwise specifically directed at site by the Architect & Employer.

	LOCATION	STRIKING TIME IN CLEAR DAYS (OPC) (AFTER THE DAY OF CASTING)
a.	Vertical sides of walls slabs, beams and columns	4
b.	Bottoms of slabs upto 4.5m span.	7
c.	Bottom of slabs above 4.5m span/ bottoms of beams & arch rib bottoms upto 6m span.	14
d.	Bottom of beams over 6m span and arch rib bottoms above 6m span.	21

C.4.7. **Form work in lifts for continuous surfaces:**

Where forms for continuous surface are placed in successive units, (as for example in columns or walls) the forms shall fit tightly over the completed surface so as to prevent any leakage of water/mortar from the concrete and to maintain accurate alignment of the surface.

C.4.8. **Procedure while removing the form work:**

All formwork shall be removed without shock or vibration, as otherwise it would damage the reinforced concrete. Before the soffit and struts are removed, the concrete surface shall be first exposed partly, where necessary, in order to ascertain that the concrete has sufficiently hardened. Proper precautions shall be taken to allow for the decrease in the rate of hardening

that occur with cement, in cold weather. Wetting the surface before stripping is preferable, to avoid spalling of corners.

C.4.9. In case of structures with two or more floors, the weight of concrete, centering and shuttering of any upper floor being cast shall be suitably supported on one floor below the top most floor already cast. The rate quoted for reinforced concrete items is deemed to have included for these arrangements/supports.

C.4.10. **Tolerance:**

a. All RCC work shall be executed to true lines and levels and plumb and to the final approval of Architect & Employer's representative.

b. If work is not carried out within the reasonable tolerance the cost of all rectification measures of dismantling and reconstructing or as decided by the architect and Employer shall be borne by the Contractor. In case of work dismantled, the same will not be measured and paid for.

C.5.1. **Concrete mix proportioning:**

Concrete mix proportioning for all grades of concrete shall be as per IS 456 – 2000 clauses 8 & 9 and as per SP 23 – 1982 Section 6. The constituent materials to be used for concrete making namely cement, aggregates & water shall be as per clause 4 of IS 456 – 2000. The mix proportions shall be so selected as to ensure that the workability of the fresh concrete is appropriate/suitable for the conditions of handling and placing, so that after compaction its surrounds all reinforcements and completely fills the form work. When concrete is hardened, it shall have the required strength, durability and surface finish. The determination of the proportions of Cement, Aggregates and water to attain the required strengths shall be made as follows:

a. By adopting nominal concrete mix, which is called 'nominal mix concrete'.

Batching:

In proportioning concrete the quantity of both cement and aggregate should be determined by mass. The mass of cement can be determined on the basis of mass of cement per bag. Water shall be measured by volume in calibrated containers/tanks or weighed.

In case of design mix of concrete, uniformity of the materials used for the concrete making has been established over a period of time, the proportioning may be done subsequently by volume batching, provided prior approval of Architect & Employer is obtained for same and ensured that periodic checks are made on mass/volume relationships of materials. Where weigh batching is adopted, allowance shall be made for bulking in accordance with IS 2386 (part III) 1963.

The concrete shall be mixed in a Mechanical Mixer as per IS 4791 – 1968. Workability of the concrete should be controlled by direct measurement of water content. Workability should be checked at frequent intervals as per IS 1199 – 1959. The contractor is entirely responsible for the proportioning of concrete mixes of required strengths and must submit the procedure for such proportioning of concrete mixes for the prior approval of Employer & Architect, whose decision shall be final in the matter.

b. Alternatively, contractor may use suitable ready mix concrete at no extra cost and after obtaining written permission from Architects/Bank.

C.5.2. **Transporting and placing concrete:**

C.5.2.1. Immediately prior to placing the concrete, the shuttering shall be well watered and any water and rubbish lying removed.

C.5.2.2. The concrete shall be transported from mixer to the position of placing as rapidly as possible and in a manner that would prevent separation or bleeding or impair the quality of concrete. Equipment for transportation, pumping or pneumatically conveying concrete shall be of such size and design as to ensure a practically continuous flow of concrete at the delivery end, and without any separation of the materials. The chute shall be of metal or metal-lined wood with slopes neither less than 1 vertical to 3 horizontal nor more than 1:2. The discharge end of the chute shall be provided with baffle plates to prevent segregation.

C.5.2.3. Concrete shall not be dropped from a height in a manner, which will cause segregation. It shall be placed directly in its permanent position to avoid segregation due to rehandling. Rate of placing concrete shall be such as to avoid formation of planes of weakness in concrete being placed. No partly set or retempered concrete shall be used on the job.

C.5.2.4. Each layer of concrete being placed shall be consolidated by mechanical vibration supplemented by hand spreading, rodding and tamping as directed, to form dense concrete with all surfaces free from honeycombing and tolerably free
from water and air holes or other blemishes. Vibrators shall in no case be used to work along the forms. Duration of vibration shall be so limited to reduce time necessary for satisfactory consolidation, without causing objectionable segregation. The vibrator shall not be inserted into a lower course, that has already been vibrated/compacted and begun to set.

C.5.2.5. The contractor shall be responsible for the co-ordination with sub-contractors or other contractors for incorporating necessary inserts, electrical conduit pipes, fixing boxes, blocks, chase holes, etc., as required. The contractor shall obtain approval from the Architect/Client as regards the above, before casting of the concrete. No holes or chases shall be made in the concrete, without prior approval of the Architect & Employer.

C.5.2.6. Concrete shall be placed continuously until completion of the work.

C.5.2.7. Accumulation of set concrete on the reinforcement shall be avoided. Before fresh concrete is deposited upon or against any concrete which has already hardened, the surface of the hardened

concrete shall be well roughened, if necessary by chipping, and all lattance removed. The surface shall then be swept clean with wire brushes, thoroughly wetted and covered with a thin layer of rich cement mortar and or chemical additives, as may be directed by Architects.

C.5.2.8. In foundation trenches or in like positions, concrete shall be carefully laid and poured from less than over 1 meter height. If the height exceeds 1 meter, the concrete must be deposited through inclined spouts. The trenches shall be maintained free of water during concreting by proper diversion of water flow with dewatering as required and directed, at no cost and without washing over freshly deposited concrete.

C.5.2.9. Concrete footing shall be placed upon undisturbed clean and hard surfaces of specified bearing capacity.

C.5.2.10. Contractor's authorised Engineers/Supervisors/Foremen shall always be present for all concreting work carried out at site.

C.5.3. **Protection of Concrete:**

Newly placed concrete shall be protected by approved means from rain, sun and drying winds. Exposed vertical/inclined/curved faces of concrete shall be kept wet continuously for not less than a fortnight by covering with a layer of sack curing, invariably horizontal surfaces shall be kept covered with water pounded by means of bunds. Concrete placed below the ground shall be protected from falling earth during and after placing. Approved means shall be taken to protect immature concrete from damage due to debris, excessive loading, vibration, abrasion, ground-water, mixing with earth or other materials, flotation and other influences that may impair the strength and durability of the concrete.

C.5.4. **Consistency:**

Only minimum and sufficient water shall be added to the cement and aggregate during the mixing to produce a concrete having sufficient workability to enable it to be well consolidated and to be worked into the corners of the shuttering and around reinforcement, to give the specified surface finish, and to have the specified strength. When suitable and appropriate amount of water has been determined, the resultant consistency shall be maintained through the corresponding parts of the work and approved tests shall be conducted from time to time to ensure the maintenance of this consistency.

The exact determination of the slump for various members and water cement ratio shall be as directed by the Architect & Employer.

Slumps tests shall be made in accordance with the details given in IS 456 – 1978.

C.5.5. **Finishing:**

C.5.5.1. As soon as possible after the form work has been struck holes left by clamping bolts, air and water holes and other rough patches shall be filled in with cement and sand mortar 1:1 mix (sand passing 1/8" sieve) by working into the surface with a wooden float. Excess water shall be avoided. This should be done within 72 hours after removal of form work.

C.5.5.2. Unless instructed to the contrary the face of exposed concrete placed against shuttering shall be rubbed down immediately upon removal of the shuttering to remove fine or other irregularities. All surfaces which are required to be plastered shall be hacked properly.

C.5.5.3. All exposed faces of concrete members for which shuttering is not provided, shall be smoothened with a wooden float, when the concrete is green and setting has not started, to give a finish equal to that of rubbed down face where shuttering is provided. The top face of a slab, which is not intended to be covered with other materials, shall be levelled and floated while unset to a smooth finish to the levels of falls/slopes shown on the drawings or as instructed. The floating shall be done so as not to bring an excess of mortar to the surface of the concrete. Dentations in the surface of the concrete shall be formed, if specified/ordered, by approved implements to the depths and patterns described. The top face of a slab intended to be surfaces with mortar, granolithic or any other materials shall be finished rough (to receive final finish) and to the approval of the Architect & Employer.

C.5.5.4 **Honey Combing:**

i) Where honey combed surfaces are noticed in the concrete, the contractor shall not patch up the same, until examined by the Architect & Employer and decision given regarding accepting the work with rectifications or rejections of the same. If the contractor patches up such defects without the knowledge of the Architect & Employer, the Architect & Employer will be at liberty to order demolition of the concerned concrete members to the extent they consider necessary. In such cases, the contractor shall reconstruct the demolished work. The cost of demolition and demolished work and disposal of debris shall not be measured and paid for.

ii) If in the opinion of the Architect & Employer the honey combing is harmful to the structure and where so directed by the Architect & Employer, the full structural members affected by honey combing, as decided by Architect & Employer, shall be dismantled and reconstructed to Architect & Employer's approval. The cost of demolished concrete and as well cost of demolishing and disposing the debris will not be measured and paid for.

iii) Where in the opinion of the Architect & Employer the structural members containing honey combing can be allowed to be retained with rectification, the rectification shall be carried out as directed by the Architect & Employer by gunitting (with cement mortar 1:3 proportion) or epoxy bonding and plastering the areas concerned at the contractor's expense.

iv) If such honey combed areas are not severe in the opinion of the Architect & Employer and where so directed shall be patched up with dry-pack cement mortar consisting of 1 part of cement and 3 parts of sand after removing defective concrete down to sound concrete to

the satisfaction of Architect & Employer all at the expense of the contractor. Such works should be completed within 72 hours from deshuttering.

v) Concrete faces to be finally concealed shall be left as from the shuttering, except that honey combed surface shall treated as above (i), (ii), (iii) & (iv). Faces of concrete that are to have finished other than specified shall be prepared in an approved manner and as instructed.

vi) The patched up areas shall be kept moist for 7 days and prevented from drying out too soon. Wherever required or instructed by the Architect & Employer, patching work shall be done using part white cement upto 30% of the total quantity of cement specified.

C.5.6. **Construction joints:**

Concreting shall be carried out continuously upto construction joints, if any, the position and details of which shall be predetermined by the Architects/Employers. Construction joints shall be provided as directed by the Architect. They shall be rebated and or of an approved shape for slabs, beams etc., and shall be provided in the positions described on the drawings or as directed by the Architects/Employer. Inclined "Feather" joints shall not be permitted. Shear keys not less than 2" deep and equal to 50% of the cross sectional area shall be provided to all construction joints. Reinforcing bars shall extend by not less than 60 time dia of respective bars for M:150, 50 times dia, for M:200, beyond construction joints, unless otherwise indicated.

The joints shall be kept only at places, where the shear force is minimum and these shall be at right angles to the direction of main reinforcement. In case of columns, the joints shall be horizontal and about 3" below the bottom of the deepest beam framing into the columns.

C.5.7. **Structural joints:**

Expansion joints, construction joints, hinges or other permanent structural joints shall be provided in the position and of the form described in the drawings or as directed by the Architects/Employers and shall be got approved before casting.

In no case shall the reinforcement corner protecting angles or other fixed metal items, embedded in or bonded into concrete, run continuously through the expansion joints. The placing of concrete or either side of the expansion joint shall be separated by suitable filler materials during continuous construction or alternately adequate space left during construction and filler materials placed in position later after an interval of atleast seven days.

C.5.8. **Cutting into concrete:**

No concrete shall be neither cut into, nor shall it be interfered with in any way, without the prior approval in writing by the Architect & Employer.

C.5.9. No portion of the structure shall be subjected to any loading in excess of design loads, except with prior written permission of Architect.

C.6.0. **Strength of Concrete:**

C.6.1. The concrete mix shall be so made to produce the desired grade concrete having the required workability and characteristic strength not less than values given below:

Grade Definition	**Specified Minimum Characteristic compressive strength at 28 days**
M – 15	150 Kg/Sq.cm
M – 20	200 Kg/Sq.cm
M – 25	340 Kg/Sq.cm
M – 30	380 Kg/Sq.cm

Strength of concrete required for various situations have been clearly stipulated in the relevant item of the schedule of quantities and/or in the drawings. As required by the Architect, the water content and the water/cement ratio shall be determined from the results of tests of the materials proposed for use, in advance of construction. It is important to maintain constant water cement ratio at its correct value.

If the concrete produced at site does not satisfy the above strength requirements, the Architect & Employer will reserve the right to require the contractor to improve the method of batching, the quality of the ingredients and the mix with increased cement contents, if necessary. The contractor shall not be entitled to claim any extra cost for the extra cement used or for the modifications, for fulfilling the strength requirements as specified. The able guide for the quality and for durability of concrete. It must also have an adequate cement content and as well a low water – cement ration, as given below, which is applicable for moderate weather conditions, as specified in I.S. 456 – 2000.

MINIMUM CEMENT CONTENT	**MAXIMUM WATER – CEMENT RATIO**
Moderate conditions 290 Kg/Cum	0.55

The minimum cement contents is based on 20mm aggregates. For 40mm aggregate it should be reduced by about 10% and for 12.5mm aggregate it should be increased by about 10%.

C.6.2. **Strength tests during the work:**

Samples should be taken from each 20 cum of concrete made during the progress of the work, or when a day's concrete work does not amount to 20 cum, then from each day's quota, and as required by Architects/Employers. Six samples of cubes of size 150 x 150 x 150mm shall be taken jointly each time in steel moulds, 3 of which shall be tested for 7 days strength and the remaining 3 shall be tested for 28 days strength on 7^{th} and 28^{th} day respectively, after the day of casting. Proper curing arrangements, as directed by Employers/Architects, shall be made at site by the contractor. Each cube shall be marked and numbered, and dated by the contractor.

The contractor shall maintain a register at site as directed by the Architect Employer, showing all particulars (date of casting, mix of concrete, location of concreting, water cement ratios, approximate concrete quantity represented by samples, no of cubes cast, date and results of testing, and remarks) and all the entries should be signed jointly by the contractor with Architect & Employer. 7 days strength shall not be less than 2/3rds of the 28 days strength. The results of the tests in any of the recognized laboratories and/or contractor's laboratory at site shall be taken as final and binding on the contractor. The average strength shall be higher than the prescribed strength. The average strength of the specimens taken at a time, may be assumed as the compressive strength of concrete, provided the difference between the maximum and minimum strength of the three specimens does not exceed 15% of the average strength. Concrete test cubes shall be taken out and got tested as per time schedule for knowing 7 days and 28 days crushing strength, at no extra cost, either at site or at an approved laboratory. Whenever for any set of cubes, if the 7 days crushing strength is found satisfactory, 28 days tests are not necessary. In cases, where 7 days strength is not satisfactory, tests for 28 days strength must be gone done WITHOUT ANY EXCEPTION.

In case the compressive strength obtained from the test samples of concrete at 28 days is less than the minimum specified characteristic compressive strength, the work is liable to be rejected at the sole discretion of Architect & Employer.

Employer's & Architect's decision regarding dismantling of such works or suitable rectifications or any alternative assessment by load test for allowing the corresponding work to be retained, shall be final and binding on the contractor. These shall be carried out at contractor's cost only. The condition of any test does not guarantee acceptance of concrete covered by the test final decision regarding finally accepting/rejecting such works even after conducting those tests shall be made by the Architect & Employer only.

In case of concrete showing test results lower than the specified strength and in the opinion of the Architect & Employer such works could be allowed to remain, after due and satisfactory rectifications, if any, ordered and or load tests or even otherwise, then the rates quoted by the contractor, corresponding to those items, shall be reduced suitably for paying for that part of work. The Employer/Architect shall have full power in their absolute discretion to fix the actual rate payable after deduction, and it shall be binding on the contractor. If the strength is so low that in the opinion of Architect & Employer, the work has to be dismantled, then the contractor shall do so as directed at his own cost irrespective of the amount of loss, inconvenience and difficulties involved. Rejected/dismantled work shall not be paid for.

If in the opinion of the Architect & Employer/Engineer any load test or hammer test or any other test is necessary, the same shall be carried out by the contractor as directed and he shall bear the cost of the same. Based on the results of the tests, the Architect shall reduce rates/accept after rectification or modification/reject and order dismantling of concrete, and the decision shall be final and binding on the contractor.

The contractor shall pay all costs incurred in supplying the material for and in making, maturing, delivering and testing the cubes.

C.7. **RECORD OF CONCRETING:**

C.7.1 The contractor shall keep a daily record showing the date when each portion of concrete is poured in slab, beam, column footing etc., curing period, removal of formwork and test cubes results at 7 days and 28 days period and observations on the same.

C.8. The rates for concrete shall also include, apart from any other factors specified elsewhere in the tender, as follows:

C.8.1. All materials required for design/ nominal mix concrete, getting the designs for the design mix from an approved agency, labour, use of tools and plants, scaffolding, mixing, conveying, placing, ramming, vibrating, formwork, finishing, curing, hacking etc., complete as required and directed.

C.8.2. Rates for concrete items shall cover

a. Any shape and size, and for doing at any height and depth (all lifts) as per drawings, providing cover blocks or nylon spacers etc.

b. Fixing all inserts such as pipes, plugs, forming holes/pockets etc.

c. Providing dowel bars, etc., through shuttering and forming drip moulds to chajjas, sills etc., or at any other places as directed.

C.9.0 **MODE OF MEASUREMENT:**

C.9.1. Length of columns will be measured upto top of the slab.

C.9.2. Length of main beams will be measured between columns and depth below the top of the slab. For secondary beams length will be between main beams.

C.9.3. Slabs to be measured in Cum between beam to beam.

C.9.4. Chajjas will be measured in CUM. Width to be measured beyond lintel width.

C.9.5. For staircase, RCC steps, waist slab, beams will be measured in Cum.

C.10. **PRECAST CONCRETE:**

C.10.1. All provisions in the specifications for concrete shall apply to precast concrete except for the specific variations given herein below:

C.10.2. **Aggregate:**

For maximum size of aggregate shall not be larger than one third of the minimum dimension of the member.

C.10.3. **Concrete Cover:**

For all surfaces not exposed to weather, all reinforcement shall be protected by concrete equal to the nominal diameter of bars but not less than 15mm.

C.10.4. **Care:**

The concrete in one precast piece shall be placed in one operation. No piece shall be removed from the mould or erected until sufficiently natured to ensure that no damage may occur to the piece.

C.10.5. **Details:**

All details of jointing, inserts, anchors and bearing widths etc., shall be as shown in the drawings.

C.10.6. **Identification and Marking:**

All precast concrete members shall be properly marked to indicate the top of the member and its location.

C.10.7 **Transportation, Storage and Erection:**

While handling, including loading/unloading, the members shall be supported/hung at such suitable points, so that the member may safely withstand all the loads/stresses etc., that may occur/develop. For this, suitable hooks/markings etc., shall be provided, while casting itself, as may be necessary and or as directed.

C.10.7.1. Units shall be stored, transported and placed so that they will not be over stressed/pressed or damaged.

C.10.7.2. Precast concrete units shall be adequately braced and supported during erection to ensure proper alignment and safety and such bracing and supports shall be maintained until there are adequate permanent connections.

D. **MASONRY:**

D.1. **BRICK MASONRY:**

D.1.1. **Bricks:**

a. The bricks shall be of best locally available quality, and having the specified crushing strength, and shall be of quality approved by the Employer & Architect before placing orders for the same.

b. They shall be sound, hard and well burnt. They must give a ringing sound when struck with a metal piece and shall have frog.

c. They shall be free from cracks, flaws and nodules and also free from lime or stone pieces.

d. All bricks when dry, shall have an average compressive strength not less than 75 Kg/Sqcm, unless otherwise specified.

e. The bricks wherever specified as wire cut and or machine made, shall have compressive strength not less than 75 Kg/sq.cm, unless otherwise specified. The crushing strength bricks of bricks which vary by more than 15% of average strength of that group of sample, must be omitted and average strength of balance bricks only shall be considered as representative of that lot of bricks.

f. The contractor shall produce different brands of locally available bricks for approval by the Employer & Architect. If during the execution of the work, it is observed that the bricks of approved brand/quality are not sufficient in quantity or Manufacturer's have not maintained the same approved quality, then the contractor shall make alternate arrangements to procure bricks from any other source even with longer leads without any extra cost, after getting same approved in advance by the Architect & Employer, as done earlier.

g. If the contractor executes the work, without approved quality of bricks, the same shall be liable for rejection or paid at reduced rates, at the sole discretion of the Employer & Architect, which shall be final and binding.

D.1.2. **Mortar:**

The sand should be only of approved quality and 'Coarse' unless otherwise specified. It will be screened and/or washed, if required and directed, without extra cost. Unless otherwise stated, cement mortar for brick work shall be of 1:5 (1 cement: 5 sand) proportion for walls of one brick thick and above. While for half brick walls or brick on edge work cement mortar shall be of 1:3 (1 cement :3 sand) proportion.

D.2. **WORKMANSHIP:**

D.2.1. **Proportion and mixing of cement mortar:**

Cement and sand shall be mixed in the specified proportion by volume by emptying cement bags on measured quantity of sand and thoroughly turning over the mixture in a dry state, till

uniform colour is obtained. The mixture is made into the form of a frustrum of a cone with a hollow at top centre, and then water added to it. The whole material is then thoroughly turned and mixed till mortar is homogeneous; and shall be mixed only for such quantities, which can be readily used. Not more than 30 minutes should pass between adding of water to the dry mixture and the actual placings of mortar in position.

D.2.2. **Construction:**

D.2.2.1. All brick work shall be set out and built to lines, levels, batters, curves and to any shape or position to dimensions, thickness and heights shown upon the drawings, and a good bond shall be preserved throughout the work both laterally and transversely. English bond shall be used throughout.

D.2.2.2. All bricks shall be thoroughly wetted before use in the manner that water penetrates to the full depth of brick stock, and every brick is fully soaked.

D.2.2.3. Single or double scaffolding of adequate strength shall be provided for all types of loads likely to come on them during construction. In case of single scaffoldings all the scaffolding holes shall finally be filled with cement concrete 1:3:6 (1 cement :3 coarse sand : 6 graded stone aggregate, 20mm nominal size) at contractor's cost.

D.2.2.4. All courses shall be laid truly horizontal and all vertical joints made truly vertical.

D.2.2.5. Where water is met within foundations, work space shall be kept free of water by the contractor while the brick work is in progress and until the mortar, pointing, plastering have properly set.

D.2.2.6. No half or quarter brick shall be used except as closures. The closures shall be horizontal and the walls shall be raised plumb. Not more than ten courses shall be raised in a day and no part of the work shall be raised more than one meter above another at any time.

D.2.2.7. Joints shall be uniform in thickness. All joints shall be adjusted to its final position in the wall while the mortar is steel soft and plastic. All vertical joints shall be full of mortar and well compacted with trowel and just sufficient water (so that cement/mortar does not flow out of the joints). No looseness/hollows in the mortar (in the joints) shall be permitted. Any unit, which is disturbed after mortar has stiffened or the mortar in the joints is loose or has hollows, shall be removed and re laid with fresh mortar.

D.2.2.8. All joint shall be raked out, while the mortar is still green, to a depth of 10mm (minimum) to ensure a good key for plastering.

D.2.2.9. Half brick walls shall be reinforced at every 4^{th} bedded course with 25 x 1.5mm hoop iron reinforcement well in mortar, properly lagged etc., and as directed by the Architect. Alternatively two 6mm dia bars be embedded in cement mortar in same locations.

D.2.2.10. In brick arches or other circular work, the bricks shall be shaped to slope, joints radiating outward and correctly from the center, front to back of walls and joints shall be not more than 12mm thick.

D.2.2.11. All brick work shall be adequately watered atleast for three times as day, for ten days continuously.

D.2.2.12. During the rains and frosty weather, the work shall be carefully covered, without extra charge, so as to prevent any mortar being washed away etc. Should any brick work be damaged, the same shall be removed and rebuilt at the contractor's expense.

D.2.2.13. Chases and raked out joints shall be kept free from mortar or other debris. Spaces around door frames and other built-in items shall be solidly filled with cement mortar 1:3 (1 cement :3 coarse sand) or cement concrete 1:3:6 (1 cement :3 coarse sand : 6 hard stone aggregate of suitable size). Anchors, wall plugs, accessories, flashings and other items required to be built in with masonry shall be built in as masonry work progresses. Unfinished work shall be stepped back for jointing with new work. Toothing may be resorted to, only when specifically approved by the Architect. Before new work is started, all loose mortar shall be removed and the exposed joints shall be thoroughly cleaned before laying new work.

D.3. **RATES TO INCLUDE:**

Apart from other factors mentioned elsewhere in this contract, the rates for brick masonry shall also include following:

D.3.1. All materials, labour, tools/equipment used and other items intended for the satisfactory completion of brick masonry at all heights and depths.

D.3.2. Erecting and removing of all single or double scaffolding, (as may be directed/specified), ladders required for the execution of the work at any height and depth and shape as shown in drawings or as directed by the Architect & Employer, and as well cleaning everyday the surface of masonry executed on that day.

D.3.3. Cutting of brick work, raking out joints to received plaster, removing stains and mortar lumps, making required chases and openings and filling the chases with cement mortar not leaner than 1:4 (1 cement :4 coarse sand), all as specified/directed.

D.3.4. Reinforcement embedded in cement mortar, including cost of reinforcement, in half brick walls and brick on edge work.

D.3.5. Dewatering, wherever required.

D.4 **MODE OF MEASUREMENT:**

All brick work, except half brick work and brick on edge, shall be measured in cubic meters. Half brick and brick on edge will be measured in Sq.meters. Deductions shall be made for all openings, lintels, beams, chajjas/shelves bearings, and the like and columns etc., occupying full thickness of the walls. No deductions will be made for ends only of

i. Dissimilar materials like girders, beams, lintels, rafters etc., upto 500 Sq.cm. cross section, and for
ii. Openings upto 0.1 Sq.m. in face area.

E.O. **RUBBLE MASONRY:**

E.1. **MATERIALS:**

E.1.1. **Stones:**

E.1.1.1. They shall be blue granite stones from an approved quarry.

E.1.1.2. They shall be tough, hard, dense, durable, sound, uniform in colour and texture and free from flaws, cracks, unjuries, veins, crystals, minerals, salt, cavities, skins (weathered surfaces) and other defects.

E.1.1.3. The stone shall not absorb water more than 5% of its dry weight, when immersed in water and tested as per I.S. 1224.

