



**SBI INFRA MANAGEMENT SOLUTIONS PVT. LTD.**  
**(A Wholly Owned Subsidiary Of SBI)**

Local Head Office, 3rd floor, C-6, G-Block  
Synergy Building, Bandra- Kurla Complex, Bandra (East),  
Mumbai-400 051.

***PART – A: TECHNICAL BID***

***TENDER ID: MUM201906019***

**TENDER FOR PROPOSED FURNISHING WORKS FOR J.K. GRAM Branch at  
G-4, SMC, Khopat, Thane west - 400 601**

**TENDER SUBMITTED BY:**

NAME : \_\_\_\_\_  
ADDRESS : \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
GSTIN NO. : \_\_\_\_\_  
DATE : \_\_\_\_\_

**ARCHITECT**

**Rajvilas D. Gadkari**  
**Architects & Interior Designers**

**G-3, Rajdarshan -B, Dada Patil wadi, Thane (W), 400 602. Tel: 25231552,**  
Admn Off: 1B, JMD CHS Ltd, Opp. Allahabad Bank, V.N. Purav Marg, Chembur, Mumbai-71  
T/f: 2528 9963, M: 98210 49457, e mail: [rajvilasg@gmail.com](mailto:rajvilasg@gmail.com)



**NOTICE INVITING TENDERS**  
**TENDER ID: MUM201906019**

**TENDER FOR PROPOSED FURNISHING WORKS FOR J.K. GRAM Branch at G-4, SMC, Khopat, Thane west - 400 601**

SBIIMS on behalf of SBI invites "online item rate E-tender" for captioned work from the SBIIM's eligible empaneled contractors under appropriate category who receive NIT from the SBIIMS /Architects are only entitled to quote for this tender.

The details of tender are as under:

S.No.	Particulars	Details
1.	Name of work	TENDER FOR PROPOSED FURNISHING WORKS FOR J.K. GRAM Branch at G-4, SMC, Khopat, Thane west - 400 601
2.	Nature of Work	Interior works.
3.	Time allowed for completion	<b>60 Days.(2months)</b>
4.	Cost of Tender Documents (Processing Fee) non-refundable	<p><b>Rs.3,000/- (Rupees Three Thousand Only)</b></p> <p>This Non-Refundable amount to be paid only through <b>SB Collect Payment Portal</b> available in SBI's online Banking site i.e. <a href="https://www.onlinesbi.com">https://www.onlinesbi.com</a></p> <p>After successful payment, submit a print of the receipt carrying a Reference no. along with the tender application.</p> <p>For further details, refer <b>annexure- 'A'</b> enclosed.</p>
5.	Earnest Money Deposit	<b>Rs.24,000/- (Rupees Twenty Four Thousand Only)</b> by means of Demand Draft / Pay Order (Valid for a period of 90 Days from the last date of submission of the tender) from any scheduled Nationalized Bank drawn in favor of SBI Infra Management Solutions Pvt. Ltd. and payable in Mumbai.
6.	Initial Security Deposit	2% of contract amount including EMD
7.	Date of issue of tender documents	
	(a) <b>Technical Bid</b> (for eligible bidders who receive NIT & Tender documents from the Project Architect)	<b>22.06.2019 to 03.07.2019</b>
	(b) <b>Price Bid</b> (Only for bidders qualified in Technical bid)	From 04.06.2019 to 09.07.2019 at Service Provider M/s E-Procurement Tech Ltd. portal <a href="https://etender/SBI">https://etender/SBI</a>
8.	Last date & time for	<b>03.07.2019 by 3.00 PM</b>

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



	submission of Technical bid, EMD and cost of tender document	
9.	Address at which Technical bid (hard copy) along with EMD & Cost of tender document has to be submitted.	Vice President & Circle Head, SBI Infra Management Solutions Pvt. Ltd. SBI, Local Head Office, 3 <sup>rd</sup> floor, C-6, G-Block Synergy Building, Bandra- Kurla Complex, Bandra (East), Mumbai-400 051.
10.	Date & time for opening of Technical bid.	<b>03.07.2019 by 3.30 PM</b>
11.	Last date & time for submission of online price bid.	<b>09.07.2019 at 3.00 PM</b> At: - <a href="https://etender/SBI">https://etender/SBI</a>
12.	Date & time for opening of online price bid.	<b>09.07.2019 at 3.30 PM</b> At: - <a href="https://etender/SBI">https://etender/SBI</a>
13.	Place of opening tenders	Vice President & Circle Head, SBI Infra Management Solutions Pvt. Ltd. SBI, Local Head Office, 3 <sup>rd</sup> floor, C-6, G-Block Synergy Building, Bandra- Kurla Complex, Bandra (East), Mumbai-400 051.
14.	Liquidated Damages	0.50% of contract amount per weeks subject to max. 5% of contract value or final bill value.
15.	Defects liability period	12 Months from the date of Virtual Completion
16.	Validity of offer	90 days from the date of opening of Price-bid
17.	Value of Interim Certificate	<b>Rs. 5 lakhs.</b> No advance on materials / plant / machinery or mobilization advance shall be paid under any circumstances
18.	Price Bid	Price bid can be downloaded from - <a href="https://etender/SB">https://etender/SB</a> (By the qualified bidder in Technical bid)

16. It shall be responsibility of the contractor to arrange and ensure that all pages of technical and financial bid are properly bound separately. Tenders in loose pages may be disqualified.

17. The contractor shall sign and stamp each page of the tender document thereby ensuring the number and sequence of all pages.

18. No conditions other than mentioned in the tender will be considered, and if given they will have to be withdrawn before opening of the price-bid.

19. The SBIIMS reserve their rights to accept or reject any or all the tenders, either in whole or in part without assigning any reason(s) for doing so and no claim / correspondence shall be entertained in this regard.

20. Tenders received without EMD and Cost of Tender Documents shall be summarily rejected and such tenders shall not be allowed to participate in the online price bidding process.



21. 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.

**22. The bidding contractor shall possess valid A-class electrical license and should submit the same along with technical bid failing which their tender is liable for disqualification.**

23. SBIIMS has the right to accept / reject any / all tenders without assigning any reasons and no correspondence shall be entertained in this regard.

Yours Faithfully,

**M/s. Rajvilas D. Gadkari**  
Architect & Interior Designer



### **Annexure-A**

The steps involved in making the payment through SB Collect are as under:-

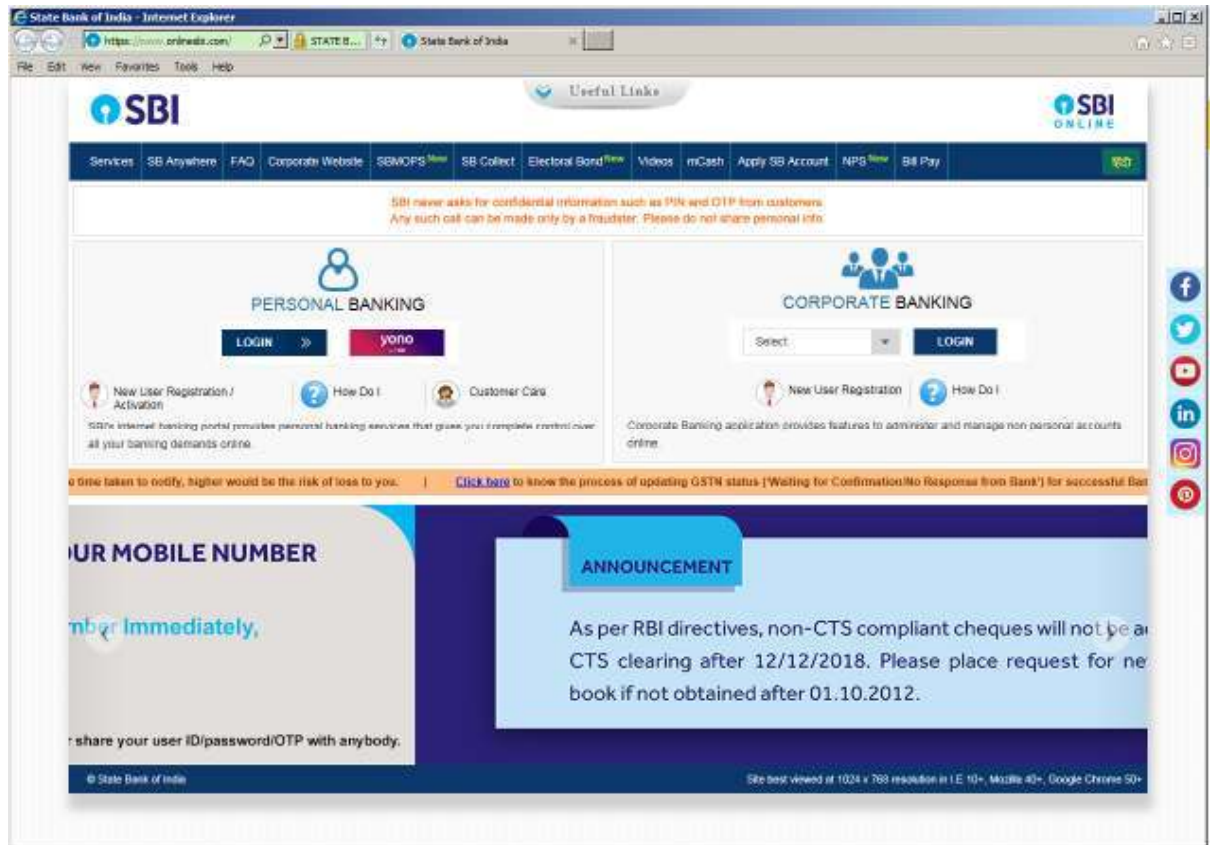
1. The Vendor needs to use SBI internet banking site <https://www.onlinesbi.com/>.
2. Select **"SB Collect"** from Top Menu, that will lead to the next page:
3. **"Proceed"** will lead to the next page:
4. Select **"All India"** in "State of Corporate / Institution" & Select **"Commercial Services"** in "Type of Corporate / Institution".
5. **"Go"** will lead to the next page:
6. Select **"SBI Infra Management Solutions"** in Commercial Services Name and **"Submit"**
7. Select **"Tender Application Fee"** in "Payment Category" and enter the **"Tender ID"** exactly as we preloaded with characters in Uppercase only in place of Circle Codes.
8. The next Page will be ready with few of the Preloaded Tender Details:
9. The Vendor will have to fill up the fields properly and upon making the payment a receipt will be generated with a Reference No.

**NOTE:** Any type of vendor, whether dealing with SBI or other bank can use this SB Collect facility. Even a contractor not dealing with any bank can use this portal and generate challan and deposit by cash in any SBI branch. The bank charges for cash deposit will be also borne by the vendor himself.



**Procedure for payment of Tender Fee through SB Collect payment portal:**

The portal link is available in SBI online banking site <https://www.onlinesbi.com/>.



Select **"SB Collect"** from Top Menu, that will lead to the next page:



State Bank Collect - Internet Explorer

https://www.onlinetds.com/StateBankCollect/STATEBANKCOLLECT/StateBankCollect.aspx

File Edit View Favorites Tools Help

SBI State Bank Collect

Products & Services Know More

STATE BANK COLLECT  
A MULTI-MODAL PAYMENT PORTAL

DISCLAIMER CLAUSE

Terms Used

- > Corporate Customer: Firm/Company/Institution (F/C/I) collecting payment from their beneficiaries.
- > User: The beneficiary making a payment to F/C/I for the services/goods availed.
- > Bank shall not be responsible, in any way, for the quality or merchantability of any product/merchandise or any of the services related thereto, whatsoever, offered to the User by the Corporate Customer. Any disputes regarding the same or delivery of the Service or otherwise will be settled between Corporate Customer and the User and Bank shall not be a party to any such dispute. Any request for refund by the User on any grounds whatsoever should be taken up directly with the Corporate Customer and the Bank will not be concerned with such a request.
- > Bank takes no responsibility in respect of the services provided and User shall not be entitled to make any claim against the Bank for deficiency in the services provided by the Corporate Customer.
- > The User shall not publish, display, upload or transmit any information prohibited under Rule 3(2) of the Information Technology (Intermediaries guidelines) Rules, 2011.
- > In case of non-compliance of the terms and conditions of usage by the User, the Bank has the right to immediately terminate the access or usage rights of the User to the computer resource of the Bank and remove the non-compliant information.

☒ I have read and accepted the terms and conditions stated above.  
(Click Check Box to proceed for payment.)

Proceed

© State Bank of India Privacy Statement Disclosure Terms of Use

“Proceed” will lead to the next page:



State Bank Collect - Internet Explorer

https://www.onlinesbi.com/collect/ STATE B... State Bank Collect

File Edit View Favorites Tools Help

SBI State Bank Collect

State Bank Collect - State Bank Mops

State Bank Collect - State Bank Collect

State Bank Collect 09-Jan-2019 [12:23 PM IST]

Select State and Type of Corporate / Institution

State of Corporate / Institution \* — Select State —

Type of Corporate / Institution \* — Select Type —

Go

Mandatory fields are marked with an asterisk (\*)

State Bank Collect is a unique service for paying online to educational institutions, temples, charities and/or any other corporates/institutions who maintain their accounts with the Bank.

© State Bank of India Privacy Statement Disclosure Terms of Use

Select **"All India"** in "State of Corporate / Institution " & Select **"Commercial Services"** in "Type of Corporate / Institution".

**"Go"** will lead to the next page:





Select **"SBI Infra Management Solutions"** in Commercial Services Name and **"Submit"**



The screenshot shows the State Bank Collect website interface. At the top, there is a navigation bar with the SBI logo and the text "State Bank Collect". Below this, there is a section for "State Bank Collect" and "State Bank Mops". The main content area displays the SBI logo and the text "SBI Infra Management Solutions Pvt Ltd" along with its address: "Ground Floor, Raheja Chambers, Free Press Journal Marg, Nariman Point, Mumbai-400021". Below this, there is a form titled "Provide details of payment". The form includes a dropdown menu for "Select Payment Category \*" with the option "-- Select Category --". Below the dropdown, there is a text input field for "Enter Tender ID \*" and a "Submit" button. A red box at the bottom of the form contains the following text: "Mandatory fields are marked with an asterisk (\*)", "The payment structure document if available will contain detailed instructions about the online payment process.", and "Date specified (if any) should be in the format of 'ddmmYYYY', Eg., 02082008". At the very bottom, there is a footer with the text "© State Bank of India" and links for "Privacy Statement", "Disclaimer", and "Terms of Use".

Select **“Tender Application Fee”** in “Payment Category” and enter the **“Tender ID”** exactly as we preloaded with characters in Uppercase only in place of Circle Codes.

The next Page will be ready with few of the Preloaded Tender Details:



State Bank Collect - Internet Explorer

https://www.onlinesbi.com/portal/ Identified... State Bank Collect


File Edit View Favorites Tools Help

**SBI** State Bank Collect

State Bank Collect - State Bank Mops

State Bank Collect State Bank Collect

State Bank Collect 09-Jan-2019 [12:35 PM IST]

 **SBI Infra Management Solutions Pvt Ltd**  
Ground Floor, Raheja Chambers, Free Press Journal Marg, Nariman Point, Mumbai-400021

Provide details of payment.

Select Payment Category \* TENDER APPLICATION FEE ☒

Tender ID \* MUM2019010005

Tender Name Corp DS

Open Date 06-01-2019

End Date 12-01-2019

Amount in Rupees \* 10000

Vendor Email ID

Vendor GST No \*

Vendor Mobile No \*

Vendor Name \*

Remarks

Please enter your Name, Date of Birth (For Personal Banking) / Incorporation (For Corporate Banking) & Mobile Number.  
This is required to reprint your e-receipt / remittance(PAP) form, if the need arises.

Name \*

Date Of Birth / Incorporation \*

Mobile Number \*

Enter the text as shown in the image \*  39E10

• Mandatory fields are marked with an asterisk (\*)  
• The payment structure document if available will contain detailed instructions about the online payment process.  
• Date specified(if any) should be in the format of 'ddmmyyyy'. Eg. 02082008.

© State Bank of India Privacy Statement Disclosure Terms of Use

The Vendor will have to fill up the fields properly and upon making the payment a receipt will be generated with a Reference No. Submit the printout of the Receipt, along with the Tender Application.

**LETTER OF UNDERTAKING**

**Vice President & Circle Head,**  
SBI Infra Management Solutions Pvt. Ltd.  
SBI, Local Head Office, 3<sup>rd</sup> floor, C-6, G-Block  
Synergy Building,  
Bandra- Kurla Complex, Bandra (East),  
Mumbai-400 051.

Dear Sir,

Having examined the drawings, specification, design and schedule of quantities relating to the works specified in the memorandum hereinafter set out and having visited and examined the site of the works specified in the said memorandum and having acquired the requisite information relating thereto as affecting the tender, I/We hereby offer to execute the works specified in the said memorandum at the rates mentioned in the attached Schedule of Quantities and in accordance in all respects with the specifications, design, drawings and instructions in writing referred to in conditions of tender, the Articles of Agreement, Special Conditions, Schedule of Quantities and Conditions of Contract and with such materials as are provided for by, and in all other respects in accordance with such conditions so far as they may be applicable.

**MEMORANDUM**

(a)	Description of work	TENDER FOR PROPOSED FURNISHING WORKS FOR J.K. GRAM Branch at G-4, SMC, Khopat, Thane west - 400 601
(b)	Earnest Money	<b>Rs. 24,000/- (Rupees Twenty Four Thousand only)</b> by means of Demand Draft / Pay Order (Valid for a period of 90 Days from the last date of submission of the tender) from any scheduled Nationalized Bank drawn in favour of SBI Infra Management Solutions Pvt. Ltd. and payable in Mumbai.
(c)	Time allowed for completion of the Works from Seven day after the date of written Order or date of handing over of the site (Whichever is later) to commence the work	<b>60 Days.(2months)</b>

- 1) Should this tender be accepted, I/we hereby agree to abide by and fulfill the terms and provisions of the said conditions of contract annexed hereto so far as may be applicable or in default thereof to forfeit and pay to SBIIM, the amount mentioned in the said contract.
- 2) I / We have deposited a sum of **Rs. 24,000/- (Rupees Twenty Four only)** of the total tender amount as Earnest Money with the SBI Infra Management Solutions Pvt. Ltd. on behalf of SBI which amount is not to bear any interest. Should I / We fail to execute the Contract when called upon to do so I / We do hereby agree that this sum shall be forfeited by me/us to SBI Infra Management Solutions Pvt. Ltd. on behalf of SBI,

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



- 3) I/ We have read and understood various clauses of this tender and hereby submit our specific undertaking and concurrence in terms clause 6.2 of "Instruction to tenderer" to deposit Additional **Security Deposit (ASD)** of required amount as provided for in this tender and within the stipulated period, in case, my/our tender is found too low (i.e. beyond 10% of the estimated cost), as a performance guarantee for due fulfilment of our contractual obligation for the project.

Further, under any circumstances, whatsoever, if I/We fail to comply the same including compliance of any such other conditions of tender within the stipulated time. I /We hereby, authorized SBIIMS to cancel my/Our tender, to forfeit my EMD/ISD/ASD and to take further necessary action as deemed fit including debarring our firm from participating in SBIIMS future tenders/de-paneling etc.

- 4) I/ We understand that as per terms of this tender, the SBIIMS may consider accepting our tender in part or whole or may entrust the various work proposed in phases. We, therefore, undertake that we shall not raise any claim/ compensation in the eventuality of Bank/SBIIMS deciding to drop any of the work from the scope of work of this tender at any stage during the contract period. Further, we also undertake to execute the work entrusted to us in phases on our approved rates and within stipulated time limit without any extra claim for price escalation as also provided for in the clause 11.1.6 "Instructions to Tenderers" of this tender.
- 5) I/ We, hereby, also undertake that, we will not raise any claim for any escalation in the prices of any of the material during the currency of contract/execution/completion period including authorized extended contract period, if any.

- 6) Our Bankers are:

i)

ii)

The names of partners of our firm are:

i)

ii)

Name of the partner of the firm

Authorised to sign

Or

(Name of person having Power of Attorney to sign the Contract.

(Certified true copy of the Power of Attorney should be attached)

Yours faithfully,

Signature of Contractors.

Signature and addresses of Witnesses

i)

ii)



## **SAMPLE BUISNESS RULE DOCUMENT**

### **ONLINE E-TENDERING FOR TENDER FOR PROPOSED FURNISHING WORKS FOR J.K. GRAM Branch at G-4, SMC, Khopat, Thane west - 400 601**

#### **(A) Business rules for E-tendering:**

1. Only empaneled contractors with SBIIMS under appropriate category who are invited by the project Architect/SBIIMS shall only be eligible to participate.
2. SBIIMS PVT.LTD. will engage the services of an E-tendering service provider who will provide necessary training and assistance before commencement of online bidding on Internet.
3. In case of e-tendering, SBIIMS will inform the vendor in writing, the details of service provider to enable them to contact and get trained.
4. Business rules like event date, closing and opening time etc. also will be communicated through service provider for compliance.
5. Contractors have to send by email, the compliance form in the prescribed format (provided by service provider), before start of E-tendering. Without this the vendor will not be eligible to participate in the event.
6. The Contractors will be required to submit the various documents in sealed Envelope to the office of SBI Infra Solutions Pvt Ltd.at the address mentioned hereinbefore by the stipulated date i.e. (1) Hard Copy of Technical Bid duly signed and stamped on each page (2) Demand Draft of specified amount of EMD (3) Copy of Receipt/Challan of Cost of Tender documents. Contractors not submitting any one or more documents shall not be eligible to participate in the on-line price bidding.
7. E-tendering will be conducted on schedule date & time.
8. **The e-tendering will be treated as closed only when the bidding process gets closed in all respects for the item listed in the tender.**

#### **(B) Terms & conditions of E-tendering:**

SBIIMS shall finalize the Tender through e-tendering mode for which M/s. E- Procurement Technologies Ltd (Auction Tiger). has been engaged by SBIIMS an authorized service provider. Please go through the guidelines given below and submit your acceptance to the same along with your Commercial Bid.

1. E-tendering shall be conducted by SBIIMS through **M/s. E- Procurement Technologies Ltd (Auction Tiger).**, on pre-specified date. While the Contractors shall be quoting from their own offices/ place of their choice, Internet connectivity and other paraphernalia requirements shall have to be ensured by Contractors themselves. In the event of failure of their Internet connectivity, (due to any reason whatsoever it may be) it is the bidders' responsibility. In order to ward-off such



contingent situation bidders are requested to make all the necessary arrangements/ alternatives such as back-up power supply whatever required so that they are able to circumvent such situation and still be able to participate in the E-tendering successfully. Failure of power at the premises of Contractors during the E-tendering cannot be the cause for not participating in the E-tendering. On account of this the time for the E-tendering cannot be extended and SBIIMS is not responsible for such eventualities.