E.1.1.4. The contractor shall furnish a sample of stones which he intends to use on the works and get the same approved by the Architects, well before start of masonry.

E.1.1.5. All Royalties, Compensations, Taxes, Octroi, duties, etc., payable for securing stones shall be paid by the contractor and included in the rates quoted for respective items.

The mortar shall be as specified in the item or as shown on drawing. The sand shall be coarse and of approved quality and may be screened or washed, if required, without extra cost.

E.2.0. **WORKMANSHIP:**

E.2.1. **Masonry:**

E.2.1.1. The stones shall be hammer dressed, unless otherwise specified in the item, before they are laid in position. For masonry to be plastered, bushes on surfaces shall not exceed 12mm in thickness and for other (exposed) faces not more than 25mm.

E.2.1.2. The masonry shall consist of large stones flat bedded, properly selected for their places and carefully laid, with a suitable proportion of smaller stones and chips to fill up the interstices (but not on faces). No face joint shall exceed 20mm and shall also be not less than 10mm in width. The stones shall be wetted before laying in mortar. The work shall be hand set and solidly bedded in and surrounded with mortar fully and properly on every side except the face.

E.2.1.3. Flat stones shall not be less in breadth than in height and its length shall not be less than 1½ times its height.

E.2.1.4. Through stones or headers shall be laid in every course at a distance not exceeding 1.0 meter apart and shall be staggered. They shall be in one piece for walls upto 600mm width and shall be lap jointed (laps not less than 150mm) in case of greater thickness, if laps are desired by the contractor. In no case length of these stones shall be less than 400mm. Alternately headers may be of precast cement concrete blocks of cement concrete 1:3:6 (1 cement : 3 coarse sand: 6 hard stone aggregate 20mm nominal size) and in cross section, height shall be equal to the height of that course in the masonry. The face area of each header shall not be less than 0.05 sq.m. They shall be distinctly marked on their face.

E.2.1.5. Quoins shall have the same height as that of the course. They shall be laid header and stretcher alternatively. Faces of quoins shall be fair dressed. No quoin stone shall be less than 0.03 cum in content. Jambs or doors, windows and openings be formed with quoins only. They shall have uniform chisel draft of 40mm at the corner edges.

E.2.1.6. The masonry shall be laid to lines, levels, curves, and shapes as shown in the plans. The face of all masonry work shall be strictly in plumb. In the case of battered walls, the courses on the battered surface side shall be at right angles to the batter. All joints shall be raked out to a depth not less than 20mm, and unless otherwise stated shall be flush pointed for all exposed surfaces with cement mortar of proportion (1 cement :3 fine sand). The width of pointing shall be uniform and constant.

E.2.1.7. The fixtures, plugs, frames etc., if any, shall be built in places as shown on plans, while laying the masonry, and not afterwards, by removing the stones already laid.

E.2.1.8. Bad work shall be pulled down, as directed by the Architect, and shall be rebuilt at the contractor's cost.

E.2.1.9. All masonry shall be washed down on completion and all stains and mortar removed from the faces as scaffolding is removed, on each day.

E.2.1.10. Holes of the required size and shape shall be preferably left during construction alone for fixing pipes, service lines etc. After the pipes are fixed in position the hollows if any, shall be filled in with 1:3 (1 cement : 3 coarse sand) cement mortar or 1:3:6 cement concrete (1 cement: 3 coarse sand: 6 graded stone aggregate 20/12.5mm nominal size as required). The face shall be neatly finished with matching stones. Iron and steel fixtures shall be embedded in cement mortar 1:5 (cement :5 coarse sand).

E.2.1.11. In wet foundations, work space shall be kept free from water, while the masonry is in progress and until the mortar has sufficiently set.

E.2.1.12. Adequate single/double scaffolding as required and or directed for constructing masonry shall be provided and scaffolding holes filled with cement concrete (1 cement : 3 coarse sand : 6 graded stone aggregate 20mm nominal size) and finished to have surfaces matching with adjacent stones by the contractor at his expenses.

E.2.2. **Coursed Rubble – Stone Masonry – Second Sort:**

E.2.2.1. Exposed face stones shall be khandki dressed to have the vertical and horizontal sides perfectly straight, parallel at right angles to the adjacent sides. Where the interior face is to be plastered, the backing stones and hearting shall be as specified for uncoursed rubble masonry, chisel drafts of 37mm dia shall be provided at the external corners, when stone face is not chisel dressed.

E.2.2.2. Height of each course shall not be less than 150mm and all the stones in any course shall be of the same height. Unless otherwise stated, height of all courses shall be uniform. In no case the height of any course shall be more than any of the courses below it. The bed and joints shall be hammer or chisel dressed back from the face for 3" and 1½" width respectively. The faces of the stones shall be hammer dressed and bushings shall not be more than 10mm. Thickness of the joints shall not exceed 10mm. Stones shall break joints atleast half of the height of the course.

E.2.2.3. Quoins shall be atleast 0.5m long (limited to thickness of wall when single piece placed across the jamb), laid square on their levels and beds shall be fair dressed to a depth of atleast 10mm.

E.2.2.4. Face joints shall not exceed 15mm.

F. CEMENT PLASTERING:

F.1.0. MATERIALS:

F.1.1. Cement, sand and water constituting the materials for the work shall conform to the specifications laid down for the concrete work. Fine sand shall be used as per IS Code.

F.1.2. Lime required for neeru finish shall be of approved variety fat lime.

F.1.3. Mortar shall be in proportion s specified in the bills of quantities.

F.2.0. WORKMASHIP:

F.2.1. General:

F.2.1.1. Adequate single scaffolding (if specifically permitted) shall be provided by the contractor at his expense and the scaffolding holes shall be filled in with cement concrete 1:3:6 (1 cement : 3 coarse sand: 6 hard graded stone aggregate 20mm size) compacted well and plastered over before lowering the scaffolding just below, if any, without any extra cost. In case double scaffolding is done, nothing extra shall be paid.

F.2.1.1. Dewatering the foundation if required, shall be done by the contractor at his own cost.

F.2.1.2. The surfaces to be plastered shall be first cleaned and watered well in advance and thoroughly wetted before plastering.

F.2.1.3. Smooth surfaces of concrete, old plaster etc., shall be suitably roughened or removed to provide necessary bend for the plaster. All dirt, sports, oil paint etc., which prevents proper bond with plaster, shall be removed.

F.2.1.4. Patches of plaster 150 x 150mm shall be put on about 3 meter apart as gauges, to ensure even plastering in one plane.

F.2.1.5. All plaster work will be done to lines levels and plumb and to the satisfaction of Architect & Employer.

F.2.1.6. For walls, columns and beams, thickness will be minimum 20mm for external faces and 15mm thick for internal faces, while for ceiling it shall be average 10mm, unless otherwise specified in bill of quantities.

F.2.1.7. The thickness specified shall be average and measured from the proudest part of the surface.

F.2.1.8. Unless otherwise stated in Bill of Quantities, cement mortar shall be in 1:4 (1 cement :4 fine sand) proportion.

F.2.2. **Ceiling Plastering:**

Providing applying in position 10/12mm (average) thick single coat cement plaster to Ceiling, Soffit of Chhajja, Cantilever Balconies or any other RCC projection/surface in approved pattern and design in cement mortar 1:4 in proper line and level using approved quality silt free natural sand (Fine or Coarse as directed) at all heights and locations including necessary scaffolding, curing etc. complete as directed by the Engineer-in-charge. Rate includes making Flush/raised/sunk or moulded bands of any width, recesses, making grooves etc. complete as per Architectural drawings and no extra payment shall be considered for the same.
Approved make for Cement : ULTRATECH, ACC, RAMCO, INDIA,AMBUJA

F.2.3. **Internal wall Plaster:**

Providing and applying in position average 12 /15mm thick smooth finish cement Plaster in cement mortar 1:5 to all inetrnal walls, using fine or Coarse sand and adding polypropylene fibre of approved quality in desired quantity per bag of cement as per manufacturers specifications complete. Rate includes providing chicken mesh to all joints of RCC members with Brick walls in all positions in proper line, level & plumb at all levels and heights with necessary scaffolding, cleaning of surfaces, raking out joints, roughening of surfaces ,curing etc complete as directed at site. Rate includes making Flush/raised/sunk or moulded bands of any width, recesses, making grooves etc. complete as per Architectural drawings and no extra payment shall be considered for the same.
Approved make for Cement: ULTRATECH, ACC, RAMCO, INDIA, AMBUJA.

F.2.4. **External walls Plaster:**

Providing and laying in position external Sand Face Cement Plaster, average 20 mm thk, in two coats, at all heights with first coat of av. 12 mm thk in Cement Mortar 1:5 using natural silt free fine sand, and second coat of average 6 mm thickness in C.M. 1:4, including necessary stagging, scafolding, curing, roughening the first coat to recieve second coat of plaster etc, providing approved water proofing compound @1 kg per bag of cement or as specified by the manufacturer and adding polyproplyne fibre of approved make as per manufacturers specifications to prevent shrinkage cracks, complete as directed by the Engineer-in-charge.
Approved make for Cement: ULTRATECH, ACC, RAMCO, INDIA, AMBUJA

F.2.5. **Rate to include:**

Apart from other factors mentioned elsewhere in the contract, rates for plastering shall also include following:

F.2.5.1. All materials, labour, use of tanks/implements for satisfactory completion of the work.
E.2.5.2. Erection, dismantling and removing single/double scaffolding.

F.2.5.3. Preparing all the surfaces to secure plaster.

F.2.5.4. Providing cement plaster of specified average thickness (measured from the proudest part of BB/stone work) and proportion at all heights and depths and to any shape as directed.

F.2.5.5. Curing for 7 days.

F.2.5.6. Chicken mesh of approved gauge shall be provided at all the junctions of concrete, masonry, timber and grouting of chases made for electrical/plumbing or other prupose as directed at no extra cost. Prover V-grooves must be made at all junctions of walls and slabs/beams/columns etc., at no extra cost.

F.2.5.7. Any moulding, bends, arisers, gooves/drip mould, rounding/Vatas, chamfering, soffits of arches, and also making good damaged plaster after their (Contractor's) all the sub contractor or nominated sub contractors have done their work.

F.2.6. **Mode of Measurement:**

All plastering will be measured in square metre, unless otherwise described, as per relevant I.S. code.

Walls:

The measurement of walls plastering shall be taken between the walls or partitions for the length and from top of floor or skirting upto the ceiling bottom for the height. The dimensions before plastering shall be taken.

Ceiling:

Ceiling shall be measured between walls or partitions and the dimensions before plastering shall be taken. Ceilings with projected beams shall be measured over beam and the plastered side of the beam shall be measured and added to plastering on ceiling.

For jambs, soffits, sills, etc., for openings not exceeding 0.5 sq.m. each in area, ends of joists, beams, posts, girders, steps etc., not exceeding 0.5 sq.m each in area and openings not exceeding 3 sq.m each., deductions and additions shall be made in the following manner.

F.2.6.1. No deduction shall be made for ends of joists, beams posts etc., and openings, not exceeding 0.5 sq.m. each, and no addition shall be made for reveals, jambs, soffits, sills, etc., of these openings no for finishing the plaster around ends of joists, beams, posts, etc.

F.2.6.2. Deductions for openings exceeding 0.50 sqm but not exceeding 3 sqm each shall be made as follows and no addition shall be made for reveals, jambs, soffits, sills,etc., of these openings.

F.2.6.3. Deductions for openings exceeding 0.50 sqm but not exceeding 3 sqm each shall be made as follows and no additions shall be made for reveals, jambs, soffits, sills, etc., of these openings. When both faces of wall are plastered with the same plaster, deduction shall be made for one face only.
When two faces of wall are plastered with different plasters or if one face is plastered and the other pointed, deduction shall be made from the plaster or pointing, on the side of frames for doors, windows, etc., on which the width of reveals is less than that on the other side, but not deduction shall be made on other side.

F.2.6.4. In case of openings of area above 3 sq.m each, deductions shall be made for the openings, but jambs, soffits and sills shall be measured.

G.0 FLOORING:

G.1. **Vitrified Tile Flooring & Skirting:**
Providing & laying in-position Double Charged Nano Polish Gloss / Matt finished Vitrified tiles: Size of Tile 600 x 600 mm in floor and skirting of approved make and colour uniformly in line, level and in approved design, including laying avg. 20 to 25 mm thick bed of CM 1:6 (1 cement : 6 coarse sand) and filling the joints with epoxy based joint filling compound of matching shade, curing the joints etc complete.
Rates to include providing & fixing 100 mm high skirting as per drawing flushed with finished surface of wall in line and level and 6 mm wide groove to be made in wall at the junction of skirting and finished surface of wall etc. complete matching to flooring as per direction of Engineer In-Charge.
Make: Kajaria, Somany, Simpholo, Johnson, RAK, Nitco.

G.2. **Anti Skid Digital Print Ceramic Tile Flooring:**
Providing and laying in position Anti Skid Digital Print Ceramic Tile (Size of 300 X 300 mm & 9 mm min. thickness) flooring of approved colour, shapes and texture laid in required pattern in uniform line, level including laying avg. 20 to 25 mm thick bed of CM 1:6 (1 cement : 6 coarse sand) and neat white cement float, filling joints with neat cement slurry of appropriate colour, curing and cleaning complete. Tiles shall be free of any variation in colour or texture. in all aspects as specified and directed by the Engineer/Architect.
Make: Kajaria, Somany, Simpholo, Johnson, RAK, Nitco

G.3. **Digital Print Ceramic Tile Dadooing:**
Providing and fixing in position premium quality joint free / paper cut edges digital print ceramic wall tiles (Size of 300 X 450 mm) in walls/dado conforming to IS: 15622 (thickness to be specified by the manufacturer) of approved make, colours and shades as per sample approved by Engineerin-Charge fixed over 15mm thick rough finished backing plaster in CM 1:4 fixed with neat cement slurry including filling joints using white cement/epoxy based joint filling compound with matching pigment including acid cleaning of tiles complete in all respect and at all heights, levels and locations.

Rate includes cost of CM 1:4 backing plaster with waterproofing compound, cahmferring of tiles at corners and excution of work all heights and locations including necessary scaffolding etc. complete..
Make: Kajaria, Somany, Simpholo, Johnson, RAK, Nitco

G.4. **Granite Stone Flooring, Skirting and Facing:**

Providing and laying in position 18mm ± 2mm thick machine cut pre-polished Granite stone flooring and skirting in approved colour, shade, design and patterns as per architectural drawings ilaid over 20 mm (average) thick cement mortar 1:6 (1 cement : 6 coarse sand) bedding fixed and jointed with neat cement cement slurry and filling joints using white cement slurry admixed with pigment of matching shade or epoxy based joint filling compound of approved make including grinding, mirror polsihing, curing, nosing, making grooves etc. complete as specified in the Architectural drawings and as directed by the Engineer-in-Charge.
In flooring using approved quality and shade Granite stone slabs not less than 1.00 Sqm in plan area
In Staircase landing, midlanding using Granite stone slabs not more than in two pieces for each landing including machine moulded full round edges duly mirror finish/polish complete.
In Staircase steps and risers, in single piece slabs of required size, with full round moulded mirror polished edges complete as per Architectural drawing and as direcetd by the Engineer-in-charge.

G.5. **Chequered Tile Flooring:**

Providing and fixing in position 22mm thick Chequered terrazzo tiles with graded marble chips of size upto 6 mm in floors laid over avg. 20 to 25mm thick CM 1:6 bedding , jointed with neat cement slurry mixed with pigment to match the shade of the tiles, including machine polishing complete. Tiles of 300x300mm with Medium shade pigment using 50% white cement, 50% ordinary cement.
Make: Kajaria, Somany, Simpholo, Johnson, RAK, Nitco

G.6. **Heat Resistant Terrace Tiles Flooring, Skirting:**

Providing and fixing in position Heat Resistant Terrace Tiles Flooring and 150mm high skirting using tiles of size 300 mm x 300 mm x 10 mm with SRI (solar refractive index) > 78 , solar reflection > 0.70 and initial emittance > 0.75 on waterproof and sloped surface of terrace, laid over avg 20 to 25 mm thick C.M. 1:6 (1 cement : 6 coarse sand) bedding and grouting the joints with mix of white cement & marble powder in ratio of 1:1, including machine cutting, grinding and polishing to achieve smooth surface complete in all aspects as specified and directed by the Engineer/ Architect.
Make: Kajaria, Somany, Simpholo, Johnson, RAK, Nitco

G.7. **MODE OF MEASUREMENT:**

All flooring work will be measured in Sq.metre basis and shall be measured between unplastered wall surfaces. Skirting and dado will be measured in Sq.meters and the height above flooring will be measured, length between the finishes of adjoining walls, if any.

H TEAK WOOD, FLUSH DOORS, WPC DOORS & FIRE-RESISTANT DOORS:

H.1. MATERIALS:

H.1.1. Unless otherwise stated the timber used in this project will be second class teakwood and shall be got approved from the Employer & Architect before using it in work. The timber shall be well seasoned and free from shakes, fissures, cracks, large/loose knots or other major defects. It shall also be free from spongy, brittle, flaky wood, sapwood and all such defects, which will affect its strength, durability, appearance or usefulness for the purpose for which it is required. Any effort such as plugging, painting or using any adhesives, to hide any defects, shall render the timber liable to rejection by the Employer & Architect. No individual hard and sound knot shall be more than 40mm dia and the aggregate area of all the knots shall not exceed 1.5% of area of the piece for purposes of acceptance. It should confirm to relevant I.S.I003.

H.1.2. Any timber rejected for any reason whatsoever, shall at once be removed from the site of work.

H.1.3. Glue: Organic type shall comply with specification I.S. 852 –1957 and synthetic type shall comply with I.S.851 – 1957 in all respects.

H.1.4. Nails, screws, ties, straps, bolts, etc., shall be of the material, make and pattern as approved by the Architect. Unless otherwise specified, they must be of mild steel and be of such sections and design, such that they serve the purpose adequately.

H.1.5. The Contractor shall get all the wood approved by Architect & Employer, before taking permission of the Architect to apply paints, oils or otherwise treats wood work in anyway whatsoever.

H.1.6. All embedded parts of wood work shall be well painted with two coats of hot boiled tar or creoseted, as approved by the Architects/Employers.

H.2. WORKMANSHIP:

H.2.1. All the wood work shall be neatly and truly finished as per tender item dimensions with not more than 3mm, planning margin. Unless otherwise specified, the exposed wood work shall be accurately planned to the required dimensions, within planning tolerance, smooth and to lines, planes, curves or shapes as required.

H.2.2. All the necessary joinery work shall be carefully done as per normal standard practice and Architects instructions. All framed joinery for external work shall be put together with white lead and joints pinned with hardwood or Fevicol. For internal work, unaffected by moisture, the joints may be glued and pinned or joined with fevicol as directed.

H.2.3. Framed/Fabricated wood work includes all sawing, cutting, planing, jointing, framing, supply and use of all straps, bolts, holdfasts, nauls, trensils, spikes, screws, etc., as may be necessary to complete the work and for fabricating/framing and or fixing. Fabricating/framing and trussing shall be done in the best possible manner and as shown on the drawings or as directed by the Architects/Employers.

H.2.4. The contractor shall provide labour, scaffolding, ladders and tackle necessary for hoisting and fixing wood work in position and afford facilities for its inspection during construction. The

contractor shall be responsible for the safety of the work, workmen and for any action or compensation that may arise in this connection.

H.2.5. All iron work connected with wood work and going to be embedded in masonry shall, before erection, receive 2 coats of solignum/creosote. If it is to be painted, it shall be given one coat of red oxide primer and one coat of finishing paind on the ground, before being fixed in position and afterwards second coat of finishing paint.

H.2.6. All wood shall be got inspected and passed by the Architect & Employer before being put into work. The architect defective quality, despite his having previously passed the same before it was worked upon. In no case the wood work shall be painted or otherwise, before it is inspected and approved by the Architect.

H.2.7. After fixing the wood work in position, if any defects, including damaged edges of the frames, are notices by the Architect & Employer during the execution of work or in the defects liability period, the contractor shall have to rectify the same or remove and replace the defective work, as directed and to the satisfaction of Architect & Employer, at no extra cost.

H.2.8. Any cutting and waste of timber, that may be incidental in carrying out an item, shall not be paid for extra, but shall be included in the rate for the item.

H.3. **T.W. DOORS:**

H.3.1. Timber used for this work, shall be locally available second class teakwood, unless otherwise specified, and of approved quality and as per the sample approved by the Employer and Architect. As specified in the item, all the doors shall have teakwood door frames or pressed steel frames of approved make, quality and size, with three numbers holdfasts on each leg. Teakwood beading/cover moulding will be provided wherever necessary and at no extra cost. Hold fasts shall be embedded in concrete blocks, as shown in drawings or as directed.

H.3.2. For flush doors, shutters to be used shall be solid core of best approved make (BWP quality) with ISI mark, 35mm thick (unless otherwise specified) inclusive of either commercial ply, veneer or formica of approved shade and design/pattern on one or both sides as specified and shown in the drawings and shall be bonded with phenol Formaldehyde synthetic resin. If so specified, all flush shutters shall have teak wood lipping on all four sides, as directed, which shall be fixed at site. All solid core shutters shall generally confirm to IS 2202 (Part I) & (Part 2) :1983.

H.3.3. For full panelled doors, the shutters shall be of best quality factory made with ISI marking and to be approved by the Employer and Architect and having panels of 19mm thick best approved make and quality marine ply, unless otherwise specified, and as shown in drawings or as directed.

H.3.4. The fixtures and fittings required for all the doors and windows shall be got approved from the Employer and Architect before placing the order. Any fixture found damaged or missing at

the time of handing over shall be replaced by the contractor and surface of joinery made good as directed at no extra cost.

H.3.5. All the timber work including pressed steel frames shall be painted with 3 coats of synthetic enamel paint (including primer coat) of best approved make and shade as directed. In case of teak ply or decorative ply veneered shutters, they shall be French polished/wax polished, as per specifications and as directed.

H.4. **WPC (Wood Polymer Composite) Door for Toilets:**

Providing and fixing factory made single extruded WPC (Wood Polymer Composite) solid plain flush door shutter (30 mm thick) of required size comprising of virgin polymer of K value 5860 (Suspension Grade),calcium carbonate and natural fibers (wood powder/ rice husk/wheat husk) and nontoxic additives (maximum toxicity index of 12 for 100 gms) having minimum density of 650 kg/cum and screw withdrawal strength of 1800 N (Face) & 900 N (Edge), minimum compressive strength 50 N/mm2, modulus of elasticity 850 N/mm2 and resistance to spread of flame of Class A category with property of being termite/ borer proof, water/moisture proof and fire retardant and fixing with stainless steel butt hinges of required size with necessary full body threaded star headed counter sunk S.S screws, all as per direction of Engineer-In- Charge.

H.5. **Fire Resistant Doors:**

H.5.1. **Door Frame:** Providing and fixing fire resistant door frame of section 143 x 57 mm having built in rebate made out of 16 SWG G.I. sheet (zinc coating not less than 120 gm/sqm) duly filled with vermuculite based concrete mix, suitable for mounting 60 minutes fire rated door shutters. The frame is fitted with intumuscent fire seal strip of size 10x4 mm (minimum) alround the frame and fixing with dash fastener of approved size and make, including applying a coat of approved brand fire resistant primer etc. complete as per direction of Engineer-in-charge (Dash fastener to be paid for separately).

H.5.2 **Door Shutter:** Providing and fixing 50 mm thick glazed fire resistant door shutters of 60 minutes fire rating conforming to IS:3614 (Part-II), tested and certified as per laboratory approved by Engineer-incharge, with suitable mounting on door frame, consisting of vertical styles, lock rail, top rail 100 mm wide, bottom rail 200 mm wide, made out of 16 SWG G.I.sheet (zinc coating not less
than 120 gm/sqm) duly filled FR insulation material and fixing with necessary stainless steel ball bearing hinges of approved make, including applying a coat of approved fire resistant primer etc. all complete as per direction of Engineer-in-charge (panneling to be paid for separately).

H.5.3. **Vision Panel Glazing:** Providing and fixing glazing in fire resistant door shutters, fixed panels & partitions etc., with G.I. beading made out of 1.6 mm thick G.I. sheet (zinc coating not less than 120 gm/sqm) of size 20 x 33 mm screwed with M4 x 38 mm SS screws at distance 75 mm from the edges and 150 mm c/c , including applying a coat of approved fire resistant primer/powder coating of not less than 30 micron on G.I. beading, & special ceramic tape of 5

x 20 mm size etc complete in all respect as per NBC 2016, IS 16231 (Part 3):2016 and as per direction of Engineer-in-charge with glass of required thickness having 60 minutes of fire resistance both integrity & radiation control (EW60) and minimum 20 minutes of insulation (EI20). The manufacturer have to give test report/ certification of fire glass and the glass should have the stamp showing the value of E, EW & EI. The glass shall be tested in approved NABL accredited lab or by any other accreditation body which operates in accordance with ISO/IEC 17011 and accredits labs as per ISO/IEC 17025 for testing and calibration scopes shall be eligible. The maximum glazing size shall not be more than 1100x2200 mm (w x h) or 2.42 sqm.

H.5.4. Providing and fixing panic bar / latch (Double point) fitted with a single body, Trim Latch & Lock on back side of the Panic Latch of reputed brand and manufacture to be approved by the Engineer- in- charge, all complete.

H.6. **MODE OF MEASUREMENT FOR DOORS AND WINDOWS:**

Payment will be made for the area of opening in the masonry as per relevant ISI. The height of the door shall be measured from finished floor level to the bottom of lintel on the top.

I.0. **UPVC & ALUMINIUM PARTITION WALLS, DOORS, WINDOWS & VENTILATORS AND CEMENT FIBER BOARD PARTITION WALLS:**

I.1. **UPVC WINDOWS & VENTILATORS:**

Providing & fixing in position factory made uPVC white colour sliding window up to 1.50 M to 2.4M in height dimension comprising of uPVC multi-chambered frame with in-built roller track and sash extruded profiles duly reinforced with 15. to 2.52 mm thick depending upon the window galvanised mild steel section made from roll forming process of required length (shape & size according to uPVC profile), appropriate dimensions of uPVC extruded glazing beads and uPVC extruded interlocks, EPDM gaskets, wool pile, touch locks with hooks, with single nylon rollers (weight bearing capacity to be 80/ 150 Kg), SS fasteners 100 x 8 mm size for fixing frame to finished wall and 5 degree gradient slope in track (drainage track) comes with threshold, low threshold without threshold option & necessary stainless steel screws etc 8 mm thick toughened glass panes (ST 136) , fixed in shutters, flush handle, C handle, D handle with locking arrangements as per manufacturers specifications etc. complete.
Make: Fenesta, Reheau, Veka or approved equivalent

I.2. **ALUMINIUM PARTITION WALLS, DOORS, WINDOWS & VENTILATORS:**

Providing and fixing Powder coated aluminium (minimum thickness of powder coating 50 micron) work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge.

I.3. **CEMENT FIBER BOARD PARTITION WALLS:**

Providing and fixing partition upto ceiling height consisting of G.I. frame and required board, including providing and fixing of frame work made of special section power pressed/ roll form G.I. sheet with zinc coating of 120 gms/sqm(both side inclusive), consisting of floor and ceiling channel 50mm wide having equal flanges of 32 mm and 0.50 mm thick, fixed to the floor and ceiling at the spacing of 610 mm centre to centre with dash fastener of 12.5 mm dia meter 50 mm length or suitable anchor fastener or metal screws with nylon plugs and the studs 48 mm wide having one flange of 34 mm and other flange 36 mm and 0.50 mm thick fixed vertically within flanges of floor and ceiling channel and placed at a spacing of 610 mm centre to centre by 6 mm dia bolts and nuts, including fixing of studs along both ends of partition fixed flush to wall with suitable anchor fastener or metal screws with nylon plugs at spacing of 450 mm centre to centre, and fixing of boards to both side of frame work by 25 mm long dry wall screws on studs, floor and ceiling channels at the spacing of 300 mm centre to centre. The boards are to be fixed to the frame work with joints staggered to avoid through cracks, M.S. fixing channel of 99 mm width (0.9 mm thick having two flanges of 9.5 mm each) to be provided at the horizontal joints of two boards, fixed to the studs using metal to metal flat head screws, including jointing and finishing to a flush finish with recommended jointing compound, jointing tape, angle beads at corners (25 mm x 25 mm x 0.5 mm), joint finisher and two coats of primer suitable for board as per manufacture's specification and direction of engineer in charge all complete.

66mm overall thickness partition using 8mm thick, double skin multipurpose cement board Type-B, Category-III as per IS: 14862 : 2000 reinforced with cellulose fibre manufactured through autoclaving process (High pressure steam cured) with suitable fibre cement screws.

J.0. **WATER PROOFING TREATMENT WORKS:**

Rates to be inclusive of:

Make : Pidilite Industries Ltd. / BASF India Ltd. / Sunanda Speciality Coatings / Sika / Fosroc / Asian / Dr. Fixit or equivalent approved by SBI

All the waterproofing items shall be carried out by the reputed agency duly approved by the SBI.

The treatments shall be tested for water tightness and shall be guaranteed for water tightness in bone dry conditions for at least 10 years period. During this period, if any leakage is observed, the same shall be rectified by contractor through said agency to the satisfaction of SBI witout any extra cost.

The Gaurantee shall be furnished on Rs. 500/- non-Judicial stamp paper to cover all the above conditions. The gaurantee shall be furnished by the contractor in prescribed format jointly signed by authorized and approved agency to this effect. Terrace Waterproofing Treatment.

J.1. **Water Proofing Treatment for Terraces**

Brick Bat Coba on Terrace

Providing and laying in-position integral cement based water proofing treatment average 120mm thick including preparation of surface as required for treatment of roofs, balconies, terraces etc consisting of following operations:

a)Applying neat cement slurry using 2.75 kg/sqm of cement admixed with water proofing compound conforming to IS : 2645 and approved by the Bank over RCC slab including adjoining walls up to 300 mm height including cleaning the RCC surface neatly, removing mortar lumps, mortar splashings etc., if any, complete before treatment.
b) Providing and laying maximum 20 mm thick cement mortar 1:4 (1cement : 4 coarse sand) admixed with water proofing compound (conforming to IS : 2645) at the rate of 1 kg/bag of cement or as per manufacturers' specifications, including laying in required position in flooring including curing the surface and testing the same for 7 days for water tightness.
c) Laying brick bats in cement mortar using broken bricks/brick bats of 25 mm to 115 mm size with 50% of cement mortar 1:4 admixed with approved water proofing compound conforming to IS : 2645 followed by 20 mm thick layer of cement mortar 1:4 admixed with water proofing compound to required slope and treating adjoining walls up to 300 mm height and including rounding at junctions of walls and slabs by following same process.
d) After curing the surface by ponding for 5-7 days, applying a second coat of cement slurry using 2.75 kg/sqm of cement admixed with water proofing compound conforming to IS : 2645 and approved by SBI.
Mode of Measurement: Plan area inside parapet wall

J.2. **Waterproofing Treatment to Toilet Sunken and other Internal Wet Areas**

Providing and laying water proofing treatment in sunken portion of WCs, bathroom etc., by applying cement slurry mixed with water proofing cement compound consisting of applying :
(a) First layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/ sqm.
This layer will be allowed to air cure for 4 hours.
(b) Second layer of slurry of cement @ 0.242 kg/sqm mixed with water proofing cement compound @ 0.126 kg/sqm. This layer will be allowed to air cure for 4 hours followed with water curing for 48 hours.
The rate includes preparation of surface, treatment and sealing of all joints, corners, junctions of pipes and masonry with polymer mixed slurry.

J.3 **Sealing Around Pipe / Sleeve etc.**

Providing and laying non shrink, free flow, high strength cementitious grout material, of approved quality, to seal the annular gap around pipe periphery and core cut in the slab including providing and applying two way adhesive tape to be stuck around the pipe periphery within the cutouts section of the slab and prior to laying the grout manufacturers' specifications, followed by providing and applying liquid applied flashing around the pipe periphery joints.

J.4. **UG Sump Well and OH Water Storage Tanks Waterproofing**

Providing and laying waterproofing and protective tank lining system through approved specialized agencies for U/G & O/H storage tank internally consisting of:
a. Cleaning the surface of the internal concrete surface of the floor as well as walls thoroughly by wire brushing and washing with high pressure water jet, to remove any loose laitance as well as contaminates, thereafter inspecting the concrete surface to identify any honeycombs, crack, voids or defects in the concrete such as cracks, construction joints etc., and sealing all such locations with solvent free epoxy mortar, using epoxy resin and hardener.

b. Thereafter, providing and applying containment membrane lining system consisting of combination of epoxy and polysulphide formulation Epoxy Polysulphide formulation membrane lining cures to produce a tough, flexible coating system with excellent abrasion and chemical resistance and waterproof properties and consists of 2 component, which shall be applied in 2 coats by way of spray or roller to provide a minimum wet film thickness of 0.25 mm per coat with material consumption of approx. 0.3 Kg per Sqm per coat, all as per manufacturers recommendation etc. complete.
c. Treatment used should be non toxic system, to be used in drinking water and potable water tanks, tested to BS 6920.

K.0 PAINTING/POLISHING WORK

Rates to be inclusive of:

The rates shall include all labour, materials, equipment and tools for carrying out the following operations:

i) Providing and mixing the primer and distemper separately.

ii) Scaffolding.

iii) Preparing the surface to receive the priming and finishing coats.

iv) Applying the priming coats.

v) Each coat to be completed in all parts of one building and got approved, before starting next coat in that building, and shall not be done room wise or floor wise.

vi) Applying the distemper in 3 coats minimum, including primer coat. If a proper even surface is not obtained to the satisfaction of the Employer & Architects in 3 coats contractor shall carryout additional coats of distemper to approval, at contractor's own expense.

K.1. Putty work for Internal walls:

Providing and applying 2 or more coats of Birla putty on internal walls of average thickness of 3 to 4 mm in line & level including its rubbing with sand paper to ensure smooth & even surface including necessary scaffolding etc. complete.

K.2. Painting work for Internal walls:

Providing and applying 2 or more coats of approved Royal / Luxury Acrylic Emulsion paint with roller finish over a coat of primer on internal walls including necessary scaffolding etc. complete as per manufacturers specifications.
Make:- Asian / Nerolac / Berger / Dulex

K.3. Putty & Paint work for External walls:

Providing and applying Elastomeric Paint to external walls on new surface as under:

a) Providing applying 2 or more coats of External grade Birla putty on external walls in line & level including its rubbing with sand paper to ensure smooth & even surface
b) Providing and applying one coat of water based Acrylic anti fungal Primer of approved quality and make as per sample approved.
c) Providing and applying one coat of fibre reinforced membrane paint water proofing Coat of "Protek Basecoat" of Asian / "Weather coat long life Roof Guard" of Berger / "Aqua Touch" of ICI or equivalent approved by the SBI having crack bridging ability up to 2.00 mm, superior anticarbonation & water proofing property.
d) Providing and applying 2 or more coats of approved quality External Acrylic Emulsion paint, Exterior grade having anti fungal property, resistance to dust & dirt accumulation, resistance to fading of colours etc. of approved colour and shade Apex Ultima (Asian) /
Weather coat All Guard (Berger) / Weather Shield Max
(ICI) or equivalent approved by the SBI.
Note: Rates to include cleaning afterwards, necessary scaffolding / Cradle, debris safety netting, labour etc complete.
Make: Asian Paints Ultima Protek / Berger Weather coat.

K.4. **MODE OF MEASUREMENT:**

For all the above painting items, Mode of measurement shall be same as that of plastering and shall be in Sq.meters. No extra payment shall be made for painting rough cast surfaces or sandfaced surfaces.

K.5. **ENAMELLED PAINTING:**

K.5.1. **Materials:**

K.5.1.1. The paint shall be of the specified colour and shade and of an approved make by the Architect & Employer. The paint shall comply in all respects with relevant Indian Standard Codes.

K.5.1.2. The make and brand of the paint to be used on the work shall first be got approved by the Architects/Employer. The material shall be obtained directly from the approved manufacturers or authorised dealers and brought to the site in the manufacturers drums etc., with seals unbroken.

K.5.1.3. Paint for undercoating and finishing coat shall be ready mixed. Mixing by contractor is not permissible except with prior written approved of the Architects/Employer, in which case the preparations of ingredients and their quality shall be strictly maintained as per manufacturer's instructions and relevant I.S. codes.

K.5.1.4. All the materials shall be kept properly protected when not actually in use. Lids of containers shall be kept closed and surfaces of paint in open shall be covered with a thin layers of turpentine to prevent formation of a skin.

In case of doubt regarding the quality, the paint supplied by the contractor shall be got tested in an approved laboratory as described in I.S. 101 – 1964, if considered necessary by the

Architect. The cost shall be borne by the client, if the results are satisfactory, and by the contractor if otherwise. The rejected paint shall be removed from the site of work forthwith.

K.5.2. **PREPARATION OF SURFACE:**

K.5.2.1. **Plastered Surfaces:**

New plaster shall not be primed or painted till it is completely dry and hard. The surface shall be carefully rubbed smooth and thoroughly cleaned. The surface shall be dry, smooth, clean and free from dirt.

K.5.2.2. **Steel work (NEW):**

Degreasing shall be done by either proprietary brands of approved solvent cleaner or by mineral turpentine or petroleum and other petroleum solvents, like trichloroethylene alkali solutions or detergents as directed by the architects.

The de-rusting shall be done by manual scraping (by wire brushes, fine steel wool scraper, sand paper etc.) and/or mechanically by sand blasting, shot blasting or flame cleaning or chemical methods as approved by the Architects.

K.5.2.3. **Steel work (Old):**

For repainting necessitated due to any specified reason the relevant instructions given in I.S. 1447:1966 shall be followed. If necessary and ordered by the Architect, the surface shall be cleaned completely as for new steel.

K.5.2.4. **Wood Work:**

The surface to be painted shall be thoroughly dry, clean and smooth. It shall be sand papered with coarse medium grade sand papers and the finished surface shall be free from scratches.

K.5.2.5. Before applying primer, knots, if any, shall be covered with preparation of red lead made by grinding red lead in water and mixing with glue sized and used hot. The surface prepared for painting shall be dry before paint is applied. The holes and indentation on the surface shall be stopped with putty. Stopping shall not be done before the priming coat is applied.

K.5.3. **Application:**

K.5.3.1. All brushes, tools, etc., used shall be cleaned of all foreign matter at the beginning of different operations being undertaken.

K.5.3.2. Paint may be applied by spraying or brushing. Unless otherwise specified, paint shall be applied with brushes. Brushes of appropriate size shall be either round or oval shaped and they shall be maintained carefully throughout the work so as to be pliable and free from bristles.

K.5.3.3. The contents of the drum and tins shall be well stirred with a small clean and smooth stick before using and ocassionally during use to prevent sedimentation at the bottom of the container.

K.5.3.4. Painting shall be carried out as far as possible in dry and warm weather.

K.5.3.5. Single or double scaffolding shall be used as necessary, by the contractor at his cost. Ladders, if used, shall be tied with old gunny bags at top to prevent damage or scratches to the walls, floors etc.

K.5.3.6. The primer coat shall be applied as soon as the surface has been cleaned and before deterioration of surface by rust and contamination of the surfaces by dust, dirt or any other foreign material.

K.5.3.7. Sufficient time shall be allowed for each coat of paint to dry before the next is applied.

K.5.3.8. Painted surface, shall be protected from sun, rain, condensation, contamination or surface damage, till it is completely dry. 'Wet paint' shall be put, when necessary.

K.5.3.9. Preparation of surfaces, priming coat, undercoat and finishing coats shall be applied as specified or recommended by the manufacturer. Where no specifications are available, the following specifications will be followed.

K.5.3.10. **Primer Coat: Plastered surface:**

Priming coat shall consist of equal parts of white and red lead mixed in boiled linseed oil to the required consistency applied uniformly over the surface. When this coat is dry, all cracks, holes and other such defects shall be filled with a mixture of one part of white lead and 3 parts of ordinary putty. After drying, the surface shall be rubbed with sand paper and dusted clean. An undercoat shall be applied thinly so that plaster may be thoroughly saturated. One or more undercoats with putty shall be applied as required and directed to obtain thoroughly saturated surface to the satisfaction of Architect & Employer.

Steel Work:

The primer coat be of red lead conforming to I.S.102 – 1962. Undercoating and puttying shall be done, if necessary. For old painted surfaces and new surfaces already primer with red lead/red oxide, the surface shall be cleaned thoroughly and primed with red lead/ red oxide, at some places, where necessary or over the whole surface as directed by the Architects.

Wood Work:

The primer coat shall consist of red lead, white lead, raw and boiled linseed oil and patent driers.

After priming coat, all small holes, cracks, open joints and other minor defects shall be stopped with putty made from whitening mixed to proper consistency with raw linseed oil and little white lead to help hardening of putty. The surface shall then be lightly rubbed down smooth with sand paper. One or more undercoats, with putty shall be applied as required and directed to obtain thoroughly saturated surface to the satisfaction of Architect & Employer.

K.5.3.11. **Finishing coats:**

Unless otherwise specified in the item, the finishing shall be done with atleast two coats of paint of approved made and shade confirming to the latest I.S. codes. The last coat of paint shall give a matt/flat, semi-glossy or glossy finish as specified for each item of painting or as directed by the Architect & Employer. Striple finish shall be given at no extra cost, if required, by the Architect & Employer. The finished surface shall be of the required shade and present an even appearance. It shall not show any brush marks. If required, final coat will be applied with rollers at no extra cost.

K.6. **ENAMEL PAINT:**

General specifications, preparation of surface and priming coat shall be same as specified for oil painting. Finishing shall be done in two coats or more as required with synthetic enamel paint of approved make and shade and shall generally conform to relevant I.S.codes.

K.7. **RATE FOR ALL PAINTING WORKS TO INCLUDE:**

Apart from other factors mentioned elsewhere in this contract, the rate for painting shall also include.

K.7.1. Providing all the materials/labour and equipment that is required to execute the work as specified.

K.7.2. Scaffolding (single/double) erection and removal.

K.7.3. Preparing the surfaces before painting.

K.7.4. Applying three cots of approved paint including priming coat. If proper & even surface or shade is not acquired, then extra cost/coats shall be applied as directed and to the final approval of the Architect & Employer, at no extra cost.

K.7.5. Applying additional priming coat/coats to obtain thoroughly saturated surface and filling the putty as required and directed.

K.7.6. No extra coat shall be paid for painting smooth/rough surfaces such as precast concrete pardis, rough cast plaster, sand faced plaster etc.

K.7.7. Curing the cement paint as directed for minimum 7 days.

K.7.8. Doors, windows, floors and other materials of furniture etc., shall be protects from being splashed upon. Splashing and droppings, if any, shall be removed and the surfaces cleaned as directed.

K.7.9. If any cracks develop in the plaster, before or after final painting, the same will have to be filled in by suitable putty and the surface painted again as directed to give an even surface to the approval of Architect & Employer at no extra cost. If neeru surface is damaged due to any

reason before painting, then the surface shall be redone by using plaster of paris as directed, at no extra cost.

K.8. **MODE OF MEASUREMENT FOR OIL, ENAMEL PAINT, POLISHING ETC:**

K.8.1. Measurement of painted/polished surfaces shall be in Sq.m and as per plaster work.

K.8.2. For measurement of polishing/painting to joinery and steel work etc., multiplying coefficients, as in standard table shall, be as follows:

S.NO.	DESCRIPTION OF WORK	HOW MEASURED	COEFFICIENT
I.	**Wood Work – doors and windows etc:**		
1.	Panelled doors/windows.	Measured flat including frame.	1.30 (for each side).
2.	Flush doors	- do -	1.20 (for each side).
3.	Partly panelled and partly glazed or glazed doors/windows (for glazed portions only – for panelled portions as per 1 above).	- do -	1.00 (for each side).
4.	Fully venetioned or louvered doors/windows.	- do -	1.80 (for each side).
S.NO.	**DESCRIPTION OF WORK**	**HOW MEASURED**	**COEFFICIENT**
II.	**Steel Work – Doors and Windows:**		
1.	Fully glazed doors & windows.	Measured flat including frame.	0.50 (for each side).
2.	Plain sheeted steel door, windows.	- do -	1.10 (for each side)
3.	Collapsible gate.	Measured flat.	1.50 (for painting all over)
4.	Rolling shutters of interlocked laths.	-do- jamb guides bottom rails, locking arrangement included	1.10 for each side.

		(top cover shall be measured separately)	
III.	**General work:**		
1.	Expanded metal, M.S. grill work, grating in guard bars, ballustrades, railing and partitions.	Measured flat.	1(for painting all over).
	R.C.C. grill.	- do -	1(for each side).

The table given above is as per C.P.W.D. specification.

L.0 ELEVATION WORKS

L.1 ACP Cladding for walls, Projections and Vertical Fins:

Providing and installing aluminium composite panel cladding, for walls, Projections and Vertical fins as design elements with finished size of Fins 58mm X 300mm X 3600mm comprising of necessary FRAME WORK in 50mm x 25mm x 2.0 mm thk @ 600mm C/C Both ways in extruded aluminium section angles, brackets, fastners etc. to exterior surface in straight panels with 4 mm thick exterior grade aluminium composite panels comprising of two skins of 0.5 mm thick aluminium on both side, laminated to a thermoplastic core with one outer skin of aluminium coating with PVDF coating in solid & metallic colour as required. The ACP panels of required size as per the architectural drawings to be fixed after making tray from all sides with 20mm flange after making groove with router to be fixed to frame work of required aluminium extruded section. The ACP panel trays to be fixed to aluminium frame work with the help of aluminium angle cleat of required size & thickness, pan headed SS tempered screws of required length. All joints to sealed using weather silicon sealent of Dow corning make of grade DC 789 or equivalent after providing backer rod at all junctions / joints of ACP tray to make entire cladding water tight with The entire job monolithic silicon grooves includes the cost of providing bird/ vermin proof seal at bottom and flashing at top, removal of masking film & finally cleaning the panels to make adhesive & dust free. The rate shall be inclusive of all the material, labour, hardware, MS Double Scaffolding, transportation necessary required for the complete execution of the item as directed by the Architect / Bank's Engineer.
Approved Makes: EURO BOND, AULCOBOND, SUMANGALAM.

L.2 STRUCTURAL GLAZING WITH DOUBLE GLASS PANEL:

Designing, Providing and installing semi unitised structural glazing with Double glass panel, 6mm toughened Glass of Royal Blue ST 750 of saint gobin (outside) & 6mm thick heat strengthen high performance clear glass (inside) with reflective coating on surface outside and in vision/ spandrel panels including structural silicon sealant of Dow Corning make grade DC 995 or approved make, all mullions, transomes, gutters, sills, trims for vision and spandrel panel and including providing and installing anodised aluminium extruded frame work

(minimum 20 microns) in approved colour, stainless steel brackets of SS 316 Grade,clamps, stainless steel bolts, nuts washers & shims, approved stainless steel expansion fasteners (HILTI)or equivalent with stainless steel bolts nuts and washers spacer tape of Norton make Corning make grade DC 789 or of approved make /EPDM gaskets drainage provisions weather seal flashing and seal at all interfaces with building structure, openings, louverd and cladding system etc. all complete as per specifications and shop drawings based on design approved by Architect / Bank's Engineer.
The Mullions of 104x61x2mm thk shall be at 600mm C/C distance and transoms of 63x40x1.5 mm thk shall be at 1200 mm C/C distance, Extruded section shall be designed to accommodate for double glazing as per the directions. Final size of the Glass panel 600mm X 1200mm.
Vision panel of DGU with 6mm toughened Glass of Royal Blue ST 750 of saint gobin +12mm thk argon gas + 6mm thick heat strengthen high performance clear glass as per the directions of Architect / Bank's Engineer.

The rate shall be inclusive of all the necessary material, required hardware, labour, transportation, scaffolding necessary for the complete execution of the item, etc.
Approved Makes of Glass: SAINT GOBAIN, ASAHI FLOAT, MODI GUARD.

NOTES:
1. After completion of the work, the Contractor should do Water test with high pressure for leakages if any after execution as per the directions of Architect / Bank's Engineer.

2. The Contractor should do Maintenance (Cleaning once in Every three months intreval for Structural Glazing, ACP and Canopy work) for one year at free of cost above defects liability period. 5% value of the work for this item would be hold with the bank, released after completion of Maintenance period.

EXTRA FOR TOP HUNG OPENABLE IN THE INSIDE STRUCTURAL GLAZING : Extra for Top hung openable made of any size in structural glazing for the air flow using pulse handle and SS hinges with the sash frame resting on the transom and opening allowed upto 30 degrees.

M. STEEL WORKS:

M.1. MS Fabrication work:

Providing, Fabricating & fixing in-position MS Agnle Doors/window frames, MS Grilles to Windows/openings, Balcony/Parapet Railings, MS Gratings, Frames, Guard bars, Ladder, Brackets, Compound Gates, Compound wall Railings/Grilles and other similar MS Fabrication works at all heights and locations with necessary lifts & lead, loading/unloading etc. complete as per approved design made out of MS flats, Square bars, Round Bars, Angles, Tees etc and anchoring the same to walls, Floor, RCC slab etc.using Nut, bolts, holdfasts, Anchor Fasteners etc. as required including two coats of enamel paint over a coat of Zinc Oxide primer complete. Rates to include necessary hardware, cutting / chasing floor, wall carefully and repairing the same to its original position, scaffolding, pulleys, painting of repaired surface complete as direcetd at site by the Engineer-in-Charge.

M.2. **MS Hot finished welded type Tubular Truss:**

Fabricating, providing and fixing in position Steel work in built up tubular (round, square or rectangular hollow tubes etc.) trusses etc., including cutting, hoisting, fixing in position and applying 2 or more coats of approved synthetic enamel paint over a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete.

M.3. **Stainless Steel Grills/Railing:**

Providing and fixing in position, at all heights, levels and location, stainless steel of specified 304 Grade for balcony Grilles, Staircase Railing etc. made up of SS hallow tubes, channels, plates etc. as per approved drawing, including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing rigidly with floor, walls etc. using required accessories including stainless steel dash fasteners, stainless steel bolts etc. of required size on the floor or on side of waist slab, Balconies with suitable arrangements as per approval of engineer-in-charge.
Rates to include necessary civil repair for making the surface good, scaffolding etc. complete as directed at site.

M.4. **Collapsible Gate:**

Providing and fixing in position collapsible steel shutters with vertical channels 20x10x2 mm and braced with flat iron diagonals 20x5 mm size, with top and bottom rail of Tiron 40x40x6 mm, with 40 mm dia steel pulleys, complete with bolts, nuts, locking arrangement, stoppers, handles, including applying a priming coat of approved steel primer with two or more coat of synthetic enamel paint.

N **EXTERNAL DEVELOPMENT WORKS:**

N.1. **Paver Block Flooring:**

Providing and laying approved quality chamfered edge factory made, rubber moulded, M-30 grade cement concrete interlocking paver block (60/65 mm thick) manufactured through block making machine with strong vibratory compaction, of approved size, design and shape, laid in required colour and pattern including laying 50 mm thick compacted bed of coarse sand, filling the joints with fine sand, finishing and sweeping extra sand etc. in footpath, compound area, driveway etc. complete as per the direction of Engineer-in-charge.
The rates to inclusive of cutting of paver blocks as per required size and pattern.
Make : Alcock, Vyara, Pavit, Kaptim or equivalent approved by the Bank.

N.2. **Kerb stone:**

Providing and laying approved quality, factory made M25 grade cement concrete Kerb Stone of size 450 X 300 X 150mm fixed in proper line, level and curvature, jointed with cement mortar 1:2 (1 cement : 2 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm), including making drainage openings, wherever required, including painting with 2 coats of exterior grade

weather proof paint in desired shade complete etc. as per direction of Engineer-in-charge. (Precast C.C. kerb stone shall be approved by Engineer-in-charge).
Note: Length of finished kerb edging shall be measured for payment.
Make: Kaptim, Alcock, Vyara, Pavit or equivalent approved by the bank.

O. STRONG ROOM DOORS & VENTILATORS:

O.1. STRONG ROOM DOORS:

Supplying & Installation of Strong Room Door - Model No.: Def PRIME SRD+GG CLASS-B BIS KL 83030000 & made with double-duty barrier material and a torch and drill matrix to provide superior resistance against attacks by drill machines, oxy-acetylene torches, and more. The doors come fitted with two dual-control high-precision locks, as well as automatic relocking deadlocks. The following Technical specifications are

* Overall Size - 212.8cm x 1254cm
* Clear Opening - 195.3cm x 91cm
* Thickness of door with lock case - 19.2cm
* Overall door thickness including frame and grill gate - 30cm
* Recommended for wall thickness - 30.5-38cm
* Door swing - 106cm
* Grille gate swing - 99cm
* Projection of door when opened at 90 - 108cm
* Projection of door when opened at 180 - 29.5cm
* Overall width of door and frame for max clear opening - 186.7cm
* Overall width of door and frame for when fully opened - 222.4cm
* Approx. weight - 965 kg
* Locking Mechanisms are also available in (a) Combination Lock (b) Electronic Lock (c) Biometric Lock (d) Time Lock.

O.2. STRONG ROOM VENTILATORS:

Supplying & Installation of Strong Room Air Ventilator ensures air passage and proper ventilation in the vault room by expelling air from the fan through a box-shaped steel channel. The air ventilator can be adjusted within a range of 30cm to 46cm for a secure fit on the wall. It is equipped with 1cm thick MS front and rear plates reinforced with a 5cm thick oxyacetylene flame-resistant plate. Its welded structure protects it against burglary, while a pair of baffle plates ensures that no flames can enter the vault room directly in the event of a fire beakout.