2. **M/s. E- Procurement Technologies Ltd (Auction Tiger).**, shall arrange to train your nominated person(s), without any cost to you. They shall also explain you all the Rules related to the E-tendering. You are required to give your compliance on it before start of bid process.
3. **BIDDING CURRENCY AND UNIT OF MEASUREMENT:** Bidding will be conducted in Indian currency & Unit of Measurement will be displayed in Online E-tendering.
4. **BID PRICE:** The Bidder has to quote the rate as per the Tender Document provided by SBIIMS their appointed Architects.
5. **VALIDITY OF BIDS:** The Bid price shall be firm for a period specified in the tender document and shall not be subjected to any change whatsoever.
6. Procedure of E-tendering:

i. **Online E-tendering:**

- (a) The NIT & Technical bid available with the project architect.
  - (b) Online e-tendering is open to the empaneled bidders who receive NIT from the Architect and qualified for participating in the price bidding as provisions mentioned hereinabove through SBIIMS approved Service Provider.
  - (c) The Price-Bid shall be made available online by the Service Provider wherein the contractors will be required to fill-in their Item-wise rates for each item.
  - (d) The Contractors are advised not to wait till the last minute to submit their online item-wise quote in the price bid to avoid complications related with internet connectivity, network problems, system crash down, power failure, etc.
  - (e) It is mandatory to all the bidders participating in the price bid to quote their rates for each and every item.
  - (f) In case, contractor fails to quote their rates for any one or more tender items, their tender shall be treated as **"Incomplete Tender"** and shall be liable for rejection.
7. **LOG IN NAME & PASSWORD:** Each Bidder is assigned a Unique User Name & Password by M/s. E- Procurement Technologies Ltd (Auction Tiger). The Bidders are requested to change the Password after the receipt of initial Password from **M/s. E- Procurement Technologies Ltd (Auction Tiger)**. All bids made from the Login ID given to the bidder will be deemed to have been made by the bidder.
  8. **BIDS PLACED BY BIDDER:** Bids will be taken as an offer to execute the work as specified. Bids once made, cannot be cancelled / withdrawn and the Bidder shall be bound to execute the work at the quoted bid price. In case the L-1 Bidder backs



out or fail to complete the work as per the rates quoted, SBIIMS shall at liberty to take action as deemed necessary including de-paneling such contractors and forfeiting their EMD.

9. At the end of the E-tendering, SBIIMS will decide upon the winner. SBIIMS decision on award of Contract shall be final and binding on all the Bidders.
10. SBIIMS shall be at liberty to cancel the E-tendering process / tender at any time, before ordering, without assigning any reason.
11. SBIIMS shall not have any liability to bidders for any interruption or delay in access to the site irrespective of the cause.
12. Other terms and conditions shall be as per your techno-commercial offers and other correspondences till date.

13. OTHER TERMS & CONDITIONS:

- The Bidder shall not involve himself or any of his representatives in Price manipulation of any kind directly or indirectly by communicating with other suppliers / bidders.
- The Bidder shall not divulge either his Bids or any other exclusive details of SBIIMS to any other party.
- SBIIMS decision on award of Contract shall be final and binding on all the Bidders.
- SBIIMS reserve their rights to extend, reschedule or cancel any E-tendering within its sole discretion.
- SBIIMS or its authorized service provider **M/s. E- Procurement Technologies Ltd (Auction Tiger)** shall not have any liability to Bidders for any interruption or delay in access to the site irrespective of the cause.
- SBIIMS or its authorized service provider/s. **M/s E- Procurement Technologies Ltd (Auction Tiger)** is not responsible for any damages, including damages that result from, but are not limited to negligence.
- SBIIMS or its authorized service **M/s. E- Procurement Technologies Ltd (Auction Tiger)** will not be held responsible for consequential damages, including but not limited to systems problems, inability to use the system, loss of electronic information etc.

N.B.

- All the Bidders are required to submit the Process Compliance Statement (Annexure II) duly signed to M/s. E- Procurement Technologies Ltd (Auction Tiger).
- **All the bidders are requested to ensure that they have a valid digital signature certificate well in advance to participate in the online event.**





**PROCESS COMPLIANCE STATEMENT (ANNEXURE II)**

*(The bidders are required to print this on their company's letter head and sign, stamp before emailing)*

To,  
**E-Procurement Technologies Ltd. (AuctionTiger)**  
B-704 Wall Street - II,  
Opp. Orient Club,  
Nr. Gujarat College, Ahmedabad - 380 006.  
Gujarat State, India  
Primary Contact Numbers:- M:- **9081000427, 9904407997**

**AGREEMENT TO THE PROCESS RELATED TERMS AND CONDITIONS FOR THE ONLINE E-TENDERING FOR PROPOSED FURNISHING WORKS FOR J.K. GRAM Branch at G-4, SMC, Khopat, Thane west - 400 601**

Dear Sir,

This has reference to the Terms & Conditions for the E-tendering mentioned in the Tender document

This letter is to confirm that:

- 1) The undersigned is authorized representative of the company.
- 2) We have studied the Commercial Terms and the Business rules governing the E-tendering as mentioned in RFP of Biomass well as this document and confirm our agreement to them.
- 3) We also confirm that we have taken the training on the E-tendering tool and have understood the functionality of the same thoroughly.
- 4) We confirm that Swimland M/s. e-Procurement Technologies Ltd, Ahmedabad (ETL) shall not be liable & responsible in any manner whatsoever for my/our failure to access & bid on the E-tendering platform due to loss of internet connectivity, electricity failure, virus attack, problems with the PC, any other unforeseen circumstances etc. before or during the E-tendering event.
- 5) We confirm that we have a valid digital signature certificate issued by a valid Certifying Authority.
- 6) We also confirm that we will mail the price confirmation & break up of our quoted price as per Annexure III & Annexure IV within 24 hour of the completion of the e-bidding and the format as requested by SBI/ETL.
- 7) We, hereby confirm that we will honor the Bids placed by us during the E-tendering process.

With regards,

Date:

Signature with company seal

Name:

Company / Organization:

Designation within Company / Organization:

Address of Company / Organization:

Scan it and send to this Document on [sujith@eptl.in](mailto:sujith@eptl.in)

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



**Price Confirmation Letter (Annexure III)**

(The bidders are required to print this on their company's letter head and sign, stamp before emailing)

To,  
**E-Procurement Technologies Ltd. (AuctionTiger)**  
B-704 Wall Street - II,  
Opp. Orient Club,  
Nr. Gujarat College, Ahmedabad - 380 006.  
Gujarat State, India  
Primary Contact Numbers:- M:- **9081000427, 9904407997**

**FINAL PRICE QUOTED DURING TENDER FOR PROPOSED FURNISHING WORKS  
FOR J.K. GRAM Branch at G-4, SMC, Khopat, Thane west - 400 601**

Reverse Auction Date:

Dear Sir,

We confirm that we have quoted.

-----

Thanking you and looking forward to the valuable order from SBI.

Yours sincerely,

For \_\_\_\_\_

Name:

Company:

Date:

Seal:

**Scan it and send to this Document on [sujith@eptl.in](mailto:sujith@eptl.in)**



**(F) Price break up (Annexure IV)**

**Price Break up**

**As per tender document**

**(A) Contact Information**

E-Procurement Technologies Ltd.	State Bank of India
<p>B-704, Wall Street - II, Opp. Orient Club, Nr. Gujarat College, Ahmedabad - 380 006. Gujarat State, India</p> <p>Tel.: +91 79 61200 579   580   567   569   566</p> <p>Mr.Samjad Khan E-mail : samjad@auctiontiger.net Contact No : 9879996111 / 9265871720</p>	<p>The VICE PRESENT &amp; CIRCLE HEAD, SBI Infra Management Solutions Pvt. Ltd, <b><u>CIRCLE OFFICE, THIRD FLOOR, STATE BANK OF INDIA, SYNERGY BUILDING, C-6, G-BLOCK, BANDRA KURLA COMPLEX, BANDRA EAST, MUMBAI-400051</u></b></p> <p>Officer Name : Kannan.r Department : Manager (Civil) Contact No : 7875559024 E-mail : Kannan.rama@sbi.co.in</p>



(The bidders are required to print this on their company's letter head and sign, stamp before emailing)

To,  
**E-Procurement Technologies Ltd. (AuctionTiger)**  
B-704 Wall Street - II,  
Opp. Orient Club,  
Nr. Gujarat College, Ahmedabad - 380 006.  
Gujarat State, India  
Primary Contact Numbers:- M:- **9081000427, 9904407997**

**AGREEMENT TO THE PROCESS RELATED TERMS AND CONDITIONS FOR THE ONLINE E-TENDERING FOR TENDER FOR PROPOSED FURNISHING WORKS FOR J.K. GRAM Branch at G-4, SMC, Khopat, Thane west - 400 601**

Dear Sir,

This has reference to the Terms & Conditions for the E-tendering mentioned in the Tender document

This letter is to confirm that:

- 8) The undersigned is authorized representative of the company.
- 9) We have studied the Commercial Terms and the Business rules governing the E-tendering as mentioned in RFP of Biomass well as this document and confirm our agreement to them.
- 10) We also confirm that we have taken the training on the E-tendering tool and have understood the functionality of the same thoroughly.
- 11) We confirm that Swimland **M/s. E- Procurement Technologies Ltd (Auction Tiger)**, shall not be liable & responsible in any manner whatsoever for my/our failure to access & bid on the E-tendering platform due to loss of internet connectivity, electricity failure, virus attack, problems with the PC, any other unforeseen circumstances etc. before or during the E-tendering event.
- 12) We confirm that we have a valid digital signature certificate issued by a valid Certifying Authority.
- 13) We, hereby confirm that we will honor the Bids placed by us during the E-tendering process.

With regards,

Date:

Signature with company seal

Name:

Company / Organization:

Designation within Company / Organization:

Address of Company / Organization:

Scan it and send to this Document on -----



## **ARTICLES OF AGREEMENT**

(On non-judicial Stamp Paper of Rs. 500/- or as per latest Govt. Rules)

ARTICLES OF AGREEMENT made the \_\_\_\_\_ date of \_\_\_\_\_ between SBIIMS PVT.LTD., on behalf of SBI, having its office at Mumbai hereinafter called "the Service Provider" of the One Part and

WHEREAS the SBIIMS PVT.LTD. is desirous of

\_\_\_\_\_ and has caused specifications describing the work to be done to be prepared by SBIIMS.

AND WHEREAS the said Drawings numbered \_\_\_\_\_ to \_\_\_\_\_ inclusive, the Specifications and the Schedule of Quantities have been signed by or on behalf of the parties hereto.

AND WHEREAS the Contractor has agreed to execute upon and subject to the Conditions set forth herein and to the Conditions set forth herein in the Special Conditions and in the Schedule of Quantities and Conditions of Contract (all of which are collectively hereinafter referred to as "the said conditions") the works shown upon the said Drawings and / or described in the said Specifications and included in the Schedule of Quantities at the respective rates therein set forth amounting to the sum as therein arrived at or such other sum as shall become payable there under (hereinafter referred to as "the said Contract Amount.")