* Packaging Dimensions - 48.5cm x 48.5cm x 42.5cm
* Weight - Net 70 kgs & Gross - 85 Kgs
* Colour - TR grey

Note: Any item not specified in this tender has to be executed as per latest standard CPWD specification or as per manufacturers specification.

9. INDEX FOR SPECIFICATIONS FOR WATER SUPPLY AND SANITARY WORKS

WATER SUPPLY:

1. CPVC pipes and Socket etc.

DRAINAGE:

1. SWR PVC soil and waste pipes etc.
2. Cement Concrete pipes
3. Manholes, Inspection chambers etc.
4. Soil, Waste, Rainwater, Vent, etc.
5. Eco Drain Pipes

"A" Cutting, Patching and Making good

"B" Equipment, Material & Workmanship, Tests

"C" Cleaning, Operation and Tests

6. Sanitary Fixtures and Fittings
7. Mode of Measurement

"C" Tools and materials and storage

"D" Safety codes

} General & Applicable for all types of work costs of these shall be included in the rates quoted.

9. SPECIFICATIONS FOR WATER SUPPLY & SANITARY WORKS

1. **WATER SUPPLY:**

CPVC Pipes

Supply and fixing as per IS 15778 – 2007

1.3. **FITTINGS:**

CPVC Pipes and fittings as per IS 15778 – 2007

General:

The brass or gun metal fittings shall be of heavy quality and of approved manufacture and pattern, with screwed or flanged ends, as specified. The fittings shall in all respects comply with Indian Standard specifications No. I.S. 778 – 1957 and I.S. 781 – 1959. The standard size of brass or gun metal fittings shall be designated by the nominal bore of the pipe outlet to which the fittings are attached. A sample of each kind of fittings shall be got approved from the Architect & Employer and all supplies made according to the approved samples.

1.4.1. All cast fittings shall be sound and free from pits, blow holes and projections. Both internal and external surfaces shall be clean, smooth and free from sand etc. Burning, plugging, stopping or patching of the casting shall not be permissible. The bodies, bonnets, spindles and other parts shall be truly machined so that when assembled the parts shall be axial, parallel and cylindrical, with surfaces smoothly finished. The area of the water way of the fittings shall not be less than the area of the nominal bore.

The fittings shall be fully examined and cleaned of all foreign matter before being fixed. The fittings shall be fitted in the line in a workman like manner. The joints between fittings and pipes shall be made leak-proof, when tested to a pressure of 6 Kg/sq.cm as described in para 1.1.6, and the defective fittings and joints shall be replaced or redone without any extra cost.

1.4.2. **Brass bib cock and stop cock:**

A bib cock (bib tap) is a draw off tap with a horizontal inlet and free outlet and a stop cock (stop tap) is a valve with a suitable means of connections for insertion in a pipe line for controlling or stopping the flow. They shall be of specified size and shall be of screw down type. The closing device should work by means of a disc carrying renewable non-metallic washer which shuts against water pressure on a seating at right angles to the axis of the threaded spindle which operates it. The handle shall be either crutch or butterfly type, securely fixed to the spindle. Valve shall be of the loose leather seated pattern. The cocks (taps) shall open in anti-clock wise direction.

The bib cock and stop cock shall be polished bright. The minimum finished weights of bob tap (cock) and stop tap (cock) as given in the I.S. specifications are reproduced below:

Size mm	Minimum finished weight	
	Bib Tap Kg.	Stop Tap Kg.
8	0.25	0.25
10	0.30	0.35
15	0.40	0.40
20	0.75	0.75

When the bib cocks or stop cocks are required to be chromium plated, the chromium plating shall be of grade B type conforming to I.S. 1068 – 1958. The chromium shall never be deposited on brass unless a heavy coating of nickel is interposed. In case these are required to be nickel plated, the plating shall be of the first quality with a good thick deposit of silvery whiteness capable of taking high polish, which will not easily tarnish or scale.

In finish and appearance, the plated articles, when inspected shall be free from plating defect such as blisters, pits, roughness and unplanted areas and shall not be stained or discoloured. Before a cock is plated, the washer plate shall be removed from the fittings. The gland packing shall be protected from the plating solution.

Gun metal bib cock and stop cock:

These shall be of gun metal screw down pattern of the size as specified. So far as the general requirements of material are concerned, these shall be similar to those as described in para 1.4.2. The weight of these shall be the same as for brass bib cocks and stop cocks as described in para 1.4.2.

1.5.1. **Brass full way valve:**

Full way valve is a valve with suitable means of connection for insertion in a pipeline for controlling or stopping the flow. The valve shall be of brass, fitting with a cast iron wheel and shall be of gate valve type, opening full way of the size as specified.

The valve shall be of best quality as approved by the Architect & Employer.

1.5.2. **Gun metal full way valve with wheel:**

These shall be of the gun metal fitted with wheel and shall be of gate valve type opening full way and of the size as specified. These shall generally conform to I.S. 778 – 1978.

1.6. **Ball valve:**

The ball valve shall be of high pressure or low pressure class and shall be of sizes as specified and directed.

The nominal size of a ball valve shall be that corresponding to the size of the pipe to which it is fixed. The ball valve shall be of gun metal as specified with standard valve shall be of gun metal as specified with standard polyurethane float. The float shall be spherical in shape, the jointing of the float shall be made by efficiently finished, lapped and soldered seam or by brazing. Polyurethane floats shall be used as specified.

The ball valve shall generally conform to I.S. specification No.1703 : 1977. The weight of ball cock and the size of ball be as per table given below:

Both low pressure and high pressure ball valves are designed for use on mains having pressures upto 17.5 Kg/cm².

Ball valve size in mm			Total Wt. H.P.	Total Wt. L.P.
Dia	15	-	524 gms	481 gms
	20	-	986 gms	867 gms
	25	-	1549 gms	1411 gms
	32	-	2120 gms	1873 gms
	40	-	2646 gms	2303 gms
	50	-	4454 gms	3959 gms

1.0 **CAST IRON AND SPUN IRON PIPES AND FITTINGS:**

2.1 **MATERIALS:**

Pipes and Specials:

The cast iron pipes shall conform to I.S. 1537 – 1967, while spun iron pipes shall conform to I.S. 1537 – 1967, while spun iron pipes shall conform to I.S. 1536 – 1976. The pipes shall be either with spigot and socket ends or flanged ends. The cast iron pipes shall be vertically cast, either class A or class B, as specified. The spun iron pipes, shall be of cast iron casted centrifugally and shall be of class LA, class A and class B, as specified in the item.

Specials:

The specials shall conform to I.S. 1538 (Parts 1 to 23): 1976 and shall be of medium or heavy class, as specified, depending on their thickness.

All cast iron pipes shall be capable of easily worked with a drill or file. Pipes and specials should be sound with smooth inner and out surfaces, neatly dressed and carefully selected, free from laps, pinhole, and other imperfections, and shall ring clearly when struck with a light hammer. The ends of the pipes and specials shall be reasonably square to their axis.

All pipes and specials, before they are affected by rust, shall have been coated with an approved anti-corrosive treatment or by heating and dipping in Dr.Angus Smith's solution at the factory.

Stacking:

The pipes and specials shall be handled with sufficient care to avoid damage to them. These shall be lined up on one side of the alignment of the trench, socket facing uphill or in the direction of flow of water.

2.2 TRENCHES FOR C.I. PIPES AND SPECIALS:

The trenches for the pipes shall be excavated to lines and levels as directed. The bed of the trench shall have to be truly and evenly dressed throughout from one change of grade to next.

The gradient is to be set out by means of boning rods and the required depth be excavated at any point. The trench shall be excavated as directed by the Engineer/ Architect. The depth of the trench shall not be less than 1 meter, measured from the top of the pipe to the surface of the ground under roads crossing, and not less than 0.75m. elsewhere.

The width of the trench shall be the nominal diameter of the pipe plus 40 cm but it shall not be less than 80 cm. in case of all kinds of soils excluding rock and not less than 0.55 metres in case of rock.

The bed of the trench, if in soft or made up earth, shall be well watered and rammed before laying the pipes and the depressions, if any, shall be properly filled with earth and consolidated in 20 cm layers.

If the rock is met with, it shall be removed to 15 cm, below the level of the pipe and the trench shall be refilled with excavated materials (soil) and consolidated.

The excavated materials shall not be placed within 1 meter or half of the depth of the trench, whichever is greater, from the edge of the trench.

The materials excavated shall be separated and stacked so that in refilling they may be relaid and compacted in the same order to the satisfaction of the Architect & Employer. The trench shall be kept free of water. Shoring and timbering shall be provided wherever required. Excavation below water table shall be done after dewatering the trenches.

After the excavation of the trench is completed, hollows shall be cut at the required positions to receive the sockets of the pipes and these hollows shall be of sufficient depth to ensure that the barrels of the pipes shall rest throughout their entire length on the solid ground and that sufficient space is left for jointing to underside of the pipe joint. These socket holes shall be refilled with sand after jointing the pipe.

Where the pipe line or drain crosses an existing road, the road crossing shall be excavated half at a time, the second half being commenced after the pipes have been laid in the first half and the trench refilled. Necessary safety measures for traffic, as directed, shall be adopted. All types of pipes, water mains, cables etc., met within the course of excavation shall be carefully protected and supported. Care shall be taken, not disturb the electrical and communication cables.

2.3 **Laying of pipes and specials:**

Before being laid, the pipes shall be examined to see that there are no cracks or defects, as described in para 1.7.1. above. Subject to the approval of the Architect & Employer, the damaged portion of the cracked pipe may be cut at a point not less than 15 cm beyond the visible extremity of the crack.

The pipe shall be thoroughly cleaned of all dust and dirt and special care shall be taken to clean the inside of the socket and outside of the spigots.

The pipes shall be lowered into the trench by means of suitable pulley blocks, shear legs, chains, ropes etc. In no case the pipes shall be rolled and dropped into the trench. After lowering, the pipes shall be so arranged that the spigot of one pipe shall be carefully laid central to the socket of the next pipe, and pushed to the full distance that it can go. The pipe line shall be laid to the levels required. Specials shall also be laid in their proper position as stated above.

Where so directed, the pipes and specials may be laid on masonry or concrete pillars. The pipe laid on the level ground, shall be laid with socket facing the direction of the flow of water. In all other cases, the sockets shall be laid facing up hill.
Any deviation either in plan or elevation less than 11¼ degree shall be effected by laying the straight pipes round a flat curve, of such radius that minimum thickness of lead at the face of the socket shall not be reduced below 6mm or the opening between spigot and socket increased beyond 12mm at any point. A deviation of about 2¼ degree can be affected at each joint in this way. At the end of each day's work, the last pipe laid shall have its open ends securely closed with a wooden plug o prevent entry of water, soil, rats and any other foreign matter into the pipe.

Cement concrete thrust blocks of suitable design as approved by the Architect & Employer shall be provided at 45 degrees and 90 degrees bends of the pipes and also at places where there is likelihood of thrust so as to withstand the dynamic and static forces developed due to water in the pipe line. The thrust blocks shall be made after the joints have been caulked with lead.

2.4 **Lead caulked joints:**

2.4.1. **Lead caulked joints with molten lead:**

This type of lead chalking is generally done in providing joints in water but not in case of wet conditions.

a. Materials : Pig lead and spun yard.

Pig lead shall be of uniform quality, clean and free from foreign materials. It shall be of uniform softness and capable of being easily caulked or driven. It shall conform to I.S. 782 – 1978 for caulking lead.

Spun yarn shall be of clean hemp and of good quality. It shall be soaked in hot coal tar or bitumen and cooled before use.

The approximate depth of pig lead for various diameters of C.I. pipes and specials shall be given below with a tolerance of plus or minus 5 percent.

Nominal size of pipe mm (1)	**Lead per joint Kg (2)**	**Depth of lead joint mm (3)**
80	1.8	45
100	2.2	45
125	2.6	45
150	3.4	50
200	5.0	50
250	6.1	50
300	7.2	55
350	8.4	55
400	9.5	55
450	14.0	55
500	15.0	60
600	19.0	60
700	22.0	60
750	25.0	60

Note:

1. The quantity of lead given in the table are on average basis and a variation of 10 percent is permissible.

2. Before pipes are jointed on large scale, three or four sample joints shall be made and the average consumption of lead per joint shall be got approved by the Engineer-in-charge.

Just sufficient quantity of spun yarn shall be put so as to give the specified depth of lead.

b. Jointing:

Preparing the joint: The interior of the socket and exterior of the spigots shall be thoroughly cleaned and dried. The spigot end shall be inserted into the socket right upto the back of the socket and carefully entered by two or three laps of treated spun yarn, twisted into ropes of uniform thickness, well caulked into the back of the socket. No piece of yarn shall be shorted than the circumference of the pipe. The jointed pipe line shall be at required levels and directions.

Leading: The leading of pipes shall be made by means of ropes covered with clay or by using special leading rings. The lead shall be melted so as to be thoroughly fluid and each joint shall be filled in one pouring.

The following precautions shall be taken for melting lead:

a. The pot and the ladle in which lead shall be put shall be clean and dry.

b. Sufficient quantity of lead shall be melted.

c. Any scum which may appear on the surface of the lead during melting shall be skimmed off.

d. Lead shall not be overheated, as it is not desirable to overheat it.

Caulking: After the lead has been run into the joint, the lead shall be thoroughly caulked. Caulking of joints shall be done after a convenient length of the pipes has been laid and leaded. The leading ring shall first be removed and any lead outside the socket shall be removed with a flat chisel and then the joint chalked round three times with caulking tools of increasing thickness and hammer 2 to 3 kg weight. The joints shall not be covered till the pipe line has been tested under pressure though the rest of the pipe line should be covered upto prevent expansion and contraction due to variation in temperature.

2.4.2. Lead caulked joints with lead wool yarn: This type of lead caulking is generally done when it is inconvenient or dangerous to use molted lead for joints, for example in cases such as inverted joints or in wet trenches or in exceptional cases. In such cases, the joints shall be made with lead wool or yarn. Caulking with lead, wool or yarn shall however be carried out, only after detaining the prior permission of Architect & Employer in writing.

Materials:

Lead wool or yarn and spun yarn:

Sub para (a) materials of para 1.7.4.1. shall apply except that the approximate weights and depths of lead wool or lead yarn required for each joint of various dia of C.I. pipes and specials shall be as given in the following table. Just sufficient quantity of spun yarn shall be put so as to give specified depth of lead wool.

Diameter of pipe in m.	Wt. of lead wool or lead yarn in Kgs.	Depth of lead wool or lead yarn in mm.
80	0.80	19
100	0.90	19
125	1.25	20
150	1.60	23
200	2.05	23
250	2.95	25
300	3.50	25
350	4.65	29
400	5.70	31
450	6.70	32
500	8.30	33
600	10.00	35
700	11.80	36
750	13.60	38
800	15.40	40
900	16.80	40

An allowance of five percent variation in the specified weight and depths shall be permissible.

Jointing:

The spun yarn shall be first inserted and caulked into the socket as described under jointing with pig lead. Lead wool or yarn shall then be introduced in the joint in strings not less than 6mm thick and the caulking shall be repeated with each turn of lead wool or yarn. The whole of the lead wool or yarn shall be compressed into a dense mass. The joint shall then be finally finished flus with face of the socket.

2.4.2. **Testing of joints:**

Para 1.1.6 shall apply.

2.5 **REFILLING OF EXCAVATED EARTH IN TRENCHES:**

The excavated earth shall be spread in layers of 200mm thickness and shall be compacted after proper watering. Initially, only thin filling shall be done, such that the joints remain completely open for working. Rest of the filling shall be done in the same manner, after the line is satisfactorily tested. The excavated material such as brick bats, asphalts cakes etc., shall be properly arranged in the top most layer of 23 cm only and shall be consolidated thoroughly. The excess materials shall be spread over the surrounding ground within a radius of 1.5 kilometers from the point of excavation at his own cost. If extra earth, for complete filling, will be necessary, the same shall be brought from other places by the contractor at his own cost, and the same shall be filled up into the trench as per the manner shown above.

2.5 **MEASUREMENTS:**

The lengths of pipes shall be measured complete as laid or fixed in running meter correct to a cm, excluding specials which shall be enumerated separately. The lengths of pipes shall however not include the portion of spigots within the sockets of specials and pipes at the joints.

Excavation, refilling, shoring and timbering in trenches, masonry or concrete pillars and thrust blocks, wherever required, shall not be measured separately by included in the item if so specified and provided for in bill of quantities, excavation in hard rock shall be measured and paid separately (on stack measurement basis after deducting 40% for voids).

Lead caulked joints shall be enumerated separately or may be clubbed with the item laying of pipes.

2.7. **RATE:**

The rate shall include the cost of all the materials and labour etc., involved in all the operations described above.

2.8. **MASONRY CHAMBERS:**

2.8.1. **General:**

All masonry chambers for stop cocks, shall be built as per supplied drawings.

2.8.2. **Excavation:**

The excavation for chambers shall be done true to dimension and levels as indicated on plans or as directed by the Architect & Employer.

2.8.3. **Bed Concrete:**

This shall be of cement concrete 1:3:6 (1 cement :3 fine sand : 6 graded stone aggregate 40mm nominal size) and 100mm thick. In case of chambers for stop cocks, thickness can be 75mm.

2.8.4. **Brick work:**

This shall be with 2nd class bricks (average crushing strength not less than 35 Kg/sqcm) with cement mortar 1:6 (2 cement :6 fine sand) and one brick thick.

2.8.5. **Plastering:**

Plastering not less than 12mm thick shall be done in cement mortar 1:4 (1 cement : 4 coarse sand). It shall be finished with a floating coat of neat cement for inner surfaces only.

2.8.6. **Surface Box:**

This shall be of cast iron, well made and free from casting and other defects. All sharp edges shall be removed and finished smooth. The shape and dimensions for surface boxes for stopcocks, water meters etc., shall be as given in drawings.

Drawing for this shall be supplied as a typical drawing and the item 1.8.1. to 1.8.5 to be checked to tally with drawings.

The C.I. Surface box shall be fixed on the top of masonry chamber in plain or reinforce cement concrete 1:2:4 (1 cement : 2 coarse sand: 4 grades stone aggregate 20mm, normal size).

The C.I. surface box shall be fixed on the top of masonry chamber in plain or reinforce cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm, normal size).

2.8.7. **Measurements:**
Masonry chambers shall be enumerated under the relevant items as per sizes.

2.8.8. **Rate:**
The rate shall include the costs of all materials and labour involved in all the operations described above, including excavation in all soils, morrum, soft rock, boulders or decomposed rock, hard rock and disposal as directed. If so specified and provided for in bill of quantities the excavation in hard rock will be measured and paid for separately on stack basis after 40% deduction for voids.

B. **DRAINAGE:**

SWR PVC SOIL AND WASTE PIPES:

B.1.1. All pipes shall conform to IS 13592-1992 and shall be of grade "B". These shall be sound, free from visible defects such as cracks or hair cracks etc.

The pipes shall be handled with sufficient care, to avoid damage to them.

B.1.2. **Laying of pipes:**

The pipes shall be carefully laid to the alignments, levels and gradients shown on the plans and sections. The pipes between two manholes shall be laid truly in a straight line without vertical or horizontal undulations. The pipes shall be laid with socket up the gradient.

B.1.3. **Jointing:**
Jointing shall be done with rubber ring and good quality lubricant for shafts and with solvent cement for drainage lines as per IS: 14735

B.1.4. **Testing of joints : Hydraulic tests:**
The assembly of pipes and fittings shall be tested for water tightness pressure of 0.5mpa for a period of 15 minutes and there should be no leakage of any point.

B.1.5. **Refilling of trenches:**
Relevant Para under water supply shall apply.
In case where pipes are not bedded on concrete, special care shall be taken in refilling trenches, to prevent the displacement and subsequent settlement at the surface, resulting in uneven surfaces and dangers to foundations etc. Initially, the back filling materials shall be packed by

hand under and around the pipe and rammed with a shovel and light tamper. This method of filling will be continued upto the top of pipe. The refilling shall then rise evenly on both sides of the pipes and continued upto 60 cm above the top of pipes, so as not to disturb the pipes. No tamping should be done within 15 cm of the top of pipe. The remainder of backfill shall not be done until 7 days have elapsed for brick sewers and 14 days for concrete sewers, unless local conditions or materials are suitable for earlier placing of loads on the pipes. The tamping shall become progressively heavier, as the depth of the backfill increases.

B.1.6. **Measurements:**

The lengths of pipes shall be measured in running meters nearest to a cm, as laid or fixed from inside of one manhole to the inside of the other manhole. The length shall be taken along the center line of the pipes, over all fittings such as bends, junctions etc., which shall not be measured separately.

Excavation, shoring, timbering, backfilling in trenches and cement concreting, wherever required, is clubbed with the item only if so specified and provided for in bill of quantities, excavation in hard rock will be paid for separately, based on stack measurement basis, after deducting 40% towards voids.

B.1.7. **Rate:**

The rate shall include the cost of all materials and labour involved in all the operations described above, including excavation in all soils, morrum, soft rock, boulders or decomposed rock, hard rock and disposal as directed. If so specified and provided for in bill of quantities the excavation in hard rock will be measured and paid for separately on stack basis after 40% deduction for voids.

B.1.8. **S.W.Gully Trap:**

B.1.8.1. Gully traps shall conform to IS:651-1980. These shall be sound, free from visible defects, such as fire cracks or hair cracks. The glaze of the traps shall be free from crazing. They shall give a sharp clear note when struck with light hammer. There shall be no broken blisters.

The size of the gully trap shall be as specified and all dimensions will be as per drawing.

Each gully trap shall have one C.I. grating of square shape corresponding to the dimensions of inlet of gully trap. It will also have a water tight C.I. cover with frame, inside dimensions 300 x 200mm and the cover weighing not less than 2.72 Kg. The cover and frame shall be of sound and good casting and shall have truly square machined seating faces.

B.1.8.2. **Excavation:**

The excavation for gully traps shall be done true to dimensions and levels as indicated on plans or as directed by the Architect & Employer.

B.1.8.3. **Fixing:**

The gully trap shall be fixed on cement concrete foundation 600 x 600 cm square and not less than 10 cm thick. The mix for the concrete will be 1:5:10 (1 cement : 5 fine sand: 10 graded

stone aggregate 40mm nominal size). The jointing of gully outlet to the branch drain shall be done similar to jointing of S.W. pipe as directed in 2.1.3.

B.1.8.4. **Brick masonry chamber:**

After fixing and testing gully and branch drains, a brick masonry chamber 300 x 200 (inside) in best quality locally available bricks of strength not less than 35 Kg/Sqcm in cement mortar 1:5 (1 cement : 5 fine sand) shall be built with a 10 cm. thick brick work round the gully trap from the top of the bed concrete upto ground level. The space between the chamber walls and the trap shall be filled in with cement concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stones aggregate 400mm nominal size). The upper portion of the chamber i.e., above the top level of the trap shall be plastered inside with cement mortar 1:4 91 cement : 4 coarse sand), finished with a floating coat of neat cement. The corners and bottom of the chamber shall be rounded off as to slope towards the grating and or a hopper.

C.I. cover with frame 300 x 200mm (inside) shall then be fixed on the top of the brick masonry with cement concrete 1:2:4 (1 cement : 2 coarse sand: 4 graded stone aggregate 20mm nominal size and rendered smooth. The finished top of cover shall be left about 4 cm above the adjoining ground level so as to exclude the surface water from entering the gully trap.

B.1.8.5. **Measurements:**

The work shall be enumerated including excavation.

B.1.8.6. **Rate:**

The rate shall include the costs of all materials and labour involved in all operations described above, including excavation in all soils, morrum, soft rock, boulders or decomposed rock, hard rock and disposal as directed. If so specified and provided for in bill of quantities the excavation in hard rock shall be measured and paid for separately on stack basis after 40% deduction for voids.

B.1A.0 **DROP CONNECTION:**

B.1A.1. In cases where branch pipe sewer enters the manhole of main piper sewer at a level higher than the main sewer by more than 600mm, a drop connection should be provided. A typical drawing for drop connection shall be supplied to the contractor.

For 150 and 250mm main lines, if the difference in levels between the main – sewer water line (peak-flow-level) and the invert level of branch line is less than 60 cm, a drop connection may be provided within the manhole by giving a ramp. If the difference in level is more than 60 cm., the drop should be provided externally.

B.1A.1.1. **The Excavation:**

The excavation shall be done for the drop connection at the place where the branch line meets the manhole. The excavation shall be carried upto the bed concrete of the manhole and to the full width of the branch.

B.1A.1.2. **Laying:**

At the end of branch sewer line a stoneware "T" shall be fixed to the line, which shall be extended through the wall of the manhole by a horizontal piece of C.I.pipe to form an inspection or cleaning eye. The open end shall be provided with a chain and lid. The stone ware drop pipe shall be connected to the tee at the top and to the S.W.bend at the bottom. The bend shall be extended through the wall of the manhole by a piece of C.I. pipe, which shall discharge into the channel. Necessary channel shall be made with cement concrete 1:2:4 (1 cement : 2 fine sand : 4 graded stone aggregate 20mm nominal size) finished smooth (with a floating coat of neat cement), to connect the main channel. The joints between S.W. pipes and C.I./S.W. fittings shall be cement jointed. The joint between S.W. tee and S.W. branch line shall be made with cement mortar 1:1 (1 cement :1 fine sand) as per para B.1.3. for S.W.pipes. The exposed portion of the drop connection shall be encased all round with a single brick work in C.M. 1:4 and pointed. The holes made in the walls of the manholes shall be made good with brick work in cement mortar 1:6 (1 cement : 6 coarse sand) and plastered with cement mortar 1:4 (1 cement : 4 coarse sand) on the inside of the manhole wall. The excavated earth shall be backfilled in the trench in level with the original ground level.

B.1A.2. **Measurements:**

Prop connections shall be enumerated. The "depth" beyond 60 cm shall be measured in running meters correct to a cm under relevant items.

B.1A.3. **Rates:**

The rates shall include the cost of labour and materials involved in all the operations described above but excluding the cost of excavation and refilling.

B.3. **MANHOLES, INSPECTION CHAMBERS, STORM WATER GULLIES ETC.**

B.3.1. **Inspection Chambers:**

B.3.1.1. Where depth of sewer is less than 1.5m rectangular chambers shall be used having size as specified. Usual sizes are 450 x 900 or 600 x 900. These shall be constructed in the sewer line at such places and levels and dimensions as indicated on the drawing. Sizes specified shall be clear internal dimensions of the chamber.

B.3.2. **Manholes:**

B.3.2.1. Where depth of sewer exceeds 1.5m circular conical manholes shall be provided. Various types and sizes of manholes are specified for different depths. Typical drawing of various types of manholes shall be supplied to the contractors. In the absence of such drawings the standard drawings of the MCH sewerage department of local body if available shall be followed.

B.3.2.2. Manholes and inspection chambers are provided on roads or where heavy vehicular traffic is expected are provided with "heavy duty" C.I. airtight frame and cover.

For those built on foot paths carriage drives and cycle tracks "medium duty" covers are provided. For locations within domestic premises or areas not subjected to wheel traffic loads they shall be provided with "light duty" covers.