NOW IT IS HEREBY AGREED AS FOLLOWS:

- 1) In consideration of the said Contract Amount to be paid at the times and in the manner set forth in the said Conditions, the Contractor 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 priced Schedule of Quantities.
- 2) The Employer shall pay to the Contractor the said Contract 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 Architects" in the said Conditions shall mean the SBIIMS, or in the event of their ceasing to be the Architects 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 Architects under this Contract shall be entitled



to disregard or overrule any previous decisions or approval or direction given or expressed in writing by the outgoing Architects 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, Agreements 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 a contract to carry out the work in respect of the entire building complex 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 Contractor shall afford every reasonable facility for the carrying out of all works relating to civil works, installation of lifts, Telephone, electrical installations, fittings air-conditioning and other ancillary works in the manner laid down in the said Conditions, and shall make good any damages done to walls, floors, etc. after the completion of his work.
- 8) The SBIIMS reserves to itself the right of altering the drawings and nature of the work by adding to or omitting any items of work or having portions of the same carried out without prejudice to this Contract.
- 9) 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 14<sup>th</sup> day after the date of issue of formal work order as provided for in the said Conditions whichever is later and to complete the entire work within 60 **days (2 months)** subject to nevertheless the provisions for extension of time.
- 10) All payments by the SBI under this Contract will be made only at Mumbai.
- 11) All disputes arising out of or in any way connected with this Agreement shall be deemed to have arisen at Mumbai and only the Courts in Mumbai shall have jurisdiction to determine the same.
- 12) That the several parts of this Contract have been read by the Contractor and fully understood by the Contractor.

IN WITNESS WHEREOF THE SBIIMS and the Contractor have set their respective hands to these presents and two duplicates hereof the day and year first hereinabove written.

#### SIGNATURE CLAUSE

SIGNED AND DELIVERED by the  
M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



\_\_\_\_\_ By the  
(Employer)

hand of Shri \_\_\_\_\_  
(Name and Designation)

(Signature of Employer)

In the presence of:

1) Shri / Smt. \_\_\_\_\_

(Signature of Witness)

Address \_\_\_\_\_

\_\_\_\_\_  
(Witness)

SIGNED AND DELIVERED by the

\_\_\_\_\_ by the  
(Contractor)

(Signature of Contractors)

In the presence of:

Shri / Smt. \_\_\_\_\_

(Signature of Witness)

Address \_\_\_\_\_

\_\_\_\_\_  
(Witness)



## **SECTION – 1**

### **INSTRUCTIONS TO THE TENDERERS**

#### **1.0 Scope of work**

Sealed Tenders are invited by M/s. Parelkar Ovalekar Parpia, Mumbai for and on behalf of SBI/MS, for and behalf of SBI / SBI/MSPL for the **TENDER FOR PROPOSED FURNISHING WORKS FOR J.K. GRAM Branch at G-4, SMC, Khopat, Thane west - 400 601** for State Bank of India.

#### **1.1 Site and its location**

The proposed work is to be carried out at **Ground floor, G-4, SMC, Khopat, Thane west - 400 601** for State Bank of India.

#### **2.0 Tender documents**

- 2.1 The work has to be carried out strictly according to the conditions stipulated in the tender consisting of the following documents and the most workmen like manner.

##### **Instructions to tenderers**

##### **General conditions of Contract**

##### **Special conditions of Contract**

##### **Additional specifications**

##### **Drawings**

##### **Priced bid A**

- 2.2 The above documents shall be taken as complementary and mutually explanatory of one another but in case of ambiguities or discrepancies, shall take precedence in the order given below;

- a) Price Bid
- b) Additional Specifications
- c) Technical specifications
- d) Drawings
- e) Special conditions of contract
- f) General conditions of contract
- g) Instructions to Tenderers

- 2.3 Complete set of tender documents including related drawings will be provided by the Project Architect.





2.4 The tender documents are not transferable.

### 3.0 **Site Visit**

3.1 The tenderer must obtain himself on his own responsibility and his own expenses all information and data that may be required for the purpose of filling this tender document and enter into a contract for the satisfactory performance of the work. The tenderer is requested satisfy himself regarding the availability of water, power, transport and communication facilities, the character quality and quantity of the materials, labour, the law and order situation, climatic conditions local authorities requirement, traffic regulations etc.

The tenderer will be fully responsible for considering the financial effect of any or all the factors while submitting his tender.

### 4.0 **Earnest Money**

4.1 The tenderers are requested to submit the Earnest Money of **Rs. 24,000/- (Rupees Twenty Four Thousand only)** by means of Demand Draft / Pay Order (Valid for a period of 90 Days from the last date of submission of the tender) from any scheduled Nationalized Bank drawn in favour of SBI Infra Management Solutions Pvt. Ltd. and payable in Mumbai.

4.2 EMD in any other form other than as specified above will not be accepted. Tender not accompanied by the EMD in accordance with clause 4.1 above shall be rejected.

4.3 No interest will be paid on the EMD.

4.4 EMD of unsuccessful tenderer will be refunded within 30 days of award of Contract.

4.5 EMD of successful tenderer will be retained as a part of security deposit.

### 5.0 **Initial/ Security Deposit**

The successful tenderer will have to submit a sum equivalent to 2% of accepted tender value less EMD by means of DD drawn in favour of SBIIMS within a period of 15 days of acceptance of tender.

### 6.0 **Security Deposit**

6.1 Total security deposit shall be 5% of contract value. Out of this 2% of contract value is in the form of Initial Security Deposit (ISD) which includes the EMD. Balance 3% shall be deducted from the running account bill of the work at the rate of 10% of the respective running account bill i.e., deduction from each running bill account will be @10% till Total Security Deposit (TSD) including ISD reaches to 5% of contract value. The 50% of the Total Security Deposit shall be paid to the contract on the basis of Architect's certifying the virtual completion. The balance 50% would be paid to the contractors after the defects liability period as specified in the contract.

### 6.2 **Additional Security Deposit**



In case L-1 bidder quotes abnormally low rates (i.e. 10% or more, below estimated project cost), the bank may ask such bidder to deposit additional security deposit (ASD) equivalent to difference of estimated cost vis-à-vis L-1 quoted amount for due fulfillment of contract. Such ASD could be in the form of FDR / Bank's guarantee in the Bank's name as per format approved by the Bank. On successful completion of work ASD will be returned to the contractor. In case contractor fails to complete the work in time or as per tender specification or leave the job incomplete, the bank will be at liberty to recover the dues from ASD or to forfeit such ASD as the case may be within its sole discretion.

6.3 No interest shall be paid to the amount retained by the Bank as Security Deposit.

**7.0 Signing of contract Documents**

The successful tenderer shall be bound to implement the contract by signing an agreement and conditions of contract attached herewith within 30 days from the receipt of intimation of acceptance of the tender by the Bank. However, the written acceptance of the tenders by the Bank will constitute a binding agreement between the Bank and successful tenderer whether such formal agreement is subsequently entered into or not.

**8.0 Completion Period**

Time is essence of the contract. The work should be completed in all respect accordance with the terms of contract within a period of 60 **days** from the date of award of work.

**9.0 Validity of tender**

Tenders shall remain valid and open for acceptance for a period of 90 days from the date of opening price bid. If the tenderer withdraws his/her offer during the value period or makes modifications in his/her original offer which are not acceptable to Bank without prejudice to any other right or remedy the Bank shall be at liberty forfeit the EMD.

**10.0 Liquidated Damages**

The liquidated damages shall be 0.50% per week subject to a maximum of 5% of contract value.

**11.0 Rate and prices:**

**11.1 In case of item rate tender**

11.1.1 The tenderers shall quote their rates for individual items both in words and figure. In case of discrepancy between the rate quoted in words and figures, the unit rate quantity in words will prevail. If no rate is quoted for one or more items such tender shall be treated as "Incomplete Tender" and shall be summarily rejected.

The amount of each item shall be calculated and the requisite total is given. In case of discrepancy between the unit rate and the total amount calculated from multiplication of unit rate and the quantity the unit rate quoted will govern and the amount will be corrected.



11.1.2 The tenderers need not quote their rates for which no quantities have been given. In case the tenderers quote their rates for such items those rates will be ignored and will not be considered during execution.

11.1.3 The tenderers should not change the units as specified in the tender. If any unit is changed the tenders would be evaluated as per the original unit and the contractor would be paid accordingly.

The tenderer should not change or modify or delete the description of the item. If any discrepancy is observed he should immediately bring to the knowledge of the Architect/ SBIIMS

11.1.4 Each page of the BOQ shall be signed by the authorized person and cutting or overwriting shall be duly attested by him.

11.1.5 Each page shall be totaled and the grand total shall be given.

**11.1.6 The rate quoted shall be firm and shall include all costs, allowances etc. except G.S.T, which shall be payable / reimbursed at actuals.**

11.1.7 The SBIIMS reserve their rights to accept any tenders, either in whole or in part or may entrust the work in phases or may drop the part scope of work at any stage of the project within its sole discretion without assigning any reason(s) for doing so and no claim / correspondence shall be entertained in this regard.

11.1.8 In case it is decided by the SBIIMS to drop one or more buildings from the scope of work at any stage of the project, the contractor shall not be entitled to raise any claim / compensation for such deleted scope of work. Also, the SBIIMS may consider issuing work order for various buildings in phases but within a reasonable time interval and the contractor shall be bound to execute the same within the stipulated time period and as per rates quoted by them in this tender without any claim for price escalation.

**SIGNATURE OF THE CONTRACTOR**

**WITH SEAL**



## **GENERAL CONDITIONS OF CONTRACT**

### **1.0 Definitions: -**

“Contract means the documents forming the tender and the acceptance thereof and the formal agreement executed between SBI Infra Management Solutions Pvt. Ltd. (client) and the contractor, together with the documents referred there in including these conditions, the specifications, designs, drawings and instructions issued from time to time by the Architects/ Bank and all these documents taken together shall be deemed to form one contract and shall be complementary to one another.

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

1.1.1 “SBIIMS’ shall mean SBI Infra Management Solutions Pvt. Ltd. (Service Provider) having its Head Office, Ground Floor, Raheja Chambers, Free Press Marg, Nariman Point, Mumbai- 400 021 and includes the client’s representatives, successors and assigns.

1.1.2 SBIIMS shall mean SBI Infra Management Solution Pvt. Ltd., Mumbai.

1.1.3 ‘Site Engineer’ shall mean an Engineer appointed by the SBIIMS at site as their representative for day-to-day supervision of work and to give instructions to the contractors.

1.1.4 ‘The Contractor’ shall mean the individual or firm or company whether incorporate not, undertaking the works and shall include legal personal representative of individual or the composing the firm or company and the permitted assignees of individual or firms of company.

The expression ‘works’ or ‘work’ shall mean the permanent or temporary work description in the “Scope of work” and / or to be executed in accordance with the contract includes materials, apparatus, equipment, temporary supports, fittings and things of kinds to be provided, the obligations of the contractor hereunder and work to be done by the contractor under the contract.

1.1.5 ‘Engineer’ shall mean the representative of the Architect/consultant.

1.1.6 ‘Drawings’ shall mean the drawings prepared by the Architects and issued by the Engineer and referred to in the specifications and any modifications of such drawings as may be issued by the Engineer from time to time ‘Contract value shall mean value of the entire work as stipulated in the letter of acceptance of tender subject such additions there to or deductions there from as may be made under the provide herein after contained.

1.1.7 Specifications’ shall mean the specifications referred to in the tender and modifications thereof as may time to time be furnished or approved by the Architect/ Consultant.

1.1.8 “Month” means calendar month.

1.1.9 “Week” means seven consecutive days.