B.3.3. **Construction of manholes, Inspection chambers and gullies:**

B.3.3.1. **Excavation:**
This shall be done to dimensions and levels on the drawing.

B.3.3.2. **Bed concrete:**
Base of the manhole shall be constructed in P.C.C. 1:4:6 may fulfil this as specified, and of thickness as specified and shown on drawings or as directed.

B.3.3.3. **Brick work:**
Brick work shall be in CM 1:6 constructed with second class bricks of crushing strength not less than 35 Kg per sqcm. Brick masonry in arches and arching over the pipes shall be in CM 1:3. Walls shall be generally built in 230mm thickness for inspection chambers and manholes upto a depth of 2.1m and 350mm thick for depths over 2.1m. However the exact thickness shall be based on structural design and shall be specified by the Architect & Employer.

B.3.3.4 **Plastering:**
Walls of manholes shall be plastered inside with 12mm thick cement plaster 1:4 and finished smooth with a floating coat of neat cement. Where ground water table is high external surfaces of manholes shall also be plastered in CM 1:4.

B.3.3.5. **Vatas:**
75mm fillet shall be made with CM 1:3 all round the external joints between the bed concrete and brick masonry walls for manholes.

B.3.3.6. **Benching:**
Channels and benching inside the manhole or inspection chamber shall be done in CC 1:2:4 and rendered smooth with neat cement. Depth of channels and benching shall be as per the table given below:

Size of drain in mm	Top of channel at center in cm. above bed concrete	Depth of benching at side walls in C.M. above bed concrete.
100	15	29
150	20	30
200	25	35
250	30	40
300	35	45

B.3.3.7. **P.C.C.Cap:**
PCC M 150 cap of 150mm thickness shall be provided on top of manholes for fixing the manhole frame.

B.3.3.8. **Footrests:**

Footrests shall be of C.I. rings, weighing 5.41 Kg each and made up of 20mm dia M.S. square of round bars, as specified. These shall be embedded in 1:3:6 cement concrete and properly secured. Footrests shall be placed 300mm apart vertically and 375mm horizontally in staggered fashion. First footrest shall be 450mm below top. Foot rests shall be painted with coal tar or bituminous paint and the portion embedded shall be painted with thick cement slurry before fixing.

B.3.3.9. **Manhole frames and covers:**

Approximate weights for various dimensions of frames and covers of various duties shall be as specified in the respective items.

Covers shall have raised chequered design on the top surface to provide adequate non slip grip. The cover shall be capable of easy opening and closing, and it shall be fitted in the frame in a workmanlike manner. Covers shall be gas and water tight. Size of the cover shall be the clear internal dimensions of frame. 2½% variation in weights shall be permissible. Covers and frames shall be coated with a black anticorrosive paint of bituminous composition. The coating shall be smooth and tenacious. The covers shall be so fixed as to be flush with ground surface. After completion, the manhole covers shall be sealed by means of grease.

B.3.3.10. **Testing:**

Manhole after it is raised above highest expected sub soil water level in the monsoon, shall be tested for water tightness. The mouths of all pipes entering the manhole shall be suitably plugged with brick masonry or wooden or any other type of plug. Manhole under test shall then be filled with water upto general sub-soil water level and the level observed for one hour. If the level does not drop by more than 50mm in one hour, it shall be deemed as water tight. During testing the pit around shall be kept free of water, and contractor shall observe the places where leakages takes place and take steps to correct the same.

B.3.4. **Measurements:**

Manholes, Inspection Chambers, gullies etc., shall be enumerated under relevant items in the schedule of quantities. Depth shall be measured from top of C.I. cover to the invert level of channel. Depth shall be measured to correct centimeter. The extra depths shall be measure as an extra, over the depth specified under enumerated item, and paid for running meter, under a separate item, following the main item.

B.3.5. **Rate:**

The rate shall include the cost of materials and labour involved in all operations from (2) to (9) under B.3.3. above, upto specified depth in the item. Payment for extra depths shall be paid separately under relevant item. Excavation and refilling is clubbed with the item of manhole Para 2.8.8 of "Water Supply" shall apply. If the duty of the cover in the item is changed during execution by the Architect & Employer, amount due to difference in weight of the cover shall be paid extra or deducted, as the case may be.

B.4.0. **SOIL, WASTE, RAIN WATER, VENT AND ANTI-SIPHONAGE PIPES AND FITTINGS:**

B.4.1. All soil, waste, rain water, vent and anti-siphonage pipes and fittings used within sunken floor areas or within plumbing shafts vertical run, shall be send cast iron socket and spigot type pipes conforming to IS 1729 – 1964 or its subsequent revision. All cast iron pipes and fittings shall be of the best approved Indian make of soil variety and free from flaws, air bubbles, cracks, sand-holes and other defects and truly cylindrical and uniform in thickness. They shall not be brittle, but shall allow for heavy cutting, chipping and drilling and shall not be less than the diameter, mentioned in the schedule of quantities, and shall be of the largest length available, and shall be fixed against the wall with special "U" clamps – 25mm wide, 3mm thick and hot dip galvanized, by means or round headed flat nails on brickwalls.

B.4.2. Jointing shall be carried out with molten lead. The spigot of the pipe or fitting must be forced well home into socket of next pipe or fitting (as may be the case) and must be centered, so that the joint may be of even thickness alround. Atleast, one complete lap of clean white hemp spun yarn without being forced through the joint. As many laps as may be needed, to leave a space of not less than 25mm for the lead shall then be placed in the joint and caulked tight. The joints shall then be run with molten lead in sufficient quantity so that after being caulked, the lead may project about 1/8" beyond the face of the socket, against the outside of the spigot, but must be flush with the outside edge of the socket.

B.4.3.A. The joints, if so specified in the respective items, shall be done in cement mortar in place of lead. In case of cement jointing, the joints shall be done as specified in b.5.2, but after the hemp soaked in thick cement slurry is forced in the socket for one complete lap, a stiff mixture of cement mortar in proportion 1:1 (1 part of cement to 1 part of clean fine sand) is filled in the remainder of the socket. When the socket is filled, a fillet shall be formed round the joint, with a trowel and finished smooth cured well.

B.4.3.B. Clean outs at the head of C.I. S/S horizontal pipes running under the floor shall be of cast brass screwed in type. Floor and wall cleanouts shall be of cast brass screwed type. The connecting pipes shall be G.I. threaded coupling to suit the cleanout with lead caulked joint.

B.4.4. Inspection chambers, gully traps, etc., within the building shall be of approved make cast iron chambers with bolts, nuts to close the cover, all to be fabricated as per actual requirement.

B.4.5. Supports, pedestals and base for inspection chambers, gully traps and pipes shall be in 1:2:4 cement concrete mix.

B.4.6. Pipe sleeves and inserts, etc., through RCC walls either external or internal shall be of C.I. or M.S. provided with water bar flange.

B.4.7. During installation, open ends of pipes shall be plugged with wood cut into required shape and gunny bags and to be maintained to be free from dirt.

B.4.8. G.I. waste pipes and fittings shall be of "C" class I.T.C. or equivalent with G.I.a unions, tall pieces reducers and connections to be provided between joints with either lead or C.I. pipes.

B.4.9. The sizes of branch waste pipe for different fittings shall be as follows:

Lavatory Basin	-	32 dia
Urinal	-	40 dia
Sink	-	40 dia
Nahani trap	-	75 dia

B.4.10. W.C. pan connectors shall be to suit the requirements as per drawing, with 40mm dia vent horn for connection to the antisiphonage pipe and with pan connector of C.I. or lead.

B.4.11. Connection to the sewage or storm water collection sumps to be perfectly water tight.

B.4.12. Rain water flashing shall be with C.I.dome shape grating and extension piece as specified in the item.

B.4.13. All rainwater pipes and fittings shall be soil type variety conforming to I.S. 1729 – 1964 or equivalent. This shall apply to pipes outside buildings or within the buildings or for separate shafts.

B.4.14. The floor traps for toilet blocks shall be of cast iron with C.I./brass grating, bolted down design. The traps shall be 'P' type and of dimensions as given in table 26 of IS 1729 – 1979 (clause 7.1).

B.4.15. Where toilet slabs are sunk, the floor trap shall be of 100 x 75mm heavy duty type with C.I. "P" trap and C.P. brass grating of bolted down design.

B.4.16. Bathroom C.P.grating shal be of bolted down design out of heavy cast brass, with chromium plating of best approved standard.

B.4.17. Cast iron grating shall be flat with perfect edges and of best quality procurable and of the specified width and thickness and in the available lengths.

B.4.18. Spigotted and socketed 75mm, 100mm and 150mm C.I. pipes shall be of heavy pattern for the portions below the floor and embedded and laid over 150mm cement concrete 1:2:4 with width of concrete being

For 75mm dia pipes	-	320mm wide
For 100mm dia pipes	-	400mm wide
For 150mm dia pipes	-	450mm wide
For 200mm dia pipes	-	600mm wide.

The pipes shall be laid to a slope of minimum 1 in 100 and preferably to 1 in 50, and connected to the drain. On no account should lime or lime concrete come in direct contact.

B.4.19 **Measurements:**

All pipes shall be measured along their lengths, including length over the fittings and be paid under relevant items. Alternatively, straight pipes shall be laid measured along their lengths along centre line, excluding length, over fittings and fittings shall be enumerated and paid per number. Whatever method of measurements is to be followed for the to item in the schedule, the description of respective items in the schedule shall be worded accordingly. Traps, clean outs etc., shall be enumerated separately and paid separately per number.

B.4.20. **Rate:**

The rate shall include the costs of all materials and labour involved in all the operations described above, including excavation in all soils, morrum, soft rock, boulders or decomposed rock, hard rock and disposal as directed. If so specified and provided for in bill of quantities the excavation in hard rock will be measured and paid for separately on stack basis after 40% deduction for voids.

B.5. **ECO – DRAIN PIPES :**

Nu-drain pipes are made as per IS 15328 and marked with ISI mark. These pipes are available in different stiffness classes as given in the table below. Pipes up to 250mm sizes are available with plain and socketed ends. Pipes supplied with socket ends are available both in solvent weld and rubber ring. Separate coupler with unique design of click ring and rubber-sealing rings are available up to 250mm sizes which makes the system absolutely watertight. 315 and 400mm size pipes are supplied only with plain end and solvent weld type coupler. The pipes are available in 3m and 6m lengths.

Dimensions and Stiffness class of U-Drain pipes as per – IS 15328

Nominal Ring Stiffness SN (KN/M^2)	2	4	8
SDR	51	41	34
OD mm (D)	Wall thickness in mm (t)		
110	-	-	3.2+0.5
125	-	3.2+0.5	3.2+0.7
160	3.2+0.5	4.0+0.6	4.7+0.7
200	3.9+0.6	4.9+0.7	5.9+0.8
250	4.9+0.7	6.2+0.8	7.3+1.0
315	6.2+0.8	7.7+1.0	9.2+1.2
400	7.9+1.0	9.8+1.2	11.7+1.4

Dimensions and Stiffness Class of Eco-Drain Pipes as per IS:16098

Nominal Ring Stiffness SN (KN/M^2)	4	8
OD mm (D)	Wall thickness in mm (t)	
110	-	3.50
160	4.30	---
200	5.60	---
250	6.50	---
315	8.00	---

Eco – drain pipes are not solid wall pipes but have a unique wall structure i.e with a number of "holes" in the wall thickness in longitudinal direction. As a result, the eco-drain pipes are noticeably lighter and less expensive than any existing PVC pipe of similar stiffness and many times lighter than a concrete pipe, with equivalent load carrying capacity. Because of numerous advantages these pipes are widely accepted and used in several European countries. These pipes are available in 110mm to 315mm sizes and meet the requirements of International Standards, (comply to IS-15328) and have equivalent stiffness and flexibility in combination with a weight reduction from 10% to 35%, depending on size. These pipes are interchangeable with solid wall pipes and are compatible with regular PVC fittings. They are made available in different stiffness classes. In addition to UPVC pipes, PE pipes in 63 to 450mm as per IS 14333 are also available.

6. SANITARY FIXTURES AND FITTINGS:

6.1 Unless otherwise specified, the sanitary fixtures shall conform to following specifications:

6.1.1. Water closets (European type) shall be of vitreous china of approved pattern, quality and colour. The closet shall be fixed with C.P.brass screws in floor for floor mounted type, and mounted on C.I. chair brackets with bolts for wall mounted type and shall be provided with solid plastic seat and cover with chrome-plated pillar brass hangers as specified.

6.1.2. Indian pattern shall be of similar quality of specified above. The pan shall be 675/575mm in length with "S" or "P" trap of materials same as that of the pan. The W.C. with the trap shall be fitted and fixed in position and built round solid with brick and cement, to required level after all connections are made. The finished floor of the water closet shall be of 25mm below the level of the room or passage in front of it.

6.1.3. Both types of closets should conform to the requirements of IS 771 (Part I): 1979 for glazed vitreous china sanitary appliances.

6.1.4. The flushing cisterns shall conform to the requirements of I.S.774 – 1984. High level cisterns shall be of cast iron, unless other specified. Low level cisterns shall be of the same material as the water closet. The cisterns shall be mosquito proof and shall fulfill the requirements of the local authority.

6.1.5. The flush pipes shall be 32mm dia and of lead if concealed, and if exposed brass/C.I.

6.1.6. Where flush valves are specified, there shall be of the best approved quality procurable with C.P. control valve and C.P. flush pipe. Prior approval of Architect shall be obtained before placing orders.

7. MODE OF MEASUREMENT:

7.1 All drain pipes shall be measured in linear lengths along the centre line of the drainage line laid. Deductions shall be made for chambers and fittings lengths etc. The rate shall include all work as specified in the respective items.

7.2. Stoneware or cast iron, bends, junctions, sewer traps etc., shall be measured in numbers and paid separately, only if item for pipe works does not specifically include "Fittings/Fixtures".

7.3. All cast iron spigots and sockets or flanged pipes for water supply, shall be measured in linear lengths along the centre line of completed work. Deductions shall be made for fittings lengths if fittings/ specials etc., are provided for separately in the schedules/bill of quantities. The rate shall include lead caulking or jointing with nut and bolts, rubber gaskets, etc., complete as specified in the respective items.

7.15. Same rate shall be applicable for pipes of same size and material laid in any building at any level or floor.

7.4. Cast iron fittings such as spigot and socket fittings, flanged fittings like tees, bends, tapers, cross etc., shall not be measured in numbers and paid for separately unless otherwise provided for in the bill of quantities/schedules.

7.5 The rock cutting shall be measured in cum of the stacks of excavated rock. Deduction for voids will be 40% of the gross stack volume. Only the rock which is removed by chiseling or blasting etc., shall be measured for this item of work, boulders shall not be considered as a rock. The excavated rock will become the owner's property.

7.6 All cast iron pipes, such as soil, waste, vent and rain water shall be measured in linear lengths along the centre line, to nearest cm as completed including length over fittings. The rates shall include all joints and clamps, etc., as specified in the respective items.

7.7 Length over cast iron fittings, for soil, waste, vent or rain water pipes like single or double waves of various degrees, bends, cowls etc., shall be measured in meters, as extra over the item for 7.6 above, if so provided for in the schedule/bill of quantities. Otherwise, the rate for these shall be same as for respective pipe work.

7.8 Plan cement concrete for supports and for encasement or bedding etc., shall be measured as specified in the respective items in the schedule of quantities.

7.9 Lead pipes shall be measured in linear length and shall be of weights as per specifications of the respective item in installation work. The rate shall include making of necessary offsets, bends etc.

7.10 All sanitary fittings and fixtures shall be measured in numbers, only if so provided in the Schedule/bill of quantities, and the rate shall include all the work specified and described under item in the schedule of quantities.

7.11 All G.I. pipes shall be measured in linear lengths along the centre line of the pipe, including G.I. fittings. The rate for pipe line upto and including 50mm die shall be inclusive of all G.I. fittings. In the case of pipe line of dia above 50mm dia G.I. fittings will be measured in nos., pipe lengths will be measured after deducting the lengths over fittings from linear measurements only if provided in the schedule/bill of quantities. The rates, in all cases, will be inclusive of all work as specified in the respective items. Lengths over valves shall be excluded.

7.12 All peet valves, ball valves, non-return valves, sluice valves, pressure reducing valves etc., shall be measured in numbers after excluding them from linear measurement, and paid for separately.

7.13 The diameters of pipes and fittings mentioned in the specification are the inside nominal diameters in all cases, unless otherwise stated. H.D P.E. pipes shall be specified as outside diameter and class.

7.14 In case fittings of C.I., G.I or stoneware of unequal bore, the largest bore shall be measured if paid separately.

7.15 Same rate shall be applicable for pipes of same size and material laid in any building at any level or floor.

E. TOOLS AND MATERIALS AND STORAGE:

a. The contractor at his own cost and charge shall provide all materials, tools, tackles, scaffolding, labour and water, necessary for execution and completion of the whole work in all respects.

b. The contractor shall pay the fees for testing the materials and bear the costs of the samples, and as well of packing and despatching/delivering in the respective laboratories/test houses, if tests are directed by the Architects, local authorities or any other statutory authorities.

c. The contractor at his cost shall obtain, from time to time various permissions and the completion certificates as per rules of all local and statutory authorities.

d. The contractor shall arrange proper and adequate storage facilities at site for all materials.

e. Any materials, brought at site, shall not be removed without the written authority of the architects/employer. Materials either damaged or rejected shall be immediately removed from the site. Materials, paid in the interim bills as on site but not used, shall be the property of the Employer and the contractor only shall be liable for any loss or damage thereto.

f. All the brackets and hangers for pipes shall be fixed to the walls or RCC, using “Dash” fasteners, wherever necessary.

g. Surplus material from the site shall be carted away by the contractor without any cost to the employer. On complete of work, storage “space” provided to the contractor shall be handed over to the Employer, clear and fit for occupation.

10. SPECIFICATIONS FOR ELECTRICAL AND CCTV WORKS

MATERIALS GENERAL

A. SCOPE OF WORK FOR ELECTRICAL AND CCTV WORKS

B. GENERAL TECHNICAL SPECIFICATIONS OF PANEL

C. DISTRIBUTION BAORDS

D. POWER FACTOR CORRECTION CAPACITORS.

E. POINT WIRING

F. LIGHT FITTINGS/CEILING FANS/EXHAUST FANS

G. LIGHTNINNG ARRESTOR

H. PVC CONDUITS

I. GI BOXES

J. CABLES

K. EARTHING

L. STREET LIGHT POLES

M. LAN

N. TESTING OF ELECTRICAL INSTALLATION

O. CCTV

B.1.4(a) **Excavation and Preparation of foundation for concrete:**

A.1.0 SPECIFICATIONS FOR ELECTRICAL and CCTV WORKS

All materials to be brought by contractor at his own cost, including all Tools, tackles & Plants, Equipments, scaffoldings & manpower required to complete the below mentioned scope of works. List of approved makes of the materials, to be used by contractors, is attached. Makes of all materials, being used by contractors for his scope of work, must be IS marked only. Contractor scope also includes providing technical equipments, labour services for Installation, Testing &Commissioning of Electrical and CCTV works as mentioned below.

A.1.1 Electrical

The works involve tapping the existing power supply available in site and transmitting the power through underground cables from available source to Staff quarters Main panel located in Ground floor. The main panels located in Ground floor has to distribute the power to all the areas by cables to subpanels and distribution boards. Alternate power source machines like Diesel Generator and UPS with automatic ON OFF to be provided for the required loads will be procured by Client directly. All distribution inside the building to be provided with MS perforated powder coated cable trays. Earthing with required size strips is considered for all electrical panels and other accessories.

The illumination is covered with general lighting in major areas along with necessary control switches, sockets and power receptacles for utility.

External lighting astronomical timer is considered for the Staff quarters and DGM bungalow building site.

A.1.2 CCTV

Providing 5MP bullet cameras with necessary storage device, display units, LAN switch and Racks is considered in this works.

B.1.0 GENERAL TECHNICAL SPECIFICATIONS OF PANEL

This specification is intended to over the design, manufacture, assembly testing at manufacture's works, property packing for transportation, supply & delivery, erection, testing & commissioning, complete in all respects with all components, fittings and accessories for efficient and trouble free operation. This specification has to be read in conjunction with that of 415V switchboards. The MV board shall be clad, totally enclosed, rigid, floor mounting, air insulated cubicle type for use on 433V, 3 phase, 50Hz system with a fault level of 35kA RMS symmetrical. The equipment shall be designed for operation in high ambient temperatures & high humidity tropical atmospheric conditions. The equipment shall be for indoor installation.

B.1.1 Standards

The Panels shall comply with the latest edition of relevant Indian standards and indian Electricity rules and regulations. The following Indian standards shall be complied with

SI.No	Item	Relevant IS
1	Factory Built Assemblies of switchgear and control gear.	IS 8623
2	General requirements for switchgear and control gear for voltages not exceeding 1000 volts	IS 4237

3	Degree of protection provided by enclosures for low voltage switchgear and control gear	IS 2147
4	Switchgear bus bars, main connection and auxiliary wiring, marking and arrangement	IS 375
5	Air brake switches and fuse combination units for voltages not exceeding 1000Volts (specific requirements for the direct switching of individual motors).	IS 4064 (Part II) – 1978
6	PVC insulated cables and aluminum conductors	IS 694 (1977) and IS 8130 (1976)
7	Direct acting electrical indicating instruments	IS 1248
8	Low Voltage fuses	IS 2208: 1962 of IS 9224: 1797
9	Alternating current circuit breakers	IS 2516
10	Current transformers	IS 2705
11	Voltage transformers	IS 3155
12	Circuit breakers	IS 2516
13	Relays for power system protection	IS 3231
14	Terminal marking for electrical measuring instrument and their accessories.	IS: 8197
15	Danger notice plates	IS: 2551
16	Code of Practice for selection, installation and maintenance of switchgear and control gear	IS: 10118
17	Miniature circuit breakers	IS: 8828
18	Indicating lamps	IS: 1248
19	Integrating instruments	IS: 722
20	Control switches and push buttons	IS: 6875
21	AC motor starters of voltage not exceeding 1000 V	IS: 1822

B.1.2 Construction

This section covers the detailed requirements of medium voltage switchboard for 415 volts, 3 phase, 50 Hz, 4 wire system.

B.1.3 Switchboards

The switchboards and the associated equipment, including switchgear, control gear, Busbar supports, Busbar orientation, Busbar links etc., shall be identical in construction to the assembly which has undergone the type test. The drawings of the type-tested assemblies shall be made available for inspection. The designs of the switchboards should be with switchgear manufacturer, and all the mechanical drawings must be available in the factory beforehand. Switchboards shall have a short circuit level withstand as per Schedule of Quantities and drawings.

The switchboard along with ACBs and connections should have been type tested design at CPRI /Independent international test house for short circuit, temperature rise, protective earth short circuit test and dielectric tests of the ratings required. For operator safety IP2 X (touch proof) protection to be available even after opening the feeder compartment door. Compartmentalization to be achieved by using metal separators, use of PVC sheet / Hylum sheets shall not be allowed.

B.1.4 Switchboard Configuration

The Switchboard shall be configured with Air Circuit Breakers, MCCB's, MCB's and other equipment as called for in the schedule of quantities. The MCCBs, Air Circuit Breakers shall be arranged in Single or Double tier formation only to facilitate operation and maintenance. The Switchboards shall be of adequate size with a provision of spare space to accommodate possible future additional switch gear. OEM & Partner's name should be mentioned on Top of each all columns of switchboard.

B.1.5 Switchboard construction

All the Panels shall be metal clad, totally enclosed, rigid, floor mounting, air insulated, cubicle type suitable for operation on three phase/single phase, 415 V/240 V, 50 Hz. The entire outdoor panel shall be double door type with IP54 protection class construction. The entire indoor panel shall have IP43 protection class construction. The painting shall be with 2 coats of epoxy primer along with two coats of PU paint [Anti-corrosive paint]. Paint shade shall be confirmed with the client. The panel should be CPRI / ERDA approved with 35 KA short circuit withstand strength.

The Panels shall be designed to withstand heaviest condition at site, with maximum expected ambient temperature of 45°c, 90% humidity and salty, dusty weather. The Panels shall be metal clad enclosed and be fabricated out of high quality CRCA sheet, suitable for indoor installation having dead front operated and floor mounting type. All CRCA sheet steel used in the construction of Panels shall be 14SWG. thick and shall be folded and braced as necessary to provide rigid support for all components. Joints of any kind in sheet steel shall be seam welded, all welding slag grounded off and welding pits wiped smooth with plumber metal. Gaskets between all adjacent units and beneath all covers shall be provided to render the joints dust proof. All doors and covers shall be fully gasketed with foam rubber and/or rubber strips and shall be lockable. All panels and covers shall be properly fitted and secured with the frame and holds in the panel correctly positioned. Fixing screws shall enter into holes, taped into an adequate thickness of metal or provided with bolts and nuts. Self-threading screws shall not be

used in the construction of Panels. A base channel of 100 mm. x 50 mm. shall be provided at the bottom. A clearance of 300 mm. between the floor of the Panels and the bottom of the lowermost units shall be provided.

Panels shall be preferably arranged in multi-tier formation. The Panels shall be of adequate size with a provision of 20% spare space to accommodate possible future additional switchgear. The size of the Panels shall be designed in such a way that the internal space is sufficient for hot air movement, and the electrical component does not attain temperature more than 450 c. The entire electrical component shall be derated for 500 c. The ratings indicated in the drawing are derated for 500 c. Knock out holes of appropriate size and number shall be provided in the Panels in conformity with the number, and the size of incoming and outgoing conduits/cables. Alternately, the Panels shall be provided with removable sheet steel plates at top and bottom to drill holes for cable/conduit entry at site. The Panels shall be designed to facilitate easy inspection, maintenance and repair. The Panels shall be sufficiently rigid to support the equipment without distortion under normal and under short circuit condition. They shall be suitably braced for short circuit duty.

B.1.6 Switchboard Dimensional Limitations

The overall height of the switchboard shall be limited to 4500mm. Panel should have integral base frame of 75mm, hence total panel height should not be more than 2000mm. The height of the operating handle, push buttons etc shall be restricted between 300 mm and 2000 mm from finished floor level.

B.1.7 Switchboard Compartmentalization

For compartmentalized switchboards, separate totally enclosed compartments shall be provided for horizontal busbars, vertical busbars, ACBs, MCCBs, and cable alloys. Earthed metal or insulated shutters shall be provided between drawout and fixed portion of the switchgear such that no lives parts are accessible with equipment drawn out. Degree of protection within compartments shall be atleast IP 2X. For all Circuit Breakers separate and adequate compartments shall be provided for accommodating instruments, indicating lamps, control contractors and control MCB etc. These shall be accessible for testing and maintenance without any danger of accidental contact with live parts of the circuit breaker, busbars and connections. Each switchgear cubicles shall be fitted with label in front and back identifying the circuit, switchgear type, rating and duty. All operating device shall be located in front of switchgear only.

A horizontal wireway with screwed cover shall be provided at the top to take interconnecting control wiring between vertical sections. Separate cable compartments running the height of the switchboard in the case of front access boards shall be provided for incoming and outgoing cables. Cable compartments shall be of adequate size for easy termination of all incoming and outgoing cables entering from bottom or top. The construction shall include necessary and adequate and proper support shall be provided in cable compartments to support and clamping the cable in the cable alley / cable chamber.

B.1.8 Switchboard Bus Bars

Busbars shall be made of high conductivity, and high strength Electrolytic Aluminum E91 grade Busbars shall be of rectangular cross sections, not more than 6mm thickness better suitable for full load current for phase bus bars and half/ full rated current for neutral bus bar or as stipulated in schedule of quantities. Bus-bar shall be suitable to withstand the stresses of fault level as specified in schedule of quantities. Main Horizontal busbar and Neutral should be in same compartment.

The bus bar system may comprise of a system of main horizontal bus bars and auxiliary vertical bus bars run in bus bar alloy on either side in which the circuit could be arranged with front access for cable entrances. The bus bars shall be supported on non-breakable, non-hygroscopic epoxy resin or glass fiber reinforced polymer insulated supports able to withstand operating temperature of 110 C at regular intervals, to withstand the forces arising from a fault level as stipulated in schedule of quantities. The material and the spacing of the Busbar support should be same as per the type tested assembly. Auxiliary buses for control power supply, space heater power supply or any other specified service shall be provided. These buses shall be insulated, adequately supported and sized to suit specific requirements. The material for auxiliary supply bus will be insulated electrolytic copper Wires.

B.1.9 Air Circuit Breakers

The ACBs shall have following features:

Motorised with 230 V A.C. motor.
230 V A.C closing and shunt trip coil
Draw out type with "service", "test", "isolated" and "maintenance" position.
Safety shutter of Fibre glass/ polycarbonate sheet of 2mm thickness shall be provided
Mechanically trip free plus anti-pumping feature is to be provided.
Electrical trip free plus anti pumping shall be provided with relay only and not by contactors.
Electrical/Mechanical operation counter shall be provided.
Door interlock with defeat features to be provided.
ACB shall be lockable in isolation position.

Air Circuit Breakers shall be provided in fully drawout cubicles, unless otherwise stated. These cubicles shall be such that drawout is possible without disconnection of the wires and cables. The power and control circuits shall have self-aligning and self-isolating contacts. Mechanical latches shall be integrated in ACB at service, test and isolated position to ensure that Breaker is firmly latched in respective position. It shall not be possible to move the breaker from the position unless latch is manually operated.

B.1.10 Moulded case circuit breakers

MCCBs shall comply with standards IS/IEC 60947-1 & 2. The breaking capacity performance certificates shall be available for category A to the above mentioned standards. MCCB shall

have a rated operational voltage (Ue) of 415V, insulation voltage (Ui) of 690 V (AC 50/60 Hz) & impulse voltage (Uimp) of not less than 8kV.MCCBs shall be current limiting type preferably having an encapsulated double break design having two fixed contacts, one moving contact and two arc chutes per pole. The design is required to minimize the effects of short circuit currents i.e. limit the let through energy and improve the life of cables.

MCCB shall not have any line load bias. MCCB shall comply with the environmental directives like RoHS and WEEE 800A and above rating MCCBs - shall be microprocessor based, category B type (drawout design in main panel and fixed type in sub panels) having Icw (1sec) not less than 15kA. Microprocessor trip unit shall measure current and voltage data with last 5 trip records. Microprocessor based MCCBs in main panel shall have zone selective interlocking feature. Mechanical life shall be 10000 operations.

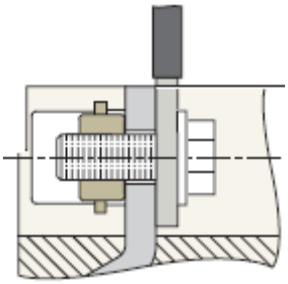
B.1.11 Performance:

The MCCBs shall have a rated service breaking capacity (Ics) equal to the ultimate breaking capacity (Icu) at 415V and as per system fault levels (refer SLD). The limiting capacity of a circuit breaker is expressed by two curves which are a function of the prospective short-circuit current (the current which would flow if no protection devices were installed): The thermal stress (A2s), i.e. the energy dissipated by MCCB during fault should be as low as possible. Cable selection to be done as per Maximum permissible cable stresses for which manufacture should produce current limiting and energy limiting curves of MCCB's.

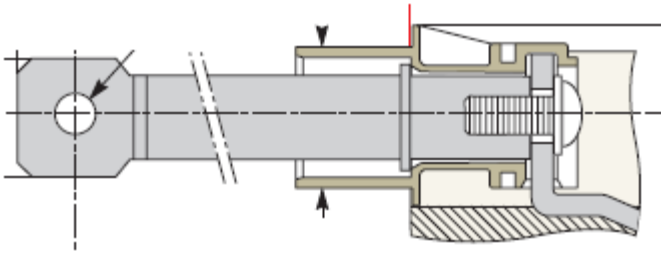
B.1.12 Safety:

For maximum safety, the power contacts shall be insulated in an enclosure made of a thermosetting material from other functions such as the operating mechanism, the case, the trip unit and auxiliaries (ON/OFF/Trip Contact, Shunt, Under Voltage etc.). All poles shall operate simultaneously for circuit breaker opening, closing and tripping. MCCBs shall be actuated by a toggle or rotary-handle that clearly indicates the three distinctive positions: ON, OFF and TRIPPED. MCCB shall clearly indicate the suitability for isolation in the name plate identified by the symbol . MCCBs shall be equipped with a “push to trip” button in front to test operation and simultaneous opening of all poles together. MCCBs shall be designed to prevent access to live parts when the cover is removed, means main current path of the circuit breaker should be isolated from auxiliary section i.e. MCCB shall offer class –II front face as per IEC standards 61140 and 60664-1

The electrical life of MCCBs shall be 8,000 operations up to 250A & 4000 operations up to 630A. All MCCBs provided shall be of single frame size upto 250A to reduce the requirement of spares management. All MCCBs shall have cross bolted type termination where bus bars or cable lugs can be terminated by crossing the bolt between the lugs/bus bars and MCCB connections, to enhance safety and reliability of the terminations. In case spreaders/rear connectors are used in between MCCB and bus bar/lugs then the spreaders shall be cross bolted with the MCCB connectors.



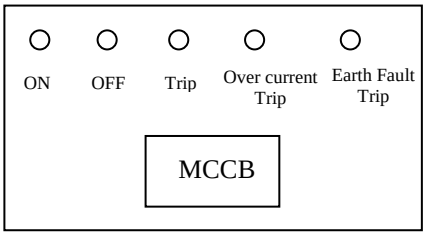
Cross bolting with lugs/bus bars/spreaders



Cross bolting with rear connectors

B.1.13 Auxiliaries and accessories:

Following separate Field installable auxiliary contacts for signalizing different functions shall be provided with all MCCBs
open/closed position contact
Trip signaling contact
Electrical fault trip signaling contact



Rotary handle shall ensure IP40 for direct type and IP 55 for extended Rotary handle. MCCB shall have provision for Rear connection - MCCB mounting on a back plate with suitable holes enables rear connection. The rear connections are simply fitted to the device connection terminals.

B.1.14 Protections requirements:

MCCBs shall have thermal magnetic trip units upto 250A and microprocessor trip units above 250A.Thermal magnetic trip units shall have variable overload settings from 0.7 to 1 Ir and fixed short circuit settings. Microprocessor trip units shall have variable overload settings from 0.5 to 1 Ir and variable short circuit settings from 2 to 10Ir.In case of 4 pole microprocessor based MCCBs neutral shall be protected & adjustable as a Neutral unprotected / Neutral protected at 0.5 In/ Neutral protected at In.

MCCB's should be provided with auxiliary contacts for signaling different functions, as: open/ closed position, fault signal and shunt trip coil for remote/emergency tripping of MCCB. Where ever it is required based on electrical distribution network need, MCCB shall have Earth

Fault Protection as a provision. MCCB Earth Fault Protection should have following settings and features

a. Selection of Ir MCCB rating
b. Earth fault sensitivity selection from 20% – 60% In.
c. The time delay selection in case of Earth Fault from 0.5 to 3 Sec/ instantaneous.
d. There shall be a separate fault differentiation indication (LED) for Over current and Earth fault. Indication for over current and earth fault tripping shall be extended to the panel door via indication lamps
e. Separate LED shall be there to show healthiness of earth fault protection system
f. EF protection module shall be suitable for 3P 4W system. It shall take the input from neutral for correct earth fault protection.
g. Earth fault module shall have auxiliary contacts for earth fault signaling.

B.1.15 Instrument Accommodation

All voltmeter and ammeter and other instruments shall be flushed mounted type of size 96 sq. mm conforming to class 1.5 to IS 1248 for accuracy. All voltmeter shall be protected with MCBs. Instruments and indicating lamps shall not be mounted on the Circuit Breaker Compartment door for which a separate and adequate compartment shall be provided and the instrumentation shall be accessible for testing and maintenance without danger of accidental contact with live parts of the Switchboard.For MCCBs, instruments and indicating lamps can be provided on the compartment doors.

The current transformers for metering and for protection shall be mounted on the solid copper/ aluminum busbars with proper support. On all the incomers of switchboards ON/OFF indicators lamps shall be provided suitable for operation on AC 230 volts supply. All lamps shall be protected by MCBs. For Incomer power meters shall be provided with class 0.5S accuracy and which shall display A , V, Pf , Hz, Kw, KVA, KVAr, Kwh, Kvarh, average and maximum values, demand values, THD on current and Voltages, individual harmonics up to 31st. Also Meter should capture/record energy parameter 12am(snapshot). Sampling rate should be minimum 64samples/cycles.

B.1.16 Wiring

All wiring for relays and meters shall be with PVC insulated copper conductor wires. The wiring shall be coded and labeled with approved ferrules for identification. The minimum size of copper conductor control wires shall be 6 sq. mm. Runs of wires shall be neatly bunched and suitably supported and clamped. Means shall be provided for easy identification of wires. Identification ferrules shall use at both end of wires. All control wires meant for external connections are to be brought out on a terminal board. The cables and control wires shall be suitable for withstanding 105 deg C.

B.1.17 Ventilation Fans

The Switchboard shall be provided with panel mounting type ventilation fans in each panel with switchgear rated for 4500 amp and above. The fan shall be interlocked with switchgear operation. The degree of enclosure protection to be maintained even with Fans.

B.1.18 Earthing

Continuous earth bus sized for prospective fault current to be provided with arrangement for connecting to station earth at two points. Hinged doors / frames to be connected to earth through adequately sized flexible braids.

B.1.19 Sheet Steel Treatment and Painting

Sheet steel used in the fabrication of switchboards shall undergo a rigorous cleaning and surface treatment seven tank process comprising of alkaline degreasing, descaling in diluted sulphuric acid and a recognized phosphating process after which a coat of primer paint compactively with the final paint shall be applied over the treated surface. Final paint coat of oven baked powder coating, of minimum 50 micron thickness, of sheet approved by Engineer-in-Charge shall then be provided.

B.1.20 Name Plates and Labels

Suitable engraved white on black name plates and identification labels of metal for all Switchboards and Circuits shall be provided. These shall indicate the feeder number and feeder designation.

B.1.21 Testing at Works

Copies of type test carried out at ACB/ MCCB manufacturers works and routine tests carried out at the switchboard fabricators shop shall be furnished along with the delivery of the switchboards. Engineer-in-Charge reserves the right to get the switchboard inspected by their representative at fabricators work prior to dispatch to site to witness the following.

Physical variation and dimensional check
Verification of bill of material
Functional check
HV test
IR test

B.1.22 Current transformers

Current Transformers shall be of the Resin type. Current Transformers shall have a short time with stand rating equal to the short time withstand rating of the associated switch gear for 1 sec for breaker feeders. For feeders with fuse CTs shall have withstand capacity equal to the let through current of associated fuse. The minimum performance requirements of current transformers are as under:

Measuring CTs - 10VA, accuracy class 1.0 and an instrument safety factor of 5
Protective CTs - 15VA, accuracy class 5P and accuracy limit factor of 10

B.1.23 Voltage transformer

Voltage transformers shall be of dry type.

Minimum performance requirements of voltage transformers are as under:
Measuring VTs - 50VA per phase and accuracy class 1.0
Protective VTs - 50VA per phase and accuracy class3.0
Voltage transformers shall be complete with suitable rated primary and secondary MCBs.
It shall be possible to replace the voltage transformers without having to de-energise the main bus bars.

B.1.24 Indicating lamps

Indicating lamps shall be of the multiple LED type and low watt consumption.
Provided with translucent lamp covers 'RED', 'GREEN', and 'AMBER' as required in the control wiring diagrams.
Bulbs and lenses shall be easily replaceable from the front.

B.1.25 Control & selector switches

Control and selector switches shall be of the rotary type with enclosed contacts.
Adequately rated for the purpose intended (min. acceptable rating is 10A continuous at 240V AC)
Provided with escutcheon plates clearly marked to show positions.
Control switches shall be of the spring return to normal type. Provided with pistol grip handles.
Selector switches shall be of the maintained contact stay put type. Switches in ammeter circuits shall have make-before break type contact. Provided with oval handles.

B.1.26 Push buttons

Push buttons shall be of the momentary contact, push to actuate type rated to carry 10A at 240V AC.
Fitted with self-reset 2NO, 2NC contacts.
Provided with integral escutcheon plates marked with its function.
Start, Open, Close push buttons shall be green in colour
Stop push buttons shall be red in colour.
Emergency stop push buttons shall be of the lockable in the pushed position type and shall be shrouded to prevent accidental operation. Key shall not be required for the operation of push button.

B.1.27 Labels

All labels shall compromise white letters on a black ground.

Labels shall be made of non-rusting metal or 3-ply lemuroid, or engraved PVC
Labels shall be properly fixed, with provision to prevent distortion due to expansion.
Size of lettering shall be 6mm, unless otherwise specified.

B.1.28 Overload relays and Thermal overload relays

Thermal overload relays shall be of three elements positive acting ambient temperature compensated type with adjustable setting.
Thermal overload relays shall be of self/hand – reset type as specified in the detailed requirements.

B.1.29 Indicating overload relays

Ammeters and Voltmeters shall be of Moving Iron Spring controlled industrial type grade 1.5 the size of the instrument shall be 72 mm sq starter and fuse switch compartments. Ammeter with suppressed scale current rating shall be provided for specific requirements.

C.1.0 Distribution Board

This section relates to specifications for supply of lighting distribution board (LDB) & Power distribution board (PDB) TPN/FP/DP/SP MCB isolator & ELMCB, Earthing terminal, connector strip for phase neutral and earth for each circuit, sheet steel housing and complete the item supply. neutral and earth conductors should be dedicated for every phase.

Codes and Standards

Sl no	Item	Relevant IS
1	General requirements for switchgear and control gear for voltages not exceeding 1000 V AC or 1200 V DC	IS: 4237
2	Switchgear bus bars, main connection and auxiliary wiring, marking and arrangement	IS: 375
3	Terminal marking for electrical measuring instrument and their accessories.	IS: 8197
4	Miniature circuit breakers	IS: 8828

C.1.1 Technical Requirements

The lighting distribution boards shall be suitable for operation on 415/240 volt, 50 cycle per second, and A.C supply system. The lighting & power distribution boards MCB shall be capable of withstanding short circuit current of 10 KA.

C.1.2 Construction

The DB's shall be factory made and of those and as per the G.A. layout enclosed. General arrangement lay out of the DB's shall be approved by the consultants in charge before starting the manufacture. The DB shall metal clad duly fabricated from 2mm thick high quality sheet metal. The DB shall be wall mounted and dead front operated. The DB shall totally be enclosed and made dust, vermin and weather proof such that it meets to IP42 protection classification for installation. A detachable cover plate of 2 mm thick sheet to be provided on front of the board such that all live parts of the electrical accessories mounted on the board can be accessible only on removal of the said cover plate. The cover plate shall be fixed to the board with adequate size zinc passivized machine screws. Above the detachable cover plate, one additional hinged door of 2 mm thick sheet shall be provided with a suitable locking arrangement. The hinged door shall be provided with a suitable gasket capable of withstanding corrosive & humid atmosphere and to maintain degree of enclosure protection to IP 42 as per IS: 13947 for installation. The DB shall have top/Bottom entry arrangement for incoming and outgoing cables/conduits

All hardware to be used in manufacture of the DB shall be S.S 304 to prevent corrosion due to humid atmosphere prevailing at the project site. All internal electrical connections shall be carried out using 1100 volt grade, FRLS insulated, Copper conductor of ISI approved make, having rated current carrying capacity to carry continuous full current of respective switch Fuse rating at operating conditions prevailing at the project site. The DB internals shall be earthed with use of Copper wires/strips running throughout the length. Size of the earthing strip/wire shall be as shown in the respective drawing. All non-current carrying metal surface of the DB's shall adequately be treated and painted. The surface imperfection shall then be rectified with applications of putty. The DB's shall be provided with electric components and accessories as per the details shown in the drawing for the respective electric distribution board. The circuit connection from all the circuit MCB shall be brought to connector provided on top or bottom of the DB with suitable lugs. The connector shall be suitable to receive phase, neutral and earth wire/cable coming from each individual circuit. The connector's shall have circuit identification tag. Use of paper/fabric base laminates is not acceptable.

C.1.3 Miniature circuit breakers

Miniature circuit breakers shall have a minimum breaking capacity of 10 KA. Circuit breakers shall be equipped with individual insulated, braced and protected connectors. The front face of all the breakers shall be flush with each other. The beakers shall have quick break trip free mechanism with current limiting and overload and short circuit tripping characteristics. The mechanism shall be such overload the circuit cannot be held closed when a fault occurs or persists. The contacts shall be silver tungsten other suitable material to give long contact life. Multiple units shall have an interrupting mechanism, thereby ensuring complete isolation in the circuit in the even of an overload or fault in any of the phases. The connectors shall be suitably shrouded.

D.1.0 POWER FACTOR CORRECTION CAPACITORS:

Power factor correction capacitor shall be of Mixed Di-Electric type, suitable for 440V, 50HZ AC application. The Capacitor shall be guaranteed for a period of 2years @ +10% & -5% of

the rated value. All the capacitors shall be type tested for dielectric strength, IR value (min.50Mohm).losses, surge protection etc. in accordance with IS standards.
They shall conform to IS2834-1996/IS13585-1994.Each individual capacitor unit shall be self-contained, impregnated with an eco-friendly, Non-PCB fluid, biodegradable, and nonflammable having excellent electrical, physical and highly compatible/non-deteriorating chemical properties, and hermetically sealed. A weather-proof and corrosion -proof name plate shall be provided on each capacitor unit (IP52 class). The name plate shall contain the information setout in IS:2834.

The other technical parameters shall be as listed below:
Permissible Overload
Over current: 115%
Over Voltage: 110%
Over output: 130%
Loss Watts/KVAR: <=.2W/KVAR
Life in hrs : 1,00,000
Protection & Safety: Internally provided individual element fuses.
Bushings may be either of glass or porcelain and shall be joined to the case by solder-welded or other method, which ensures an adequate and permanent seal.

E.1.0 Point wiring

This section covers, definition of point wiring, system of wiring and supply, installation, connection, testing and commissioning of point wiring for light points, ceiling fan points, exhaust fan points, convenience socket outlet points, power socket outlet points, bell outlet points etc. including fixing of light fixtures, ceiling fan, exhaust fan, wall fan, bell etc.

E.1.1 Standards

The following standards and rules shall be applicable:

Sl no	Item	Relevant IS
1	Code of practice for electrical wiring installation (System voltage not exceeding 650/1100 V)	IS 732
2	Code of practice for fire safety of buildings (General) Electrical installation	IS 1646
3	3 pin plugs and sockets.	IS: 1293
4	Switches for domestic purpose.	IS: 3854

A point shall consist of the branch wiring from the switch as required, including the ceiling rose or pendant holder or swan holder, or ceiling fan box or socket or suitable termination. A point shall include, in addition, the earth continuity conductor/wire from the distribution board

to the earth pin/stud of the outlet/switch box and to the outlet point. Supply, installation and connection of flush type switches, sockets, cover plates, switch plates, and fixing fan regulator etc. Point wiring shall commence from the first control box/local control box for the points connected to the same circuit. Point wiring for lights, ceiling and exhaust fans, 5A sockets, call belles, etc shall be carried out with 1100 V grade PVC insulated wires. The point wiring shall be inclusive of conduits of the not less than 25mm size, switches, wiring along with the conduit accessories such as bends, inspection bends, collars, junction bores, switch boxes, fan boxes, cover, etc. together with wiring accessories such as ceiling roses, lamp holders, T.W.

Blocks, loose wires upto 1 Mtr long at outlet end connectors point control boxes (enclosure for electrical accessories) switches, etc. point wiring shall be provided with earth continuity wire as specified for earthing of3rd pin socket of luminaries and fan fixtures. Light control shall be either single, twin or multiple points controlled by a switch as specified.

The point wiring for Light/fans/5A sockets etc. shall include the supply and installation of all materials specified above. Any item not specifically included but required for satisfactory completion of the point wiring shall also be included. No separate extra price will be allowed for any then under point wiring. A dependent socket point shall mean the combination 5A switch socket outer/point mounted on the same switchboard as any other point/points and shall included the 5A switch and socket. The fan point shall be complete with fan hook box finish mounted in stab, control switch mounted in switch box and electronic regulator, complete with cover. The measurement will be numbers of each kind of point and specified in the schedule quantities.

F.1.0 LIGHT FITTINGS/CEILING FANS/EXHAUST FANS

The scope of work shall cover the supply, installation and testing of various types of light fixtures.

F.1.1 Codes and Standards

Sl no	Minimum Technical particulars	Range
1	Code of practice for interior illuminator.	IS 3646 (1960)
2	General and Safety requirements for electric lighting fittings	IS 1913(1969)
3	Luminous efficacy (Lumen/watt) at luminary level	≥110 lm/w
4	Operating voltage	Single phase 140-270V
5	Power factor	>0.9
6	Spread	120degree minimum

7	Lens	Details of lenses used for to be specified.
8	CRI (Average CRI in all direction)	>70
9	Makes of LED to be used in luminary	To be specified by vendor
10	Make & model of luminary	To be specified by vendor
11	LM 79 certification for luminary	LM 79 certification of the luminary offered from the NABL accredited UL lab is required to be attached.
12	LM80 certificate for LED used in luminary	To be submitted along with technical bid
13	Driver efficiency	>85%.
14	Performance certificate of driver	IEC62384 certificate of driver from own lab/ NABL accredited lab to be furnished along with technical bid
15	IP 66 certificate of fitting	Certificate of luminary for IP 66 from NABL accredited lab to be furnished along with technical bid
16	Make of driver	Shall be same as fitting. If different make of driver is used in fitting, make to be specified.
17	Surge protection for driver	Should be Equal or more than

		5KV and it is to be part of driver only.
18	Guarantee for complete luminary including driver.	Minimum 3 year from the date of supply of fitting to store.

F.1.2 General requirements

General Purpose Led Luminaires suitable for Office /Industry / Street Light applications. The Fixtures should be Operational for 220-240 V Single Phase 50 HZ AC, and operational from 170-280 V without significant drop in output.

F.1.3 IP Protection

The Min degree of Protection for Indoor Fixtures should be IP20 and IP65 for Outdoor/ Semi Indoor Fixtures. The THD of Fixtures should be strictly.

F.1.4 Housing

For Indoor applications the housing should be made of die cast/ Metal Housing and diffusers should be polycarbonate only, outdoor fixtures should be with die cast aluminum / extruded aluminum housing only.

F.1.5 Fixtures

The Fixtures should be prewired upto the terminal block and easy to mount and install and maintain if necessary. The fixture should comply LM79-08 certification criteria and module should be backed with LM80-08 Certificate from the OEM.

F.1.6 Ceiling Fans

Ceiling fans shall be 5tsar type suspended special fan hook boxes. The fan wiring shall be terminated in PVC way connection. Each fan shall have a separate switch and speed regulator. The canopy at the top of the suspension rod shall effectively hide the suspension hook. The control switch and the electronic regulator for the fan shall be included in the point wiring.

The fan should be 1200mm with BLDC motor. The power consumption at high speed should be within 40w. Air delivery 241 CMM & Speed: 320 RPM.

F.1.7 Air Circulator

The air circulator should be provided with 3 blades with 1 speed controls, The blades of the Air circulator should be aluminum type having double ball bearing with 90 deg oscillation. The

blades should be covered by mesh guard. The air circulator should have sweep of 750mm consuming 300w power at highest speed of 1440RPM with air delivery of 400m3/min

F.1.8 Exhaust fan 150mm

The fan should have Automatic front shutter which protects against foreign objects, Light weight exhaust ideal for mounting on glass window or wall. The fan should have sweep of 150mm consuming 50w power at highest speed of 1350RPM with air delivery of 280cmm

F.1.9 Exhaust fan 450mm

The fan should have Automatic front shutter which protects against foreign objects, Light weight exhaust ideal for mounting on glass window or wall. The fan should have sweep of 450mm consuming 150w power at highest speed with air delivery of 3900m3/hr

G.1.0 Lightning Arrestor

This specification covers the requirements for supply, testing, packing and delivery at site, complete with all accessories for efficient and trouble free operation for ESE type Lightning arrestor along with earthing requirement.

G.1.1 Applicable Standards

NF C 17-102:	Protection against Lightning (ESE)
IS 3043: 1987:	Code of practice for earthing
IS/IEC 62305:	Protection against Lightning
IS 2062:	Hot rolled low, medium and high tensile structural steel
IS 2629:	Recommended practice for hot-dip galvanizing of iron and steel
IS 2633:	Methods for testing uniformity of coating of zinc coated articles
IS 8130:	Conductors for insulated electric cables and flexible cords
IEC 62561:	Lightning protection system components

G.1.2 Technical Requirements

Contractor shall supply ESE type lightning protection system along with chemical earthing as per NFC 17-102 & IEC 62561 and accessories as follows. ESE type Lightning arrestor shall be as per NFC 17-102 (latest amendment) It shall have following parameters

Δt: Early streamer warning time shall be minimum 60µ-sec

Protection radius shall be as per NFC 17-102 clause no. 5.2.3.2 calculation for protection of radius shall be submitted to client and consultant for review

One down conductor shall be provided from ESE type lightning arrestor to test link/lightning counter and from there, two down conductors shall be provided for each ESE type lightning arrestor to earth pit via test link. Down conductor shall be minimum 70Sq.mm copper flexible

down conductor shall in single length. No joints are allowed in between conductor insulation shall be green color or yellow color with green strips

Elevation mast of Hot dip galvanized iron shall be installed such that ESE type lightning arrestor tip shall be minimum 4.5mtrs above the tip of the equipment being protected (Refer clause No. 2). It shall be designed to have adequate strength for wind speed as mentioned in clause No.2. It shall be bolted with base plate which shall be fixed in concrete. Detailed drawing shall be submitted to client/ consultant for review

Lightning counter shall be provided to record no. of lightning events. It shall have minimum 6 digits. It shall have capacity to count smallest strike, It should be a voltage sensing type counter, so that it will not register nearby strikes and static discharges due to induction effect. No external power supply shall be provided. It shall be weatherproof.