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



- 1.1.10 "Day" means a calendar day beginning and ending at 00 Hrs. and 24 Hrs. respectively.
- 1.1.11 "SBIIMS's Engineer" shall mean The Civil / Electrical Engineer in - charge of the Project, as nominated by the M.D.& C.E.O, SBI Infra Management Solutions Pvt. Ltd.
- 1.1.12 The following shall constitute the Joint Project Committee (herein under referred to as JPC) for assessing and reviewing the progress of the work on the project and to issue instructions or directions from time to time for being observed and followed by the Architects Site Engineer /PMC and other consultants / contractors engaged in the execution of the project.
- i) Vice President – Circle Head / Vertical Head of SBIIMS
  - ii) SBIIMS Engineer (Civil and Electrical) in-charge of the Project, as may be nominated by the M.D. & CEO, SBI Infra Management Solutions Pvt. Ltd.
  - iii) Concerned partner / proprietor of the Architects and their Resident Architect Member.

## **CLAUSE**

### **1.0 Total Security Deposit**

Total Security deposit comprise of

Earnest Money Deposit

Initial security deposit

Retention Money

#### **a) Earnest Money Deposit -**

The tenderer shall furnish EMD of **Rs. 24,000/- (Rupees Twenty Four Thousand only)** in the form of Demand draft or banker's cheque drawn in favour of SBI Infra Management Solutions Pvt. Ltd., on any Scheduled Bank. No tender shall be considered unless the EMD is so deposited in the required form. No interest shall be paid on this EMD. The EMD of the unsuccessful tenderer shall be refunded soon after the decision to award the contract is taken without interest. The EMD shall stand absolutely forfeited if the tenderer revokes his tender at any time the period when he is required to keep his tender open acceptance by the SBIIMS or after it is accepted by the SBIIMS the contractor fails to enter into a formal agreement or fails to pay the initial security deposit as stipulated or fails to commence the work within the stipulated time.

#### **b) Initial Security Deposit (ISD)**

The amount of ISD shall be 2% of accepted value of tender including the EMD in the form of DD/FDR drawn on any scheduled Bank and shall be deposited within 15 days from the date of acceptance of tender.



## **ADDITIONAL SECURITY DEPOSIT / PERFORMANCE GUARANTEE**

In case L-1 bidder quotes abnormally low rates (i.e. 10% or more, below estimated project cost), the bank may ask such bidder to deposit additional security deposit (ASD) equivalent to difference of estimated cost vis-à-vis L-1 quoted amount for due fulfillment of contract as performance guarantee. Such ASD could be in the form of FDR / Bank's guarantee in the Bank's name as per format approved by the Bank. On successful completion of work ASD will be returned to the contractor. In case contractor fails to complete the work in time or as per tender specification or leave the job incomplete, the bank will be at liberty to recover the dues from ASD or to forfeit such ASD as the case may be within its sole discretion. No interest shall be paid to the amount retained by the Bank as Security Deposit.

### **c) Retention Money: -**

Besides the SD as deposited by the contractor in the above said manner, the Retention money shall be deducted from the running account bill at the rate of 10% of the gross value of work done by the contractor and claimed in each bill provided the total security deposit i.e. ISD plus EMD plus Retention Money shall both together not exceed 5% of the contract value. The 50% of the total security deposit shall be refunded to the contractor without any interest on issue of Virtual Completion certificate by the Architect/consultant. The balance 50% of the total security deposit shall be refunded to the contractors without interest within fifteen days after the end of defects liability period provided the contractor has satisfactorily attended to all defects, if any, in accordance with the conditions of contract including site clearance.

### **2.0 Language**

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

### **3.0 Errors, omissions and discrepancies**

In case of errors, omissions and/ or disagreement between written and scaled dimensions on the drawings or between the drawings and specifications etc., the following order shall apply.

- i) Between scaled and written dimension (or description) on a drawing, the latter shall be adopted.
- ii) Between the written or shown description or dimensions in the drawings and the corresponding one in the specification the former shall be taken as correct.
- iii) Between written description of the item in the specifications and descriptions in bills of quantities of the same item, the former shall be adopted:
  - a) In case of difference between rates written in figures and words, the rate in words shall prevail.
  - b) Between the duplicate / subsequent copies of the tender, the original tender shall be taken as correct.



#### 4.0 **Scope of Work:**

The contractor shall carryout complete and maintain the said work in every respect strictly accordance with this contract and with the directions of and to the satisfaction Bank to be communicated through the Architect/consultant. The Architect/consultant at the directions of the SBIIMS from time to time issue further drawings and / or write instructions, details directions and explanations which are here after collectively references to as Architect's /consultant's instructions in regard to the variation or modification of the design, quality or quantity of any work or the addition or omission or substitution work. Any discrepancy in the drawings or between BOQ and / or drawings and / or specifications. The removal from the site of any material brought thereon by the Contractor and any substitution of any other materials therefore the removal and / or re-executed of any work executed by him. The dismissal from the work of any person engaged thereupon.

#### 5.0 i) **Letter of Acceptance:**

Within the validity period of the tender the SBIIMS shall issue a letter of acceptance directly or through the Architect by registered post or otherwise depositing at the of the contractor as given in the tender to enter into a Contract for the execution of the work as per the terms of the tender. The letter of acceptance shall constitute a binding contract between the SBIIMS and the contractor.

#### ii) **Contract Agreement:**

On receipt of intimation of the acceptance of tender from the SBIIMS Pvt. Ltd/ Architect, the successful tenderer shall be bound to implement the contract and within fifteen days there of shall sign an agreement in a non-judicial stamp paper of appropriate value.

#### 6.0 **Ownership of drawings:**

All drawings, specifications and copies thereof furnished by the SBIIMS / SBI through its Architect / consultants are the properties of the SBIIMS They are not to be used on other work.

#### 7.0 **Detailed drawings and instructions:**

The SBIIMS through its Architects / consultants shall furnish with reasonable proper additional instructions by means of drawings or otherwise necessary for the execution of the work. All such drawings and instructions shall be consistent with contract documents, true developments thereof and reasonably inferable there.

The work shall be executed in conformity therewith and the contractor prepare a detailed programme schedule indicating therein the date of start and completion of various activities on receipt of the work order and submit the same to the SBIIMS through the Architect/consultant

#### 7.0 **Copies of agreement**





Two copies of agreement duly signed by both the parties with the drawings shall be handed over to the contractors.

**8.0 Liquidated damages:**

If the contractor fails to maintain the required progress in terms of clause 6. 0 of GOC or to complete the work and clear the site including vacating their office on or before the contracted or extended date or completion, without justification in support of the cause of delay, he may be called upon without prejudice to any other right of remedy available under the law to the SBIIMS on account of such breach to pay a liquidated damage at the rate of 0.50% of the contract value which subject to a maximum of 5% of the contract value.

**9.0 Materials, Appliances and Employees**

Unless or otherwise specified the contractor shall provide and pay for all materials, labour, water, power, tools, equipment transportation and any other facilities that are required for the satisfactory execution and completion of the work. Unless or otherwise specified all materials shall be new and both workmanship and materials shall be best quality. The contractor shall at all times enforce strict discipline and good order among his employees and shall not employ on the work any unfit person or anyone not skilled in the work assigned to him. Workman whose work or behavior is found to be unsatisfactory by the SBIIMS /ARCHITECT/ consultant he shall be removed from the site immediately.

**10.0 Permits, Laws and Regulations:**

Permits and licenses required for the execution of the work shall be obtained by the contractor at his own expenses. The contractor shall give notices and comply with the regulations, laws, and ordinances rules, applicable to the contract. If the contractor observes any discrepancy between the drawings and specifications, he shall promptly notify the SBIIMS in writing under intimation of the Architect/ Consultant. If the contractor performs any act, which is against the law, rules and regulations he shall meet all the costs arising there from and shall indemnify the SBIIMS any legal actions arising there from.

**11.0 Setting out Work:**

The contractor shall set out the work and shall be 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 and get it approved by the Architect / consultant before proceeding with the work. If at any time any error in this respect shall appear during the progress of the works, irrespective of the fact that the layout had been approved by, the Architect / consultant the contractor shall be responsible for the same and shall at his own expenses rectify such error, if so, required to satisfaction of the SBIIMS

**12.0 Protection of works and property:**

The contractor shall continuously maintain adequate protection. of all his work from damage and shall protect the SBI's properties from injury or loss arising in





connection with contract. He shall make good any such damage, injury, loss, except due to causes beyond his control and due to his fault or negligence.

He shall take adequate care and steps for protection of the adjacent properties. The contractor shall take all precautions for safety and protections of his employees on the works and shall comply with all applicable provisions of Govt. and local bodies' safety laws and building codes to prevent accidents, or injuries to persons or property on about or adjacent to his place of work. The contractor shall take insurance covers as per clause 24.0 at his own cost. The policy may be taken in joint names of the contractor and the SBIIMS and the original policy may be lodged with the SBIIMS

### **13.0 Inspection of work:**

The SBIIMS / Architect / Consultant or their representatives shall at all reasonable times have free access to the work site and / or to the workshop, factories, or other places where materials are lying or from where they are obtained and the contractor shall give every facility to the SBIIMS/Architect/consultant and their representatives necessary for inspection and examination and test of the materials and workmanship. No person unless authorized by the SBIIMS/ Architect /Consultant except the representative of Public authorities shall be allowed on the work at any time. The proposed work either during its construction stage or its completion can also be inspected by the Chief Technical Examiner's Organization a wing of Central Vigilance commission.

### **14.0 Assignment and subletting**

The whole of work included in the contract shall be executed the contractor and he shall not directly entrust and engage or indirectly transfer, assign or underlet the contract or any part or share there of or interest therein without the written consent of the SBIIMS through the Architect and no undertaking shall relieve the contractor from the responsibility of the contractor from active & superintendence of the work during its progress.

### **15.0 Quality of materials, workmanship & Test**

All materials and workmanship shall be best of the respective kinds described in the contract and in accordance with Architect/consultant instructions and shall be subject from time to time to such tests as the Architect/consultant may direct at the place of manufacture or fabrication or on the site or an approved testing laboratory. The contractor shall provide such assistance, instruments, machinery, labor, and materials as are normally required for examining measuring sampling and testing any material or part of work before incorporation in the work for testing as may be selected and required by the Architect/consultant.

#### **ii) Samples**

All samples of adequate numbers, size, shades & pattern as per specifications shall be supplied by the contractor without any extra charges. If certain items proposed to be used are of such nature that samples cannot be presented or prepared at the site detailed literature / test certificate of the same shall be provided to the satisfaction of the Architect/consultant. Before submitting the sample / literature the contractor shall satisfy himself that the material / equipment for which



he is submitting the sample / literature meet with the requirement of tender specification. Only when the samples are approved in writing by the Architect / consultant the contractor shall proceed with the procurement and installation of the particular material / equipment. The approved samples shall be the signed by the Architect / Consultant for identification and shall be kept on record at site office until the completion of the work for inspection / comparison at any time. The Architect/Consultant shall take reasonable time to approve the sample. Any delay that might occur in approving the samples for reasons of its not meeting the specifications or other discrepancies inadequacy in furnishing samples of best qualities from various manufacturers and such other aspects causing delay on the approval of the materials / equipment etc. shall be to the account of the contractor.

iii) **Cost of tests**

The cost of making any test shall be borne by the contractor if such test is intended by or provided for in the specification or BOQ.

iv) **Costs of tests not provided for**

If any test is ordered by the Architect/ Consultant which is either

- a) If so intended by or provided for or (in the cases above mentioned) is not so particularized, or though so intended or provided for but ordered by the Architect / Consultant to be carried out by an independent person at any place other than the site or the place of manufacture or fabrication of the materials tested or any Government / approved laboratory, then the cost of such test shall be borne by the contractor.

16.0 **Obtaining information related to execution of work**

No claim by the contractor for additional payment shall be entertained which is consequent upon failure on his part to obtain correct information as to any matter affecting the execution of the work nor any misunderstanding or the obtaining incorrect information or the failure to obtain correct information relieve him from any risks or from the entire responsibility for the fulfillment of contract.

17.0 **Contractor's superintendence**

The contractor shall give necessary personal superintendence during the execution the works and as long, thereafter, as the Architect / Consultant may consider necessary until the expiry of the defects liability period, stated here to.

18.0 **Quantities**

- i) The bill of quantities (BOQ) unless or otherwise stated shall be deemed to have been prepared in accordance with the Indian Standard Method of Measurements and quantities. The rate quoted shall remain valid for variation of quantity against individual item to any extent. The entire amount paid under Clause 19, 20 hereof as well as amounts of prime cost and provision sums, if any, shall be excluded.

19.0 **Works to be measured**



The Architect/Consultant may from time to time intimate to the contractor that he requires the work to be measured and the contractor shall forthwith attend or send a representative to assist the Architect in taking such measurements and calculation and to furnish all particulars or to give all assistance required by any of them. Such measurements shall be taken in accordance with the Mode of measurements detail in the specifications. The representative of the Architect / Consultant shall take measurements with the contractor's representative and the measurements shall be entered in the measurement book. The contractor or his authorized representative shall sign all the pages of the measurement book in which the measurements have been recorded in token of his acceptance. All the corrections shall be duly attested by both representatives. No over writings shall be made in the Measurement Book (M.B.) Should the contractor not attend or neglect or omit to depute his representative to take measurements, the measurements recorded by the representative of the Architect / consultant shall be final. All authorized extra work, omissions and all variations made shall be included such measurement.

## 20.0 Variations

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

## 21.0 Valuation of Variations

No claim for an extra shall be allowed unless it shall have been executed under the authority of the Architect / Consultant with the concurrence of the SBIIMS as herein mentioned. Any such extra is herein referred to as authorized extra and shall be made in accordance with the following provisions.

- a) (i) The net rates or prices in the contract shall determine the valuation of the extra work where such extra work is of similar character and executed under similar conditions as the work priced herein.  
  
(ii) Rates for all items, wherever possible should be derived out of the rates given in the priced BOQ.
- b) The net prices of the original tender shall determine the value of the items omitted, provided if omissions do not vary the conditions under which any remaining items of Works are carried out, otherwise the prices for the same shall be valued under sub-Clause 'c' hereunder.



- c) Where the extra works are not of similar character and/or executed under similar conditions as aforesaid or where the omissions vary the conditions under which any remaining items or works are carried out, then the contractor shall within 7 days of the receipt of the letter of acceptance inform the Architect/ consultant of the rate which he intends to charge for such items of work, duly supported by analysis of the rate or rates claimed and the Architect/ consultant shall fix such rate or prices as in the circumstances in his opinion are reasonable and proper, based on the market rate.
- d) Where extra work cannot be properly measured or valued the contractor shall be allowed day work prices at the net rates stated in the tender, of the BOQ or, if not, so stated then in accordance with the local day work rates and wages for the district; provided that in either case, vouchers specifying the daily time (and if required by the Architect/Consultant) the workman's name and materials employed be delivered for verifications to the Architect /consultant at or before the end of the week following that in which the work has been executed.
- e) It is further clarified that for all such authorized extra items where rates cannot be derived from the tender, the Contractor shall submit rates duly supported by rate analysis worked on the 'market rate basis for material, labour hire / running charges of equipment and wastages etc. plus 15% towards establishment charges, contractor's overheads and profit. Such items shall, not be eligible for escalation.

## **22.0 Final measurement**

The measurement and valuation in respect of the contract shall be completed within two months of the virtual completion of the work.

## **23.0 Virtual Completion Certificate (VCC)**

On successful completion of entire works covered by the contract to the full satisfaction of the SBIIMS, the contractor shall ensure that the following works have been completed the satisfaction of the SBIIMS:

- 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, structure 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 SBIIMS not incorporated in the permanent works.
- c) Remove all rubbish, debris etc. from the site and the land allotted to the contractor the SBIIMS and shall clear, level and dress, compact the site as required by the SBIIMS
- d) Shall put the SBIIMS in undisputed custody and possession of the site and all land allot by the SBIIMS
- e) Shall hand over the work in a peaceful manner to the SBIIMS



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

Upon the satisfactory fulfillment by the contractor as stated above, the contractor is entitled to apply to the Architect / consultant is satisfied of the completion of 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 completion certificate, issue a VCC in respect of the work for which the VCC has applied.

This issuance of a VCC shall not be without prejudice to the SBIIMS's rights and contractor liabilities under the contract including the contractor's liability for defects liability nor shall the issuance of VCC in respect of the works or work at any site be construction as a waiver of any right or claim of the SBIIMS against the contractor in respect of or work at the site and in respect of which the VCC has been issued.

#### 24.0 Work by other agencies

The SBIIMS / Architect / consultant reserves the rights to use premises and any portion the site for execution of any work not included in the scope of this contract which it may desire to have carried out by other persons simultaneously and the contractor shall not only allow but also extend reasonable facilities for the execution of such work. The contractor however shall not be required to provide any plant or material for the execution of such work except by special arrangement with the SBI. Such work shall be carried out in such manner as not to impede the progress of the works included in the contract.

#### 25.0 Insurance of works

- 25.1 Without limiting his obligations and responsibilities under the contract the contractor shall insure in the joint names of the SBI / SBIIMS and the contractor against all loss of damages from whatever cause arising other than the excepted risks, for which he is responsible under the terms of contract and in such a manner that the SBIIMS and contractor are covered for the period stipulated vide clause of GCC and are also covered during the period of maintenance for loss or damage arising from a cause, occurring prior to the commencement of the period of maintenance and for any loss or damage occasioned by the contractor in the course of any operations carried out by him for the purpose of complying with his obligations under clause.

- a) The Works for the time being executed to the estimated current Contract value thereof, or such additional sum as may be specified together with the materials for incorporation in the works at their replacement value.
- b) The constructional plant and other things brought on to the site by the contractor to the replacement value of such constructional plant and other things.
- c) Such insurance shall be affected with an insurer and in terms approved by the SBIIMS which approval shall not be unreasonably withheld and the contractor shall whenever require produce to the Architect / consultant the policy if insurance and the receipts for payment of the current premiums.

#### 25.2 Damage to persons and property

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



The contractor shall, except if and so far as the contract provides otherwise indemnify the SBI against all losses and claims in respect of injuries or damages to any person or material or physical damage to any property whatsoever which may arise out of or in consequence of the execution and maintenance of the works and against all claims proceedings, damages, costs, charges and expenses whatsoever in respect of or in relation thereto except any compensation of damages for or with respect to:

- a) The permanent use or occupation of land by or any part thereof.
- b) The right of SBIIMS to execute the works or any part thereof on, over, under, in or through any lands.
- c) Injuries or damages to persons or properties which are unavoidable result of the execution or maintenance of the works in accordance with the contract
- d) Injuries or damage to persons or property resulting from any act or neglect of the SBIIMS their agents, employees or other contractors not being employed by the contractor or for or in respect of any claims, proceedings, damages, costs, charges and expenses in respect thereof or in relation thereto or where the injury or damage was contributed to by the contractor, his servants or agents such part of the compensation as may be just and equitable having regard to the extent of the responsibility of the SBIIMS, their employees, or agents or other employees, or agents or other contractors for the damage or injury.

### 25.3 Contractor to indemnify SBIIMS

The contractor shall indemnify the SBIIMS against all claims, proceedings, damages, costs, charges and expenses in respect of the matters referred to in the provision sub-clause 25.2 of this clause.

### 25.4 Contractor's superintendence

The contractor shall fully indemnify and keep indemnified the SBI/SBIIMS against any action, claim, or proceeding relating to infringement or use of any patent or design or any alleged patent or design rights and shall pay any royalties which may be payable in respect of any article or part thereof included in the contract. In the event of any claim made under or action brought against SBIIMS in respect of such matters as aforesaid the contractor shall be immediately notified thereof and the contractor shall be at liberty, at his own expenses to settle any dispute or to conduct any litigation that may arise there from, provided that the contractor shall not be liable to indemnify the SBIIMS if the infringement of the patent or design or any alleged patent or design right is the direct result of an order passed by the Architect / consultant in this behalf.

### 25.5 Third Party Insurance

- 25.5.1 Before commencing the execution of the work the contractor but without limiting his obligations and responsibilities under clause 24.0 of GCC shall insure against his liability for any material or physical damage, loss, or injury which may occur to any property including that of SBIIMS, or to any person, including any employee of the SBIIMS, by or arising out of the execution of the works or in the carrying out of the





contract, otherwise than due to the matters referred to in the provision to clause 24.0 thereof.

#### **25.5.2 Minimum amount of Third Party Insurance**

Such insurance shall be affected with an insurer and in terms approved by the SBIIMS 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 premiums.

- 25.6 The minimum insurance cover for physical property, injury, and death is Rs.5 Lakh per occurrence with the number of occurrences limited to four. After each occurrence contractor will pay additional premium necessary to make insurance valid for four occurrences always.

#### **25.7 Accident or Injury to workman:**

- 25.7.1 The SBIIMS shall not be liable for or in respect of any damages or compensation payable at law in respect or in consequence of any accident or injury to any workmen or other person in the employment of the contractor or any sub-contractor, save and except an accident or injury resulting from any act or default of the SBIIMS or their agents, or employees. The contractor shall indemnify and keep indemnified SBIIMS against all such damages and compensation, save and except as aforesaid, and against all claims, proceedings, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

#### **25.7.2 Insurance against accidents etc. to workmen**

The contractor shall insure against such liability with an insurer approved by the SBIIMS during the whole of the time that any persons are employed by him on the works and shall, when required, produce to the Architect / consultant such policy of insurance and receipt for payment of the current premium. Provided always that, in respect of any persons employed by any sub-contractor the contractor's obligation to insured as aforesaid under this sub-clause shall be satisfied if the sub-contractor shall have insured against the liability in respect of such persons in such manner that SBIIMS is indemnified under the policy but the contractor shall require such sub-contractor to produce to the Architect /consultant when such policy of insurance and the receipt for the payment of the current premium.

#### **25.7.3 Remedy on contractor's failure to insure**

If the contractor fails to effect and keep in force the insurance referred to above or any other insurance which he may be required to effect under the terms of contract, then and in any such case the SBIIMS may effect and keep in force any such insurance and pay such premium or premiums as may be necessary for that purpose and from time to time deduct the amount so paid by the SBIIMS as aforesaid from any amount due or which may become due to the contractor, or recover the same as debt from the contractor.

- 25.7.4 Without prejudice to the others rights of the SBIIMS against contractors. In respect of such default, the employer shall be entitled to deduct from any sums payable to the contractor the amount of any damages costs, charges, and other expenses



paid by the SBIIMS and which are payable by the contractors under this clause. The contractor shall upon settlement by the Insurer of any claim made against the insurer pursuant to a policy taken under this clause, proceed with due diligence to rebuild or repair the works destroyed or damaged. In this event all the monies received from the Insurer in respect of such damage shall be paid to the contractor and the Contractor shall not be entitled to any further payment in respect of the expenditure incurred for rebuilding or repairing of the materials or goods destroyed or damaged

**26.0 Commencement of Works:**

The date of commencement of the work will be reckoned as the date, fifteen days from the date of award of letter by the SBIIMS

**27.0 Time for completion**

Time is essence of the contract and shall be strictly observed by the contractor. The entire work shall be completed within a period of 60 **days** from the date of commencement. If required in the contract or as directed by the Architect / consultant. The contractor shall complete certain portions of work before completion of the entire work. However, the completion date shall be reckoned as the date by which the whole work is completed as per the terms of the contract.