Two test joints/links shall be provided at the bottom

Earthing requirement shall be fulfilled as per standards. Contractor shall submit calculations for earthing to maintain earth resistance of less than 5Ω

G.1.3 Type Tests

Type tests shall be applicable as per NFC 17-102
Following type tests certificates are required to be submitted to client and consultant for ESE type Lightning arrestor

Advance triggering time test
Lightning impulse current test

Above type tests should have been conducted within last five years as applicable on the date of enquiry in any recognized testing laboratory. Type test certificates shall be submitted to contractor

Contractor shall also furnish test certificate for resistance of the earth enhancing compound being provided as per IEC-62561 from any recognized testing laboratory

G.1.4 Inspection and Testing

Following tests will be conducted in presence of Client and consultant representative

Inspection of dimensions finish surface defects, thickness and uniformity of zinc coating, adhesion test as per provisions of IS2062, 2629, 2633 as applicable

Test certificate for chemical and physical properties of raw materials i.e. steel flats/rods shall be tested as per IS-2062 from NABL approved lab/government approved laboratory and same shall be made available by contractor at the time of inspection

Contractor shall procure factory certificate along with serial No. for each ESE type lightning arrestor from original equipment manufacturer during inspection.

F.1.0 PVC Conduits

All PVC conduits shall conform to IS: 9537 (Part-3).The conduit shall be planed and of type as specified in IS: 9537 and shall be used with the corresponding accessories PVC conduits shall be rigid unplasticized, heavy gauge having 2.0 mm. wall thickness upto 25 mm. Diameter.

All the rigid PVC conduit used for concealed installation shall be as per IS; 9537 and its accessories shall be as per IS: 3419 (Small Wire Ropes).

Whenever necessary bends or diversion may be achieved by bending the conduits with the help of bending spring. No other method of bending is allowed

Conduit pipes shall be joined with the help of plain coupler fixed at the end with the help of vinyl solvent cement. No other method of joining is permissible

Conduits embedded in concrete shall be installed in the framework before pouring concrete. The conduits shall be installed above the bottom reinforcing bars and shall provide positive wire fastening of the conduit to the reinforcing rods at an interval of not more than one meter, but on either side of couplers or bends or putlet/ pull/ junction boxes or similar fittings, proper hold fast shall be fixed at a distance of 30 cm from the center of such fittings. Conduits embedded in the wall shall be fixed inside the chase.

The chase in the wall shall be neatly made and be fixed in the manner desired and shall be filled up neatly with cement mortar 1:4 after erection of conduit and brought to the original finish of the wall. Cutting horizontal chases in walls is prohibited. The conduits shall be fixed inside the chase by means of staples or by means of saddles not more than 60 cm apart.

Conduits shall be so arranged as to facilitate easy drawing of wires through them. Entire conduit layout shall be done in such a way as to avoid additional junction boxes other than light points. The wiring shall be done in a looping manner. All the looping shall be done in either switch boxes or outlet boxes. Looping in junction or pull boxes are strictly not allowed. Where conduits cross building expansion joints, adequate expansion fittings or other approved devices shall be used to take care of any relative movement.

All conduits shall be installed so as to avoid steam and hot water pipes

Caution shall be exercised in using the PVC conduits in location where ambient temperature is 50 degree cel. or above. The entire conduit system including boxes shall be thoroughly cleaned after completion of installations and before drawing of wires. Conduit system shall be erect and straight as far as possible. Traps where water may accumulate from condensation are to be avoided and if unavoidable, suitable provision for draining the water shall be made.

Separate conduits shall be provided for the following system.

- 15A power outlets.
- 5A outlets and lighting system.
- C.C.T.V. system
- Computer data cabling system
- Equipment wiring

Conduits shall be joined by means of plain couplers vinyl and/or solvent cement. Where there are long runs of straight conduit, inspection type couplers shall be provided at intervals, as approved by the client

The conduits shall be thoroughly cleaned before making the joints

Wherever necessary, bends or diversions may be achieved by bending the conduits or by employing normal bends. No bends shall have radius less than 2.5 times outside dia. of the conduit

G.1.0 GI Boxes

All the boxes for switches, sockets and other receptacles, junction boxes, pull boxes and outlet boxes shall be fabricated from 1.2mm. thick galvanized iron.

Boxes in contact with earth or exposed to the weather shall be of 1.2mm galvanized iron and hot dip galvanized after fabrication.

Separate screwed earth terminal shall be provided in the box for earthing purpose

All boxes shall have adequate no. of knock out holes of required diameter for conduit entry.

Switch boxes to receive switches, socket outlets, power outlets, telephone outlets, fan regulators, etc. shall be fabricated to the approved shape and size to accommodate all the devices without overcrowding.

Outlet boxes to receive ceiling fan shall be fitted with adequately sized rod.

Hook to fix ceiling fan. The boxes shall be at a minimum depth of 65 mm.

Boxes installed for concealed wiring shall be provided with suitable extension rings or plaster covers as required. Boxes for use in masonry block or tiled walls shall be square cornered tile type, or standard boxes having square cornered tile type covers. These boxes shall be installed in the center of the masonry block or tiles.

Cast metal boxes installed in wet locations and boxes installed flush with the outside of exterior surface shall be gasketed.

H.1.0 CABLES

This specification gives the general requirement of cables. However, it is the responsibility of the vendor to take joint measurement.

H.1.1 Codes and Standards

SI.No	Item	Color
1	XLPE insulated Electric Cables (heavy duty)	IS:7098 Part I
2	Recommended current ratings for cables.	IS:3961
3	Aluminum conductors for insulated cables	IS:8130

SI.No	Item	Color
1	Single Phase	Red
2	Three Phase	Red, Yellow, Blue
3	Neutral	Black
4	Earth	Green

circuit wiring for lights, exhaust fans, ceiling fans, bell, convenience socket outlet points (P+N+E) is given below

SI.No	Distribution Board and Size of Cable	
1	R-LDB1	
	2X2.5Sqmm+1X2.5Sqmm FRLS CU wire	From DB to lighting switch boards
2	Lift DB1	
	2X2.5Sqmm+1X2.5Sqmm FRLS CU wire	From DB to lighting switch boards
3	Lift DB2	
	2X2.5Sqmm+1X2.5Sqmm FRLS CU wire	From DB to lighting switch boards
4	Common area Emergency Lighting DB	

	2X2.5Sqmm+1X2.5Sqmm FRLS CU wire	From DB to lighting switch boards
5	Staff building All floors lighting circuit flats and DGM bungalow	
	2X2.5Sqmm+1X2.5Sqmm FRLS CU wire	From DB to lighting switch boards
7	Staff building All floors power circuit flats and DGM bungalow	
	2X4Sqmm+1X4Sqmm FRLS CU wire	From DB to Power switch boards

The number of insulated wires/ cables that may be drawn into the conduits shall be as per the following table. In this table, the space factor does not exceed 40%. Maximum permissible number of 650 volt grade single core cables that may be drawn in to rigid pvc.

SI.No	Cable size in Sqmm	Size of conduit in mm	No of wires
1	1.5Sqmm	25mm	8
2	1.5Sqmm	40mm	15
3	2.5Sqmm	25mm	6
4	2.5Sqmm	40mm	10
5	4Sqmm	25mm	4
6	4Sqmm	40mm	8

H.1.2 Installation of cable network

Cable network shall include power, control and lighting cables which shall be laid in underground trenches, hume pipe open trenches, cable trays, G.I. pipes, or on building structures as detailed in the relevant drawings, Supply & installation of cable trays, G.I. pipes / conduits, cable glands and sockets of both end isolators, junction boxes, remote push button stations, etc. shall be under the scope of the contractor.

H.1.3 General requirements for handling cables

Before laying cables, this shall be tested for physical damage, continuity, absence of cross phasing, insulation resistance to earth and between conductors. Insulation resistance tests shall be carried out with 500 / 1000 V megger.

The cables shall be supplied at site, wound on wooden drums as far as possible. For smaller length and sizes, cables in properly coiled form can be accepted. The cables shall be laid by mounting the drum of the cable on drum carriage. Where the carriage is not available, the drum shall be mounted on a properly supported axle, and the cable laid out from the top of the drum. In no case the cable will be rolled on as it produces kinks which may damage the conductor.

Sharp bending of cable shall be avoided. The bending radius for PVC insulated and sheathed, armoured cable shall not be less than 10 D, where "D" is overall diameter of the cable.

While drawing cables through G.I. pipes, conduits, RCC pipes, ensure that size of pipe is such that, after drawing cables, 40% area is free. After drawing cables, the end of pipe shall be sealed with cotton / bituminous compound.

High voltage (11 KV and above), medium voltage (240 V and above) and other control cables shall be separated from each other by adequate spacing or running through independent pipes / trays.

Armoured cables shall never be concealed in walls / floors / roads without G.I. pipes, conduits or RCC pipes.

Joints in the cable throughout its length of laying shall be avoided as far as possible and if unavoidable, prior approval of site engineer shall be taken. If allowed, proper straight through epoxy resin tight joint shall be made, without any additional cost.

A minimum loop of 3 mtr. shall be provided on both ends of the cable, and on both ends of straight through cable joint. This additional length shall be used for fresh termination in future. Cable for this loop shall be paid for supply and laying.

Cable shall be neatly arranged in the trenches / trays in such manner so that crisscrossing is avoided and final takeoff to the motor / switchgear is facilitated. Arrangement of cable within the trenches / trays shall be the responsibility of the contractor.

All cable routes shall be carefully measured and cable cut to the required lengths and undue wastage of cables to be avoided.

All temporary ends of cables must be protected against dirt and moisture to prevent damage to the insulation. For this purpose, ends of all PVC insulated cables shall be taped with an approved PVC or rubber insulating tapes. Use of friction type or other fabric type tape is not permitted. Lead sheathed cables shall be plumbed with lead alloy.

The cable pass through foundation / walls of other underground structures, the necessary ducts for opening will be provided in advance for the same. However, should it become necessary to cut holes in existing foundation of structures the electrical contractor shall determine the location and obtain approval of the client before cutting is done.

H.1.4 Laying of cables (underground system)

Cables shall be so laid in trench that this will not interfere with other underground structures. All water pipes, sewage lines or other structures which become exposed by excavation shall be properly supported and protected from injury until the filling has been rammed solidly in places under and around them. Any telephone or other cables coming in the way are to be properly shielded / diverted.

Cable shall be laid at minimum depth of 750mm and maximum 1200mm from formation level. The width of trench shall be sufficient for laying of required no. of cables.

Sand bedding 75 mm. thick shall be made below and above the cables. Layer of bricks (full size) shall be laid above sand bedding on the sides and above the cables to cover cable completely. More than one cable can be laid in the same trench by providing a brick on edge between two cables. However, the relative location of cables in trench shall be maintained till termination. The surface of the ground after back filling the earth shall be made good so as to conform in all respects to the surrounding ground and to the entire satisfaction of the client / consultant.

For all underground cables, route markers should be used.
Separate route markers should be used for LT, HT and telephone cables.
Route markers should be grounded in ground with 1:2:4 cement concrete pedestal size 230 x 230 x 300 mm.

Cable markers should be installed at an interval not exceeding 30 mtr. along the straight routes of cables at a distance of 0.5 mtr. away from center of cable with the arrow marked on the cable markers plate indicating the location of cable.

Cable markers should also be used to identify changes in direction of cable route and for location of every joint in underground cable.

RCC hume pipe for crossing road in cable laying shall be provided by contractor. No deduction shall be made for cable laying in hume pipe for not providing bricks, sand and excavation.

RCC hump pipe at the ends shall be sealed by bituminous compound after laying and testing of cables by electrical contractor without any extra charge.

H.1.5 Laying of cable in masonry trenches

Steel members such as M.S. angles / flats etc. shall be provided and grouted by electrical contractor to support the cables without any extra charge. Cables shall be clamped to these supports with minimum saddles / clamps. More than one tier of cables can be provided in the same trench if the no. of cables is more.

Entry of cables in trenches shall be sealed with bituminous mastic compound to stop entry of water in trenches.

H.1.6 Laying of cables in cable trays

Cable trays and steel members such as M.S. angle / channel / flats etc. shall be provided and fixed by the erector.

Cable shall be fixed in cable trays in single tier formation and cables shall be clamped with aluminum flat clamps and galvanized bolts / nuts. • Earthing flat / wire can also be laid in cable tray along with cables.

After laying of cables, minimum 20% area shall be spare.

H.1.7 Termination and jointing of cables

For HT cables suitable size of Reychem termination kit shall be used.

Use of glands

All PVC cables upto 1.1 KV grade, armoured or unarmored shall be terminated at the equipment / junction box / isolators / push buttons / control accessories, etc. by means of suitable size double compression type cable glands. Armour of cables shall be connected to earth point. The contractor shall drill holes for fixing glands wherever necessary. Wherever threaded cable gland is to be screwed into threaded opening of different size, suitable galvanized threaded reducing bushing shall be used of approved type.

In case of termination of cables at the bottom/top of the panel over a cable trench having no access from the bottom, close fit holes should be drilled in the bottom plate for all the cables in one line, then bottom/top plate should be split in two parts along the center line of holes. After installation of bottom plate and cables with glands, it shall be sealed with cold sealing compound.

H.1.8 Use of lugs / sockets

All cable leads shall be terminated at the equipment terminals, by means of crimped type solderless connectors unless the terminals at the equipment ends are suitable for direct jointing without lugs / sockets.

The following is the recommended procedure for crimped joints and the same shall be followed

Strip off the insulation of the cable and with every precaution, not in severe or damage any strand. All insulations to be removed from the stripped portion of the conductor and ends of the insulation should be clean and square.

The cable should be kept clean as far as possible before assembling it with the terminal / socket. For preventing the ingress of moisture and possibility of re-oxidation after crimping of the aluminum conductors, the socket should be filled with corrosion inhibiting compound. This

compound should also be applied over the stripped potion of the conductor and the palm surface of socket.

Correct size and type of socket / ferrule / lug should be selected depending on size of conductor, and type of connection to be made.

Make the crimped joint with a suitable crimping tool.

If after crimping the conductor in socket / lug, some portion of the conductor remains without insulation the same should be covered sufficiently with PVC tape.

For HT cable upto 11 KV the manufacturer's recommendation should be followed.

H.1.9 Dressing of cable inside the equipment

After fixing cable glands, the individual cores of cable shall be dressed and taken along the cable ways (if provided) or shall be fixed to the panels with polyethylene straps. Cable shall be dressed in such a manner that small loop of each core is available inside the panel.

H.1.10 Cables inside the equipment shall be measured and paid for.

Identification of cables / wires / cores

Power cables shall be identified with red, yellow and blue PVC tapes. For trip circuits identification, additional red ferrules shall be used only in the particular cores of control cable at the termination points in the switchgear / control panels and control switches.

In case of control cables all cores shall be identified at both ends by their wire numbers by mean of PVC ferrules or self-sticking cable markers, wire numbers shall be as per schematic / connection drawing. For power circuit also, wire numbers shall be provided if required as per the drawings of switchgear manufacturer / supplier

I.1.0 Earthing

Supply, delivery at site with all related accessories as per the specifications as specified below. Compliance with the provisions of this specification shall not relieve the Bidder of the responsibility of furnishing apparatus and accessories of proper design, electrically and mechanically suited to meet the operating requirements under the specified service conditions and be suitable for the purpose of which they are intended.

I.1.1 Chemical Earthing- Body Type

Earthing electrode of outer dia 76mm of 1.6mm thickness and inner dia of 42mm of 2.6mm thickness ,The length of electrode should be 3meter with galvanized coating and coating should be 80-100 microns.

The pipe should have 16mm dia bolts, nuts, washers and check nuts etc., The rate shall be inclusive of excavation, refilling, removing of surplus earth, The earth pit shall be filled with 2Nos of 25kgs backfilled compound (having good enhancing material) as per standard practices

I.1.2 Chemical Earthing- Neutral Type

Earthing electrode of outer dia 76mm of 1.6mm thickness and inner dia of 42mm of 2.6mm thickness, The length of electrode should be 3meter with copper coating and coating should be 250microns.
The pipe should have 16mm dia bolts, nuts, washers and check nuts etc. The earth pit shall be filled with 1No of 25kgs backfilled compound (having good enhancing material) as per standard practices

I.1.3 Chemical Earthing- Lighting arrestor Type

Earthing electrode of outer dia 38mm, The length of electrode should be 3meter with copper plated coating and coating should be 250micron, The pipe should have 16mm dia bolts, nuts, washers and check nuts etc. The electrode should be provided with 250mm (L)x 50mm (H) x 6mm (thickness) copper busbar, the copper busbar should be provided with 4Nos of holes to connect the cables.
The earth pit shall be filled with 1No of 25kgs backfilled compound (having good enhancing material) as per standard practices.

J.1.0 Street Light Poles

Supply and installation of 3mm thick 6meter height hot dipped galvanized octagonal poles, having bottom 130mm dia, top 70mm dia. The pole material should be confirming to BSEN 10025. Pole should be provided with in-built junction box. The pole should be provided with 220x220x12mm thick base plate with 4Nos of slots M20x600 for j bolts from the concrete.

4Nos of J bolts of size M20X600LG and to be embedded in the concrete pedestal.Base plate of 220x220x12mm to be provided during the concrete

Supply and installation of 3mm thick 4meter height hot dip galvanized octagonal pole having bottom 130mm dia, top 70mm dia. The pole material should be confirming to BSEN 10025. Pole should be provided with in-built junction box. The pole should be provided with 200x200x12mm thick base plate with 4Nos of slots 24x40 for j bolts from the concrete.

4Nos of J bolts of size M16X450LG and to be embedded in the concrete pedestal. Base plate of 200x200x12mm to be provided during the concrete

Supply and installation of 4 meter single arm mild steel pole of 3mm thick having pure polyester powder coating, the pole should have minimum 145x82mm at bottom and 75x25mm

at top with 3mm thickness. The pole should be supported by 250x250x10mm foundation plate with inbuilt MCB junction. The pole should comprise of LED light with driver of 30W 6000k 140 Lm/w.

The pole should be provided with 200x200x12mm thick base plate with 4Nos of slots 24x40 for j bolts from the concrete.The rate should be inclusive of 4Nos of J bolts of size M16X450LG and to be embedded in the concrete pedestal. The rate should be including 200x200x12mm thick base plate during the concrete.

J.1.1 Inspection door

The shaft may be equipped with inspection door, it may have a triangle key that forces the door out when opening, the door may be 500 mm above ground level and its dimensions do not exceed 400 mm.

J.1.2 Mini brackets

All types may be fitted by single or double bracket made of galvanized steel tube with arm outreach 1000mm and angle of 150 deg. The arm mounted on the top of the shaft and able to support single or doubled lanterns of the arm shall hold in its position by headless screws.

K.1.0 Specification for dummy conduits, for LAN system

The conduits for the LAN system shall be same as explained and specified elsewhere for other work. The minimum size of the conduits used shall not be less than 25 mm dia respectively.

The LAN outlet boxes made of 16 gauge sheet / G1 shall be of minimum 75 x 75 x 75 mm size. These shall be flush mounting type installed with an approved cover matching with all other outlets in the electrical system and consisting of a 2pin non-reversible socket outlet.

The LAN boxes shall be generally mounted at 600mm FFL unless otherwise specified/indicated in drawing.

The contractor shall consult and co-operate with the LAN when installing the LAN wiring and conduct system and shall abide by their requirements, rules and regulations, shall furnish all work and material to secure their approval of the complete installation.

fish wire left in the conduit to draw LAN wires. The end of the conduit shall be sealed to prevent dirt, dust, mortar or any foreign matter going into LAN conduits.

The LAN indoor wires shall be 0.5mm annealed copper conductor, polythene insulated, colour coded twisted into parie, laid up, jelly filled with petroleum jelly compound, wrapped with non-hygroscopic tape under moisture barrier polyal laminated foil tape and embedded with waterproof polythene material.

L.1.0 Testing of electrical installation

Testing of installation shall be as per is 732-1982

The insulation shall be measured by applying between earth and whole system of conductors of any section thereof with all fuses in place and all switches closed and except in earthed concentric wiring all lamps in position or both poles of the installation otherwise electrically connected together, where a direct current pressure of not exceed 500 volts for medium voltage circuits. Where the supply to deliver from the three wires (A.C or D.C) or a poly phace system, the neutral pole of which is connected to earth either direct or through added resistance, the working pressure shall be deemed to be that which is maintained between the outer or phase conductor a neutral.

The insulation resistance measured as above shall not be less than 50 mega ohms divided by the number of points on the circuits provided that the whole installation shall be required to have an insulation resistance greater that one mega ohm.

Control rheostats, heating and power appliances and electric signs may, if required be disconnected from the circuit during the test put in the event of the insulation resistance between the case of framework and all live parts of each rheostat appliance and live parts of each rheostat and shall be less man such specification shall not be less than a mega ohm.

The insulation resistance shall also be measured between all conductors connected to one pole or phase conductor of the supply and all the conductors connected to the middle wire or the neutral or to the pole or phase conductors of the supply

L.1.1 Testing of earth continuity path

The earth continuity conductor including metal conducts and metallic envelopes in all cases shall be tested for electrical continuity and the electrical resistance or earth leakage circuit breaker measured from the connection with the earth electrodes to any point in the earth continuity conductor in the completed installation shall not exceed one ohm. For checking the efficiency of earthing, the earth resistance of each earth electrodes shall also be measured. This test shall preferably be done during summer months.

L.1.2 Testing of polarity of non linked single pole switches

In a two wire installation, a test shall be made to verify that all non-linked, single pole switches have fitted in the same conductor throughout and that such conductor has been connected to an outer or phase conductor or to the non-earthed conductor of the supply.

The contractor shall be responsible for providing the necessary instruments and subsidiary earth for carrying out the tests. The earth co-coordinating tests shall comply with the IS specifications as may be applicable. Should the above tests not comply with the laid down, the contractors shall do the necessary rectification of the fault till the required results are obtained.

M.1.0 CCTV system

The specification of Video Surveillance System cover up technical specifications and requirement of H.265+ compression based Smart Video Analysis IP Video surveillance system incorporated of features and function of Video Analytics, Lowest space consumption, Early alert management, Motion Detection, System Alarm, Network Alarm. System incorporated components of Bullet camera, Network Video Recorders, LED Display Monitor, Network Switches, and this all supported on indoor

The System shall be based on non-proprietary open architecture ONVIF S Profile Compliance; it can work and integrate of ONVIF Compliance Hardware & Software.

M.1.1 Bullet Camera

5mp 30fps, Smart Stream III, SNV, WDR Pro, Smart IR II, Smart VCA, IP9181-H network camera, Remote Focus bullet Camera.
The camera should have features given below
30 fps @ 2560x1920, 60 fps @ 1920x1080
H.265 Compression Technology
Smart Stream III toi Optimize Bandwidth Efficiency
SNV (Supreme Night Visibility) for Low Light Conditions
W DR Pro to Provide Extreme Visibility in Extremely Bright or Dark Environments
Weather-proof IP66, IP67 and Vandal-proof IK10-rated Housing.
The camera enclosure should be provided with built in IR LED's, window demister heater and fan. The enclosure to be powered by 24AC/24VDC

11. LIST OF APPROVED MANUFACTURERS / NATURAL SOURCES OF MATERIALS TO BE USED IN THE CIVIL WORKS SUBJECT TO THE APPROVAL OF SAMPLES BY THE CONSULTANT.

(ALL THE MATERIALS USED HAVE TO CONFIRM TO GREEN INTERIOR NORMS OF IGBC)

S.No	MATERIAL NAME	BRAND / MANUFACTURER
1	CEMENT	ULTRATECH, ACC, RAMCO, INDIA, AMBUJA (43 GRADE FOR PLASTERING AND 53 GRADE FOR RCC WORKS).
2	RMC	ULTRATECH, NAGARJUNA, ACC, L&T
3	WHITE CEMENT	J.K. / Birla
4	CLAY BRICKS	GOOD QUALITY BRICKS.
5	AAC Blocks	Aerocon / Siporex / Ultra Tech / Ecolite / Godrej
6	Polymer Modified Adhesive Mortar for AAC Blocks	Walplast / Ultra Tech / Pidilite / Ecolite
7	UPVC WINDOWS & SLIDING DOORS	NCL(ONLY VEKA), LG & ENCRAFT.
8	Anti-Termite Treatment	PCI / Godrej /Hi-Care
9	PAINTS	ASIAN, NEROLAC, BIRLA, BERGER,DULUX.
10	HYSD / MILD Steel (TMT)	SAIL / TATA / VIZAG.
11	SAND	LOCAL RIVER SAND.
12	TEXTURE PAINT	ASIAN, NEROLAC, BIRLA, BERGER.
13	GROUTS & EPOXY	LATECRETE EPOXY, BOSTIK EPOXY,DR FIXIT.
14	WATER PROOFING	FOSROC,LATICRATE,PIDILITE DR FIXIT, BOSTIK.
15	EXTERNAL PUTTY	BIRLA, ASIAN.
16	SINKS	NIRALI, ROCA, JAQUAR, KEROVIT, DURAVIT..

17	VITRIFIED TILES	JOHNSON, KAJARIA, RAK.
18	VITRIFIED TILES FOR TOILETS (WALLS GLAZED AND FLOOR ANTI SKID)	JOHNSON, KAJARIA, RAK.
19	PLANK TILES	SOMANY,JOHNSON, KAJARIA, RAK.
20	M.S STEEL TUBULAR HOLLOW SECTIONS SOILD SECTIONS, GATE,FLATS.	JINDAL/SAIL / TATA / VIZAG.
21	CURTAIN WALL GLAZING ALUMINIUM SECTIONS	JINDAL, NALCO, BALCO, HINDALCO, NALCO, INDAL
22	GLASS FOR CURTAIN GALZING, STRUCTURAL GLAZING, CANOPY, GLASS RAILING AND WINDOWS	SAINT GOBIN,ASHI FLOAT,MODI GUARD.
23	ACP CLADDING	EURO BOND, AULCOBOND, SUMANGALAM
24	All Types of Silicon	Dow Corning / GE / Wacker India
25	EPDM	Amee Rubber Industries / Okaska / Bohra Rubber
26	Floor Springs / Door Closures / Panic Bar / Patch Fittings	Dorma / Geze / Hafele
27	SS Door Hardware	Dorma / Geze / Hafele / Hettich
28	Fire Resistant Metal Door Frame & Shutters	Ardor / Signature Sukriti / Promat / Kutty / Signum / Kenwood / Shreeji / Tufwood / Navair / Shaktimate Horman / Iclean /Sukri/Anand/Century
29	Fire Rated Glass	Saint Gobain / Asahi / Guardian / Modi
30	Hardware For Fire Rated Doors	Dorma / Geze / Assa Abloy
31	Laminates	Greenlam / Century/ Merino
32	Marine Plywood	Century / Greenply /Archidply
33	SS RAILING	JINDAL, DORMA (UVO), KICH.
34	TOILET DOORS	CENTURY PLY, GREENPLY, ALSTONE, JAMEX WPC,
35	SANITARY FIXTURES	JAQUAR, HINDWARE, PARRYWARE
36	CP FITTINGS	JAQUAR, HINDWARE, PARRYWARE
37	CPVC PIPES	ASTRAL, FLOWGUARD, ASHIRVAD, SUPREME
38	PVC PIPES	SUDHAKAR, CLIPSAL,PRINCE,FINOLEX
39	SWG PIPES	INDO or any other approved brand.
40	BOOSTER PUMP	KIRLOSKAR, CROMPTON, V-GUARD, SUGUNA, CRI
41	SPRINKLER, DRIP & ACCESSORIES	JAIN, EPC, NETAFIM
42	WATER METER	Capstan / Kaycee / Paramount / Dasmesh / Rockwin /kranti

43	POLYPROPYLENE PIPE & VALVES	JAIN, AQVASTAR, SAB, POONAM

12. LIST OF APPROVED MANUFACTURERS TO BE USED IN THE ELECTRICAL, CCTV AND FIRE FIGHTING WORKS SUBJECT TO THE APPROVAL OF SAMPLES BY THE CONSULTANT.