**28.0 Extension of time**

If, in the opinion of the Architect/consultant, the work be delayed for reasons beyond the control of the contractor, the Architect/consultant may submit a recommendation to the SBIIMS to grant a fair and reasonable extension of time for completion of work as per the terms of contract. If the contractor needs an extension of time for the completion of work or if the completion of work is likely to be delayed for any reasons beyond the due date of completion as stipulated in the contract, the contractor shall apply to the SBIIMS through the Architect' Consultant in writing at least 30 Days before the expiry of the scheduled time and while applying for extension of time he shall furnish the reason in detail and his justification if an', for the delays. The Architect/consultant shall submit their recommendations to the SBIIMS in the prescribed format for granting extension of time. While granting extension of time the contractor shall be informed the period extended time which will qualify for levy of liquidated damages. For the balance period in excess of original stipulated period and duly sanctioned extension of time by the provision of liquidated damages as stated under clause 10.0 shall become applicable. Further the contract shall remain in force even for the period beyond the due date of completion irrespective whether the extension is granted or not.

**29.0 Rate of progress**

Whole of the materials, plant and labour to be provided by the contractor and the mode, manner and speed of execution and maintenance of the works are to be of a kind and conducted in a manner to the satisfaction of the Architect / consultant should the rate of progress of the work or any part thereof be at any time be in the opinion the. Architect / consultant too Slow to ensure the completion of the whole of the work the prescribed time or extended time for completion the Architect / consultant shall thereupon take such steps as considered necessary by the Architect / consultant to expedite progress so as to complete the works by the prescribed time or extended time. Such communications from the Architect / consultant neither shall relieve the contractor from fulfilling obligations under the contract nor he will be entitled to raise any claims arising out of such directions.





### **30.0 Work during nights and holidays**

Subject to any provision to the contrary contained in the contract no permanent work shall save as herein provided be carried on during the night or on holidays without the permission in writing of the Architect / consultant, save when the work is unavoidable or absolutely necessary for the saving of life or property or for the safety of the work in which case the contractor shall immediately advise the Architect / consultant. However, the provisions of the clause shall not be applicable in the case of any work which becomes essential to carry by rotary or double shifts in order to achieve the progress and quality of the part of the works being technically required / continued with the prior approval of the Architect / consultant at no extra cost to the SBIIMS

All work at night after obtaining approval from competent authorities shall be carried out without unreasonable noise and disturbance.

### **31.0 No compensation or restrictions of work**

If at any time after acceptance of the tender SBIIMS shall decide to abandon or reduce the scope of work for any reason whatsoever and hence not required the whole or any part of the work to be carried out. The Architect / consultant shall give notice in writing that effect to the contractor and the contractor shall act accordingly in the matter. The contractor shall have no claim to any payment of compensation or otherwise what so ever on account of any profit or advantage which he might have derived from the execution of the Work fully but which he did not derive in consequence of the foreclosure of the whole or part of the work.

Provided that the contractor shall be paid the charges on the cartage only of materials actually and bona-fide brought to the site of the work by the contractor and rendered surplus as a result of the abandonment, curtailment of the work or any portion thereof and then taken back by the contractor, provided however that the Architect / Consultant shall have in such cases the option of taking over all or any such materials at their purchase price or a local current rate whichever is less.

"In case of such stores having been issued from SBIIMS stores and returned by the contractor to stores, credit shall be given to him at the rates not exceeding those at which were originally issued to the contractor after taking into consideration and deduction for claims on account of any deterioration or damage while in the custody of the contractor and in this respect the decision of Architect / consultant shall be final.

### **32.0 Suspension of work**

- i) The contractor shall, on receipt of the order in writing of the Architect / consultant (whose decision shall be final and binding on the contractor) suspend the progress of works or any part thereof for such time and in such manner as Architect /consultant 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 following reasons:
  - a) On account any default on the part of the contractor, or



- b) For proper execution of the works or part thereof for reasons other than the default the contractor, or
- c) For safety of the works or part thereof.  
The contractor shall, during such suspension, properly protect and secure the works the extent necessary and carry out the instructions given in that behalf by the Architect / consultant.
- i) 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.

**33 Action when the whole security deposit is forfeited**

In any case in which under any clause or clauses of this contract, the Contractor shall have rendered himself liable to pay compensation amounting to the whole of his security deposit the Architect / consultant shall have the power to adopt any of the following course as they may deem best suited to the interest of the SBIIMS:

- a) To rescind the contract (of which rescission notice in writing to the contractor by - Architect / consultant shall be conclusive evidence) and in which case the security, deposit of the contractor shall be forfeited and be absolutely at the disposal of SBIIMS
- b) To employ labour paid by the SBIIMS and to supply materials to carry out the work, or part of the work, debiting the contractor with the cost of the labour and materials cost of such labour and materials as worked out by the Architect/consultant shall final and conclusive against the contractor) and crediting him with the value of the work done, in all respects in the same manner and at the same manner and at the same rates as if it had been carried out by the contractor under the terms of this contract certificate of Architect /consultant as to the value of work done shall be final conclusive against the contractor.
- c) To measure up the work of the contractor, and to take such part thereof as shall unexecuted, out of his hands, and to give it to another contractor to complete in which case any expenses which may be incurred in excess of the sum which would have been paid to the original contractor, if the whole work had been executed by him ( The amount of which excess the certificates in writing of the Architects / consultant shall final and conclusive) shall be borne by original contractor and may be deducted f any money due to him by SBIIMS under the contract or otherwise, or from his security deposit or the proceeds of sale thereof, or sufficient part thereof.

In the event of any of above courses being adopted by the SBIIMS the contractor shall have no claim to compensation for any loss sustained by him by reasons of his having purchased or procured any material or entered into any engagements or make any advances on account of, or with a view to the execution of the work or the performance of the contract and in case the contract shall be rescind under the provision aforesaid, the contractor shall not be entitled to recover or to be paid any sum or any work thereto for actually performed under this contract, unless, and until the Architect / consultant will have certified in writing the performance of such work and the value payable in respect thereof, and he shall only be entitled to be paid the value so certified.



### 34.0 Owner's right to terminate the contract

If the contractor being an individual or a firm commit any 'Act of insolvency' or shall be adjusted an insolvent or being an incorporated company shall have an order for compulsory winding up voluntarily or subject to the supervision of Govt. 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 to do so, to show to the reasonable satisfaction of the Architect / Consultant that he is able to carry out and fulfill the contract, and to dye security therefore if so required by the Architect / Consultant or if the contractor (whether an individual firm or incorporated Company) 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 SBIIMS through the Architect/Consultant or shall charge or encumber this contract or any payment due to which may become due to the contractor there under:

- 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 SBIIMS through the Architect / consultant written notice to proceed, or
- c) has failed to proceed with the works with such diligence and failed to make such due progress as would enable the works to be completed within the time agreed upon, or  
has failed to remove the materials from the site or to pull down and replace work within seven days after written notice from the SBIIMS through the Architect / Consultant that the said materials were condemned and rejected by the Architect/consultant under these conditions; or has neglected or failed persistently to observe and perform all or any of the acts matters or things by this contract to be observed and performed by the contractor for seven days after written notice shall have been given to the contractor to observe or perform the same or has to the detriment of good workmanship or in defiance of the SBIIMS or Architect's / consultant's instructions to the contrary subject any part of the contract. Then and in any of said cases the SBIIMS and or the Architect / consultant, may not withstanding any previous waiver, after giving seven days' notice in writing to the contractor, determine the contract, but without thereby affecting the powers of the SBIIMS or the Architect / consultant or the obligation and liabilities of the contractor the whole of which shall continue in force as fully as if the contract had not been determined and as if the works subsequently had been executed by or on behalf of the contractor. And, further the SBIIMS through the Architect / consultant their agents or employees may enter upon and take possession of the work and all plants, took scaffoldings, materials, sheds, machineries lying upon the premises or on the adjoining lands or roads use the same by means of their own employees or workmen in carrying on and completing the work or by engaging any other contractors or persons to the work and the contractor shall not in any was interrupt or do any act, matter or thing to prevent or hinder such other contractor or other persons employed for complement and finishing or using the materials and plant for the works.

When the works shall be completed or as soon thereafter as convenient the SBIIMS or Architect / consultant shall give a notice in writing to the contractor to



remove his surplus materials and plants and should the contractor fail to do so within 14 days after receive thereof by him the SBIIMS sell the same by publication, and after due publication, and shall, adjust the amount realized by such auction. The contractor shall have no right to question any of the act of the SBIIMS incidental to the sale of the materials etc.

### 35.0 Certificate of payment

The contractor shall be entitled under the certificates to be issued by the Architect / consultant to the contractor within 10 working days from the date of certificate to payment from SBIIMS from time to time. The SBIIMS shall recover the statutory recovering other dues including the retention amount from the certificate of payment.

Provided always that the issue of any certificate by the Architect / consultant during progress of works or completion shall not have effect as certificate of satisfaction relieve the contractor from his liability under clause.

The Architect / consultant shall have power to withhold the certificate if the work or in part thereof is not carried out to their satisfaction.

The Architect / consultant may by any certificate make any corrections required previous certificate.

The SBIIMS shall modify the certificate of payment as issued by the Architect / consultant from time to time while making the payment

The contractor shall submit interim bills only after taking actual measurements and properly recorded in the Measurement Book (M. B.)

The Contractor shall not submit interim bills when the approximate value of work done by him is less than **Rs. 5.0 Lakh (Rupees Five Lakhs Only).**

The final bill may be submitted by contractor within a period of one month from the date of virtual completion and Architect / consultant shall issue the certificate of payment within a period of two months. The SBIIMS shall pay the amount within a period of three months from the date of issue of certificate provided there is no dispute in respect of rates and quantities.

The contractor shall submit the interim bills in the prescribed format with all details.

### 36.0 A. Settlement of Disputes and Arbitration

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



- i) If the contractor considers that he is entitled to any extra payment or compensation in respect of the works over and above the amounts admitted as payable by the Architect or in case the contractor wants to dispute the validity of any deductions or recoveries made or proposed to be made from the contract or raise any dispute, the contractor shall forthwith give notice in writing of his claim, or dispute to The M.D.& C.E.O. SBIIMS, Head Office, Raheja Chambers, Free Press Journal Marg, Mumbai And endorse a copy of the same to the Architect, within 30 days from the date of disallowance thereof or the date of deduction or recovery. The said notice shall give full particulars of the claim, grounds on which it is based and detailed calculations of the amount claimed and the contractor shall not be entitled to raise any claim nor shall the SBIIMS Pvt. Ltd be in any way liable in respect of any claim by the contractor unless notice of such claim shall have been given by the contractor to the M.D.& C.E.O. SBIIMS, Head Office in the manner and within the time as aforesaid. The Contractor shall be deemed to have waived and extinguished all his rights in respect of any claim not notified to the M.D.& C.E.O. SBIIMS, Head Office in writing in the manner and within the time aforesaid.