(ALL THE MATERIALS USED HAVE TO CONFIRM TO GREEN INTERIOR NORMS OF IGBC)

S.No	MATERIAL NAME	BRAND / MANUFACTURER
	Electrical Works	
1	ACB	Legrand / Schneider / ABB / L&T
2	MCCB/MCB	Legrand / Schneider / ABB / L&T / Indoasian
3	Indicators	C&S / Vaishnov / Technik / L&T
4	Busbars	Jindal / Hindelco
5	VAF meter	Elmeasure / Trinity / L&T / Schneider
6	KW meter	Elmeasure / Trinity / L&T / Schneider
7	MDM	Elmeasure / Trinity / L&T / Schneider
8	ELR	Kapco / Elmeasure / Provk device / Multispam
9	CT's	Kapco / Kalpa / Ampturn
10	Change Over Switches/ATS	Indoasian / COS / HPL / Socomec
11	UV release relay	Legrand / Schneider / ABB / Siemens
12	Auto/manual switch	Vaishnov / Sazler / L&T
13	AMF relay	Deepsea
14	Contactor	Legrand / Schneider / ABB / Siemens
15	Timer	Selec / L&T / Multispam
16	Line voltage monitor	Minilec / Selec / Multispam
17	Three phase relay	Minilec / Selec / Multispam
18	Surge protective device	Merson / Multispa
19	Push Buttons	C&S / Vaishnov / Technik / L&T
20	Terminals	Connectwell / Elmex
21	Hooter	Vaishnov / Allen
22	Wires	Polycab / KEI / Havell / Universal
23	Cables	Polycab / KEI / Havells / Universal
24	Glands	Comet Brass Products / Cosmos / Comet / Dowells
25	Cable trays/ Tees/ Bends/Crossmember	BEC / Elcon cable trays Pvt Ltd/Sharda cable trays Pvt Ltd
26	Hume Pipe	Indian Hume Pipe Approved Make
27	GI Pipes	TATA / Jindal
28	Distribution Boards	Legrand / Schneider / ABB / L&T
29	MCB/ELCB/RCBO	Legrand / Schneider / ABB / L&T

30	Industrial Sockets	Legrand / ABB / L&T
31	Telephone Cables	Delton / Finolex / Dlink / Commscope
32	Cat6 Cables	Delton / Finolex / Dlink / Commscope
33	Data Sockets/ Telephone Sockets	Schneider / Legrand / Dlink / Commscope
34	Modular type Switches, Sockets Outlets, Fan regulators, Front Plate, Mounting Plates, MS box	Schneider Livia / Legrand Lyncus / Crabtree / Havells coral / Northwest Nowa / Indoasian Elvira
35	Body Earthing/ Copper Earthing	Ashlok / Galaxy Earthing Electrodes Pvt . Ltd / Indelac.
36	GI/copper Strips	Ashlok / Galaxy Earthing Electrodes Pvt . Ltd / Indelac.
37	Lightning Protection system	Ashlok / Galaxy Earthing Electrodes Pvt . Ltd / Indelac.
38	PVC Pipe	Universal / VIP / BEC / Precision
39	Fire Extinguishers	Safex / Supreme / Excellent
40	Rubber Matts	Santosh Rubber Industry / Jyothi Rubber Udyog
41	Shock treatment chart	Jaincolab / Jlab
42	LED Lights	Crompton / Philips / Havells / Orient
43	Timer	L&T / ABB
44	IP66 Protection Boxes	Legrand / Hensel / Sintex
45	Port patch panel	Dlink / Commscope
46	LAN switch	Cisco / Aruba
47	Rack	Netrack
48	Exhaust fan	Usha / Maxx air / Crompton / Atomberg / Havells
49	Ceiling Fan	Usha / Maxx ai / Crompton / Atomberg / Havells
	CCTV Works	
50	Network Video Recorder	Vivotek-ND9542P / Honeywell- HN35320400NR
51	5 MP Bullet Network Camera	Vivotek-IB9387-HT-A / Honeywell- HN35WB5R3
52	5 MP PTZ Camera	Vivotek-SD9384-EHL / Honeywell- HN35WZ2R25
53	42" TFT LED Color, SMART Monitor	LG-LG-43UR7500PSC / Samsung- UA43DUE70BKLXL
54	HDPE pipe	Mangalam / Supreme
55	8TB HDD	Seagate
56	Port Switch	Cisco / Aruba
57	Port Jack Panel	Cisco / Aruba
58	Minumum 9U Switch rack	Netrack
59	1.5 meter Cat6 patch cord	Commscope / Dlink
	FIRE FIGHTING Works	
60	Monoblock/Centrifugal Pumps	Kirloskar Brothers
61	GI/MS Pipes	Jindal / TATA
62	Ball Valves	Zoloto / Saunders / Advance / Intervalve
63	Butterfly Valve	Zoloto / Saunders / Advance / Intervalve
64	Non return Valve	Zoloto / Saunders / Advance / Intervalve
65	Brass, gun metal & CI easy clean strainer/ Basket strainer	Zoloto / Intervalve / Sant
66	CI flanged sluice valve	Zoloto

67	Pressure relief valve	Newage
68	Sprinkler control valv	Tyco / Viking / Newage
69	Motorized butterfly valves	Honeywell
70	Automatic air release valve	Elims
71	Single headed hydrant valve	Newage / Winco / Minimax
72	Fire brigade inlet	Newage / Winco / Minimax
73	M.S. Hose cabinet	Local
74	Sprinklers	Tyco / Viking / HDFire / Newage
75	Pressure Gauges	Hguru
76	Pressure switches	Indfos
77	Wrapping	IWL
78	Fire Extinguishers	Ceasefire / Safex / Supreme / Excellent
79	Fire bucket stand	Excellent / Safex
80	Signages	Reputed
81	Triple Layer Polyethylene water storage tank	Sintex Industries Limited / Ashirwad
	FIRE ALARM Works	
83	Analogue addressable microprocessor Fire Alarm Panel	Agni / Ravel / simplex
84	3 in 1 (MCP, Hooter, Speaker	Agni / Ravel / simplex
85	2Core x 1.5 sq. mm Copper Cable	Varsha / Polycab / KEI / Havells

NOTE : In case the make or brand of any item, fitting, fixture, finish, equipment or material is not specifically mentioned in the tender documents, the Contractor shall propose makes of only premium, reputed, and ISI/ASTM/BS/EN certified brands, subject to prior approval of the SBI/ Architect. Under no circumstances shall substandard, unbranded, or locally fabricated items be used. The cost for such premium items shall be deemed included in the quoted contract price and no extra claim shall be entertained on this account. In case of discrepancies in specifications of any items within this document, the premium specification shall prevail.

The SBI/Architect has got every right to select any of the above Makes for the Project.

However the samples of every material including all fixing accessories shall be got approved by Architect before Execution.

13. LIST OF MANDATORY TESTS

MATERIALS	TEST	TEST PROCEDURE	MIN.QTY.	FREQUENCY
Chemical and physical properties of lime.		I.S.6932 (Part I) : 1973	5 M.T.	10 mt. Or par thereof.
SAND	a. Stilt Content	Field	20 Cum	20 cum or par thereof.
	b. Bulking	Field	20 Cum	50 Cum or par thereof
	c. Particle size distribution.	Field	40 Cum	Every 40 Cum or part, required in RCC work.
COARSE AGGREGATE	a. Particle size distribution b. Crushing value	Field	45 Cum	Every 45 cum or par thereof for RCC work. For rest of work as desired. b. Every 300 Cum
R.C.C.	1. Slump	Field		Once a day as desired.
	2. Cube strength		20 cum in slabs, beams and connected columns	Every 20 cum of a days concrete.
BRICKS	1. Water absorp-tion and Efflorescence		Designation 35	One test for each source of manufacture.
	2. Compressive Strength.		Designation 35	1,00,000 or par thereof. For larger quantities two tests for 1 lot of 1 lakh. One test for every additional 2 lakhs or par thereof.
TIMBER	Moisture Content		1 Cum	Every three cum or part.

MORTICE LOCKS	Testing of springs		50 Nos.	100 or part thereof.
STEEL	a. Tensile strength	IS - 1529	20 Tonne	Every 20 tonne or part.
	b. Bending strength	IS - 1529	20 Tonne	Every 20 tonne or part.

MATERIALS	**TEST**	**TEST PROCEDURE**	**MIN.QTY.**	**FREQUENCY**
WHITE GLAZED TILES	1. Water absorption	I.S.777	10000 Nos.	10000 or part
	2. Crazing	- do -	- do -	- do -
	3. Impact	- do -	- do -	- do -
FLUSH DOORS	1. End immersion	I.S.2202		
	2. Knife	I.S.4020	No.of shutters used	No.of shutters to be tested.
	3. Adhesion		22 - 65 66 - 100 101 - 180 181 - 300 301 - 500 501 - above	1 2 2 3 4 5
AL.DOORS AND WINDOWS TESTING	Thickness of anodic coating	IS - 5523		If the cost of the fittings exceeds Rs.20,000/-

Note: Minimum quantity give above is the quantity of work which warrants conduction of respective tests.

1. Cost of samples, testing and transport will be borne by the contractors only.

2. Any other materials shall also be got tested by contractors at his own cost as per the instructions of Architects/Employer from time to time.

3. Frequency stated above is minimum and the contractor may have to test materials with any other frequency, as instructed by Architect/Client, without any costs.

14. SAFETY CODE

SAFETY MEASURES AT SITE:

1. All personnel at site should be provided with Helmets and Safety Boots with some Identification Mark. Visitors also should be provided with Helmets. It should be ensured that these are used properly.

2. First Aid Box should be kept at site with all requisite materials.

3. No one should be allowed to inspect / work at a height without Safety Belt.

4. Suitable scaffolds should be provided for workmen for all Works that cannot safely be done from the ground, or from solid construction except such short period Work as can be done safely from ladders. When a ladder is used an extra Mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying materials as well as suitable footholds and handholds shall be provided on the ladder and the ladder shall be given an inclination not steeper than ¼ to 1 (¼ horizontal and 1 vertical).

5. Scaffolding or staging more than 3.5 meters above the ground or floors, swung or suspended from an overhead support or erected with stationary support shall have a guard rail properly attached, bolted, braced and otherwise secured at least 1 Meter high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such openings as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.

6. Working platforms, Gangways, and Stairways should be so constructed that they do not sag unduly or unequally, and if the height of the platform or the Gangway or the Stairway is more than 3-5 Meters above ground level or floor level they should be closely boarded, should have adequate width and should be suitably fenced, as described.

7. Every opening in the floor of a building or in a working platform be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be 1 Meter.

8. Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9 Meters in length while the width between side rails in rung ladder shall in no case be less than 30cms for ladder up to and including Meters in length. For longer ladders this width should be increased at least 6mm for each additional 30 cms. Uniform step spacing shall not exceed 30 cms.

9. Adequate precautions shall be taken to prevent danger from electrical equipments. For electrical online works gloves, rubber mats, and rubber shoes shall be used.

10. All trenches 1.2 Meters or more in depth shall at all times be supplied with at least one ladder for each 30 Meters length or fraction thereof. Ladder shall be extended from bottom of the trench to at least 1 Meter above the surface of the ground. The sides of the trenches, which are 1.5 Meters or more in depth shall be stepped back to give suitable slope, or securely held by timber bracing, so as to avoid the danger of sides

collapsing. The excavated materials shall not be placed within 1.5 Meters of the edge of the trench or half of the depth of the trench whichever is more cuttings shall be done from top to bottom. Under no circumstances undermining or under cutting shall be done.

11. Before any demolition work is commenced and also during the process of the work :-

a) All roads and open areas adjacent to the Work Site shall either be closed or suitably protected;

b) No electrical cable or apparatus which is liable to be a source of danger over a cable or apparatus used by the operator shall remain electrically charged.

c) All practical steps shall be taken to prevent danger to persons employed from risk or fire or explosion or flooding. No floor, roof or other part of the building shall be so overloaded with debris or materials as to render it unsafe.

d) All necessary personal safety equipment as considered adequate by the Site Engineer should be kept available for the use of the persons employed on the Site and maintained in a condition suitable for immediate use; and the Contractor should take adequate steps to ensure proper use of equipment by those concerned.

e) Workers employed on mixing Asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective goggles.

f) Those engaged in white washing and mixing or stacking of cement bags or any materials which is injurious to the eyes shall be provided with protective goggles.

g) Those engaged in welding works shall be provided with Welder’s protective eye shields.

h) Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.

i) When workers are employed in sewers and manholes, which are in use, the Contractor shall ensure that the manhole covers are opened and are ventilated at least for an hour before the workers are allowed to get into the manholes and the manholes so opened shall be cordoned off with suitable railing and provided with warning signals and boards to prevent accident to the Public.

12. Use of hoisting machines and tackle including their attachments, anchorage and support shall conform to the following standard or conditions:-

a) These shall be of good mechanical construction, sound material and adequate strength and free from patent defect and shall be kept in good repairs and in good working order.

b) Every rope used in hoisting or lowering materials or as a means of suspension shall be of durable quality and adequate strength, and free from patent defects.

c) Every crane driver or hoisting appliance operator shall be properly qualified and no person under the age of 21 years should be in-charge of any hoisting machine including any scaffold, winch or give signals to the operator.

d) In case of every hoisting machine and of every chain ring hook, shackle swivel and pulley block used in hoisting or lowering or as means of suspension the safe working load shall be ascertained by adequate means.

e) Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load. In case of hoisting machine having a variable safe working load, each safe working load of the conditions under which it is applicable shall be clearly indicated. No part of any machine or of any gear referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.

f) Motor, Gearing, Transmission, Electric wiring and other dangerous parts of hoisting appliances should be provided with efficient safeguards, hoisting appliances should be provided with such means as will reduce to the minimum the risk of accidental descent of the load, adequate precautions should be taken to reduce to the minimum the risk of any part of a suspended load becoming accidentally displaced.

g) When workers are employed on electrical installation, which are already energized, insulating mats, wearing apparel such as gloves, sleeves, and boots as may be necessary should be provided. The workers should not wear any rings, watches and carry keys or other materials, which are good conductors of electricity.

13. All scaffolds, ladders and other safety devices, mentioned or described herein shall be maintained in safe condition and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities shall be provided at or near places of work.

15. LABOUR LAWS AND RULES

The Site Engineer shall ensure that the contractor maintains relevant records and fulfils all conditions and requirements in accordance with

a. The payment of Wages Act

b. Employer's Liability Act

c. Workmen's Compensation Act

d. Contract Labour (Regulations & Abolition) Act 1970 and Central Rules 1971.

e. Apprentices Act 1961.

f. Any other Act or enactment relating thereto and rules framed thereunder from time to time.

The Site Engineer shall refrain from involving himself and the supervisors under him by comments/advice/attempts at mediation in any kind of labour dispute at site. His job is only to report to his superiors any happenings of the this sort in an objective manner.

EMPLOYER'S RESPONSIBILITY – CONTRACT LABOUR (REGULATIONS AND ABOLITION) ACT 1970 AND RULES 1971

With a view to ensuring that the provisions of the Act are not contravened, the Site Engineer should give particular attention to the following points and see that all the provisions of the Act are enforced:

1. Principal Employer (Banks) is registered as per the Act.

2. Contractor holds a licence under the Act from the Local Labour Commissioner for the appointment of Contract labour.

3. Required notice boards, registers and records as provided in section 29 of the Act are maintained by the contractor.

4. Payment of proper wages as per the rules are effected within the prescribed time limits by the contractor.

5. Prescribed facilities and amenities are provided by the contractor.

6. Proper efforts are made by the contractor to set right contravention of law, as soon as the notice pointing out the same is received from the Labour Enforcement Officer, and reports "on action taken" are sent to the Labour Enforcement officer at the earliest with copies to the Employer.

16. FORMAT OF GUARANTEE TO BE EXECUTED BY THE FIRM/CONTRACTOR IN RESPECT OF THE WORK OF PRE-CONSTRUCTION ANTI TERMITE TREATMENT

This agreement made this _____ day of _____ Two thousand _____ between _____ (Name of Bank) a body corporate constituted under the _____ (Name of the Act) Act 19 having its Head Office at _____ (herein after called 'The Employer') of the one part and _____ (Name of Firm/ Contractor) (Hereinafter called the Guarantor) of the other part.

WHEREAS THIS AGREEMENT is supplementary to a contract (hereinafter called the contract dated _____ and made between the Employer of the one part and the Guarantor of the other part) where by the Firm/Contractor inter alia understood to render the building/structure completely free from any infestation of termites. And whereas the Guarantors agreed to give guarantee to the effect that the said building/structure shall remain free from any infestation of termites for a minimum period of ten years from the date of completion of pre-construction anti termite treatment carried out as per the relevant I.S. code.

Now the Guarantor hereby agrees to make good all defects and render the building/ structure free from any infestation of termites, during this period of guarantee and to the satisfaction of the Employer. The guarantor also agrees to take up such rectification work at his own cost, and within one week from the date of issue of notice from the Employer, calling upon him to rectify the defects. The decision of the Employer as to the cost payable by the Guarantor will be final and binding, in case the guarantor fails to commence the work as per above notice and the work is got done through some other contractor. That if the Guarantor fails to execute the pre-construction anti-termite treatment of commits breach thereunder, then the Guarantor will

indemnify the principal and his successors against all loss, damage, costs, expenses or otherwise, which may be incurred by him by any reason of any default on the part of the guarantor in performance and observance of this agreement. As to the amount of loss and or damage and/or costs incurred by the Employer, the decision of the Employer will be final and binding.

In witness where of these presents have been executed by the obligation _____ and by _____ and for on behalf of the employed on the day, month and year first above written.

Signed and delivered by _____ (Bank) by the hands of Sri _____ in the presence of _____.

Signed, and delivered by the hand of _____ (Contractor) in the presence of _____.

Signed, and delivered by _____ (Bank) by the hands of Sri _____ in the presence of _____.

Signed and delivered by the hand of _____ (Contractor) in the presence of _____.

17. FORM OF GUARANTEE FOR WATERPROOFING

Name of the Project:

Free Maintenance Guarantee – Water proofing work

by _____

We _____ hereby guarantee that the surfaces treated by us for waterproofing in the above work, for M/s _____ the general building contractor for the above work, shall remain entirely water tight. Should, however, due to any unforeseen defect left out in the work carried out by us during the period of ten years from the date of virtual completion of the work i.e. from _____ to _____ the same shall be rectified by us without any extra cost to the _____ (name of the Bank).

However, we shall not be responsible in any way if our work is tamper with or if the body of the structure is damaged due to sinking, cracking and/or by any other act of God beyond our control.

_____

Signature of the
Waterproofing Contractor

_____

Signature of the General
Building Contractor

18. FORM OF BANK GUARANTEE

Place: …….
Date:……...

(On non-judicial stamp paper of Rs.500/-)
BANK GUARANTEE IN LIEU OF SECURITY DEPOSIT
B.G.No._____ Value Rs._____
State Bank of India,
(Address)

Sub: Bank Guarantee of Rs……towards Security Deposit for the work offer State Bank of India.

(Name of Branch/Office)

Dear Sir,

WHEREAS (Name and address of contractor/ vendor) (hereinafter called the Contractor) have entered into contract for (Name of Work) with State Bank of India (SBI) as mentioned in the letter of SBI's Consultants (Name & address of consultants) vide their letter No…….. dated …….and the correspondence and tender relating thereto which is hereinafter referred to as "the said contract" the Contractor has now agreed to produce a Bank Guarantee amounting to 2% of the contract value less earnest money deposit of Rs…….(Rupees only), to State Bank of India for performing their part of the contract obligations.

AND WHEREAS in terms of said contract, the contractor is required to furnish to State Bank of India a Guarantee of a Scheduled Bank for a value of Rs…… to be valid upto (date).

AND WHEREAS (Name of Bank and its branch) having their office at (address) the Guarantor, at the request of the contractor hereby furnishes a PBG in favour of State Bank of India and Guarantees in the manner hereinafter appearing.

In consideration of the premise, we (name of Bank and its branch) having our office at (address) here after called the "Guarantor" (which expression shall include its successors and assigns) here by expressly, irrevocably &unreservedly undertake and guarantee under that if the Contractor fails to execute the work according to his obligations under the said contract, then not withstanding any dispute between State Bank of India and the contractor the Guarantor shall, on demand without demur and without reference to the contractor pay to State Bank of India immediately any sum claimed by State Bank of India under the said contract up to a maximum amount of Rs._____ (Rupees only).

In case the amount demanded by State Bank of India is not paid within 48 hours of receipt of demand, he Guarantor agrees to pay the aforesaid amount of Rs. _____/- (Rupees _____only).

i) Such payment shall be notwithstanding any right the contractor may have directly against State Bank of India or any disputes raised by the Contractor with State Bank of India or any suits or proceedings pending in any competent court or before any arbitrator. State Bank of India's written demand shall be conclusive evidence to the Guarantor that such payment is payable under the terms of the Contract and shall be binding in all respect on the guarantor.

(ii) The Guarantor shall not be discharged or released from the the undertaking and Guarantee, by any arrangement, variations made between SBI and the Contractor and or indulgence shown to the contractor by SBI, with or without the consent and knowledge of the guarantor or by alterations in the obligations of the contractor by any forbearance, whether as to payment, time performance or otherwise.

(iii) This guarantee shall remain valid until or as may be caused to be extended by the contractor or until discharged by SBI in writing whichever is earlier.

(iv) This guarantee shall be a continuing guarantee and shall not be revocable during its currency except with the previous written consent of SBI.

(v) This guarantee shall not be affected by any change in the constitution of the contractor, by absorption with any other body or corporation or dissolution or otherwise and this guarantee will be available to or enforceable against such body or corporation.

(vi) In order to give effect to this guarantee SBI will be entitled to act as if the Guarantor were the Principal debtor and the Guarantor hereby waives all and any of its rights or surety ship.

(vii) This guarantee shall continue to be in force notwithstanding the discharge of the contractor by operation of law and shall cease only on payment of the full amount by the Guarantor to SBI of the amount hereby secured.

(viii) This guarantee shall be in addition to and not in substitution for any other guarantee or security for the contractor given or to be given to SBI in respect of the said contract.

(ix) Any notice by way of request and demand or otherwise here under may be sent by post or any other mode or communication to the guarantor addressed as aforesaid and if sent by post it shall be deemed to have been given at the time when it would be delivered in due course of post and in providing such notice when given by post it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of SBI that the envelope was so posted shall be conclusive.

(x) These presents shall be governed by and constructed in accordance with Indian Law.

Notwithstanding anything contained hereinbefore the liability of the guarantor under this guarantee is restricted to a sum of Rs._____.

This guarantee will remain valid upto _____unless a demand or claim under this guarantee is made in writing on or before _____ the guarantor shall be discharged from all liability under the guarantee thereafter.

Dated the ……

For (Name of Bank)
(Signature/s with designation/s of signatory/ies)
(Name and Stamp of Bank)

S No.	List of Drawings	Sheet No.
	ARCHITECTURE	
1	Site Plan	01
2	DGM Bungalow Floor Plans and Sectional Elevation	02
3	DGM Bungalow Elevation	03
4	Officers Quarters Stilt Plan	04
5	Officers Quarters Typical Floor Plan	05
6	Officers Quarters Terrace & OHT	06
7	Officers Quarters Elevation	07
8	Officers Quarters Section	08
	PLUMBING & SANITARY	
1	Officers Quarters External Plumbing Layout	01
2	Officers Quarters Stilt Plumbing Plan	02
3	Officers Quarters Typical Floor Plumbing Plan	03
4	Officers Quarters Terrace Rainwater Disposal	04
5	Officers Quarters Terrace Water Supply Distribution	05
6	DGM Bungalow Ground Floor Plumbing Plan	06
7	DGM Bungalow First Floor Plumbing Plan	07
8	DGM Bungalow Terrace Rainwater Disposal	08
9	DGM Bungalow Terrace Water Distribution	09
	STRUCTURAL	
	Officers Quarters	
1	Footing Layout, Schedule and Cross-Section	01
2	RC Wall Layout and Schedule-1	02
3	RC Wall Layout and Schedule-2	03
4	Plinth Beam Layout and Detail	04
5	Typical Floor Beam Layout	05
6	Typical Floor Beam Schedule-1	06
7	Typical Floor Beam Schedule-2	07
8	Typical Floor Beam Schedule-3 and Slab Detail.	08
9	Staircase -1 Detail Stilt to Terrace	09
10	Staircase -2 Detail Stilt to Terrace	10
11	Over Head Tank-1 Detail	11
12	Over Head Tank-2 Detail	12
	DGM Bungalow	
1	Column Centerline and Column Schedule	01
2	Footing Layout, Footing Schedule and Typical Isolated Footing	02
3	Plinth Beam Layout & Details	03
4	Ground Floor Staircase Detail	04
5	First Floor Staircase Detail	05
6	Ground Floor Roof Beam Layout & Beam Details	06

7	Ground Floor Roof Slab Schedule and Detail	07
8	First Floor Roof Beam Layout & Beam Details	08
9	First Floor Roof Slab Schedule and Detail	09
10	Terrace Roof Beam Layout and Detail	10
	ELECTRICAL	
	Officers Quarters	
1	Stilt Floor Lighting Plan	01
2	Typical Floor Lighting Plan	02
3	Terrace Lighting Plan	03
4	External Lighting Plan	04
5	Single Line Diagram	05
	DGM Bungalow	
6	Ground, First, Second and Terrace Floor Lighting Plan	06
	FIRE FIGHTING SYSTEM	
1	Stilt Floor Sprinkler and Fire Hydrant Plan	01
2	Typical Floor Fire Hydrant Plan	02
3	Terrace Floor Fire Hydrant Plan	03
4	Fire Hydrant Schematic	04
5	Fire Alarm Schematic	05