### **B. Settlement of Disputes and Arbitration**

The M.D.& C.E.O. SBIIMS, Head Office shall give his decision in writing on the claims notified by the receipt of the contractor may within 30 days of the receipt of the decision of the M.D.& C.E.O. SBIIMS, Head Office/ Submit his claims to the conciliating authority namely the M.D.& C.E.O. SBIIMS, Head Office, Raheja Chambers, Free Press Journal Marg, Mumbai. For conciliation along with all details and copies of correspondence exchanged between him and the SBIIMS

- i) If the conciliation proceedings are terminated without settlement of the disputes, the contractor shall, within a period of 30 days of termination thereof shall give a notice to the concerned MD&CEO of the SBIIMS for appointment of an arbitrator to adjudicate the notified claims falling which the claims of the contractor shall be deemed to have been considered absolutely barred and waived.
- ii) Except where the decision has become final, binding and conclusive in terms of the contract, all disputes or differences arising out of the notified claims of the contractor as aforesaid and all claims of the SBIIMS Pvt. Ltd shall be referred for adjudication through arbitration by the Sole Arbitrator appointed by the MD&CEO and who will be of Deputy General Manager rank. It will also be no objection to any such appointment that the Arbitrator so appointed is a SBIIMS, Officer and that he had to deal with the matters to which the Contract relates in the course of his duties as SBIIMS, Officer. If the arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacates his office due to any reason whatsoever another sole arbitrator shall be appointed in the manner aforesaid by the said MD&CEO of the SBIIMS Such person shall be entitled to proceed with the reference from the stage at which it was let by his predecessor.

It is a term of this contract that the party invoking arbitration shall give a list of disputes with amounts claimed in respect of each dispute along with the notice for appointment of arbitrator.

It is also a term of this contract that no person other than a person appointed by such Chief General Manager as aforesaid should act as arbitrator.



The conciliation and arbitration shall be conducted in accordance with the provisions of the Arbitration & Conciliation Act 1996 or any or any accordance modification or reenactment thereof and the rules made there under.

It is also a term of the contract that if any fees are payable to the Arbitrator these shall be paid equally by both the parties. However, no fees will be payable to the arbitrator if he is a SBIIMS Officer.

It is also a term of the contract that the Arbitrator shall be deemed to have entered on the reference on the date he issues notice to both the parties calling them to submit their statement of claims and counter statement of claims. The venue of the arbitration shall be such place as may be fixed by the arbitrator in his sole discretion. The fees, if any of the arbitrators shall, if required to be paid before the award is made and published, be paid half and half by each of the parties. The Cost of the reference and of the award (including the fees, if any of the arbitrator) shall be in the discretion of the arbitrator who may direct to any by whom and in what manner, such costs or any part thereof, shall be paid and fix or settle the amount of costs to be so paid.

### **37.0 Water Supply**

The contractor shall make his own arrangements for water required for the work and nothing extra will be paid for the same. This will be subject to the following condition.

- i) That the water used by the contractor shall be fit for construction purposes to the satisfaction of the Architect / consultant's.
- ii) The contractor shall make alternative arrangements for the supply of water if the arrangement made by the contractor for procurement of water in the opinion of the Architect / consultant is unsatisfactory.
- iii) In case contractor is permitted to use SBIIMS's source of water i.e. Municipal connection, bore well (existing or new) etc., the SBIIMS Pvt. Ltd may consider recovering @1% of contract amount from the final bill of contractor.

- 37.1 The contractor shall construct temporary well / tube well in SBIIMS Pvt. Ltd land for taking water for construction purposes only after obtaining permission in writing from the SBIIMS. The contractor has to make his own arrangements for drawing and distributing the water at his own cost. He has to make necessary arrangements. To avoid any accidents or damages caused due to construction and subsequent maintenance of the wells. He has to obtain necessary approvals from local authorities, if required, at his own cost. He shall restore the ground to its original condition after wells are dismantled on completion of work or hand over the well to the SBIIMS without any compensation as directed by the Architect / consultant.

### **38.0 Power Supply**

The contractor shall make his own arrangements for power and supply / distribution system for driving plant or machinery for the work and for lighting purpose at his own cost, the cost of running and maintenance of the plants are to be included in his tender prices, He shall pay all fees and charges required, by the power supply





and include the same in his tendered rates and hold the owner free from all such costs. He has to obtain necessary approval from the appropriate authorities, if required.

**39.0 Treasure Trove etc.**

Any treasure trove, coin or object antique which may be found on the site shall be the property of SBIIMS and shall be handed over to the bank immediately.

**40.0 Method of Measurement**

Unless otherwise mentioned in the schedule of quantities or in mode of measurement, the measurement will be on the net quantities or work produced in accordance with up to date rules laid down by the Bureau of Indian Standards. In the event any dispute / disagreement the decision of the Architect / consultant shall be final and binding on the corrector.

**41.0 Maintenance of Registers**

The contractor shall maintain the following registers as per the enclosed perform at site of work and should produce the same for inspection of SBIIMS Pvt. Ltd/Architect / consultant whenever desired by them. The contractor shall also maintain the records / registers as required by the local authorities / Govt. from time to time.

- i) Register for secured advance
- ii) Register for hindrance to work
- iii) Register for running account bill
- iv) Register for labour

**42.0 Force Majeure**

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

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

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



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

**43.0 Local laws, Acts Regulations:**

The contractor shall strictly adhere to all prevailing labour laws inclusive at contract labour (regulation and abolition act of 1970) and other safety regulations. The contractors should comply with the provision of all labour legislation including the latest requirements of the Acts, laws, any other regulations that are applicable to the execution of the project.

- i) Minimum wages Act 1948 (Amended)
- ii) Payment of wages Act 1936 (Amended)
- iii) Workmen's compensation Act 1923 (Amended)
- iv) Contract labour regulation and abolition act 1970 and central rules 1971 (Amended)
- v) Apprentice act 1961 (amended)
- vi) Industrial employment (standing order) Act 1946 (Amended)
- vii) Personal injuries (Compensation insurance) act 1 963 and any other modifications
- viii) Employees' provident fund and miscellaneous provisions Act 1952 and amendment thereof
- ix) Shop and establishment act
- x) Any other act or enactment relating thereto and rules framed there under from time to time.
- xi) Prevailing Indian Electricity rules & act.

**44.0 Accidents**

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





## **SPECIAL CONDITION OF CONTRACT**

### **Scope of work**

1.0 The scope of work is to carry out for the **TENDER FOR PROPOSED FURNISHING WORKS FOR J.K. GRAM Branch at G-4, SMC, Khopat, Thane west - 400 601** for State Bank of India

2.0 Address of site

The site is located at Ground floor, G-4, SMC, Khopat, Thane west, 400 601.

3.0 **Dimensions and levels**

All dimensions and levels shown on the drawings shall be verified by the contractor and the site and he will be held responsible for the accuracy and maintenance of. All the dimensions and the levels. Figured dimensions are in all cases to be accepted and dimension shall be scaled. Large scale details shall take precedence over small scale drawings. In case of discrepancy the contractor shall ask for clarification from the Architect / consultant before proceeding with the work.

4.0 **Notice of operation**

The contractor shall not carry out any important operation without the Consent in with from the Architect / consultant:

5.0 **Construction records**

The contractor shall keep and provide to the Architect / consultant full and accurate records of the dimensions and positions of all new work and any other information necessary to prepare complete drawings recording details of the work as construction.

6.0 **Safety of adjacent structures and trees**

The contractor shall provide and erect to the approval of the Architect / consultant supports as may be required to protect effectively all structures and protective give to trees, which may be endangered by the execution of the works or otherwise such permanent measures as may be required by the Architect to protect the tree structures.

7.0 **Temporary works.**

Before any temporary works are commenced the contractor shall submit at least in advance to the Architect / consultant for approval complete drawings of all temporary works he may require for the execution of the works. The contractor shall carry out the modifications relating to strength, if required by the Architect / consultant may require in accordance with the conditions of contract at his own cost the contractor shall be solely responsible for the stability and safety of all temporary works and unfinished works and for the quality of the permanent works resulting from the arrangement eventually adopted for their execution.



## 8.0 Water power and other facilities

- a) The rate quoted by the contractor shall include all expenses that are required for providing all the water required for the work and the contractor shall make his own arrangements for the supply of good quality water suitable for the construction and good quality drinking water for their workers. If necessary, the contractor has to sink a tube well / open well and bring water by means of tankers at his own cost for the purpose. The SBIIMS will not be liable to pay any charges in connection with the above.
- b) The rate quoted in the tender shall include the expenses for obtaining and maintaining power connections and shall pay for the consumption charges.
- c) The contractors for other trades directly appointed by the SBIIMS shall be entitled to take power and water connections from the temporary water and power supply obtained by the contractor. However, the concerned contractor shall make their own arrangements to draw the supply and pay directly the actual consumption charges at mutually agreed rates between them. All municipal charges for drainage and water connection for construction purposes shall be borne by the contractor and charges payable for permanent connections, if any, shall be initially paid by the contractor and the SBIIMS will reimburse the amount on production of receipts.
- d) The SBIIMS as well as the Architect / consultant shall give all possible assistance to the Contractor's to obtain the requisite permission from the various authorities, but the responsibility for obtaining the same in time shall be of the contractor.

## 9.0 Facilities for contractor's employees

The contractor shall make his own arrangement for the housing and welfare of his staff and workmen including adequate drinking water facilities. The contractor shall also make the arrangements at his own cost for transport where necessary for his staff and workmen to and from site of work at his own cost.

## 10.0 Lighting of works

The contractor shall at all times provide adequate and approved lighting as required for the proper execution and supervision and inspection of work.

## 11.0 Fire fighting arrangements

- i) The contractor shall provide suitable arrangement for firefighting at his own cost. For this purpose, he shall provide requisite number of fire extinguishers and adequate number of buckets, some of which are to be always kept filled with sand and some with water. This equipment shall be provided at suitable prominent and easily accessible place and shall be properly maintained.
- ii) Any deficiency in the fire safety or unsafe conditions shall be corrected by the contractor at his own cost and, to the approval of the relevant authorities. The contractor makes the following arrangements at his own cost but not limited to the following:



- a) Proper handling, storage and disposal of combustible materials and waste.
- b) Work operations which can create fire hazards.
- c) Access for fire-fighting equipment.
- d) Type, number and location of containers for the removal of surplus materials and rubbish.
- e) Type, size, number and location of fire extinguishers or other fire fighting equipment.
- f) General house keeping

#### **12.0 Site order book**

A site order book shall be maintained at site for the purpose of quick communication between the Architect / Consultant. Any communication relating to the work may be conveyed through records in the site order book. Such a communication from one party to the other shall be deemed to have been adequately served in terms of contract. Each site order book shall have machine numbered pages in triplicate and shall be carefully maintained and preserved by the contractor and shall be made available to the Architect / consultant as and when demanded. Any instruction which the Architect / consultant may like to issue to the contractor or the contractor may like to bring to the Architect / consultant two copies of such instructions shall be taken from the site order book and one copy will be handed over to the party against proper acknowledgment and the second copy will be retained for their record.

#### **13.0 Temporary fencing/ barricading**

The contractor shall provide and maintain a suitable temporary fencing / barricading and gates at his cost to adequately enclose all boundaries of the site for the protection of the public and for the proper execution and security of the work and in accordance with the requirement of the Architect / consultant and regulations of local authorities. These shall be altered, relocated and adopted from time to time as necessary and removed on completion of the work.

#### **14.0 Site meetings**

Site meetings will be held to review the progress and quality evaluation. The contractor shall depute a senior representative along with the site representative and other staff of approved sub-contractors and suppliers as required to the site meetings and ensure all follow up actions. Any additional review meetings shall be held if required by the Architect/ consultant. -

#### **15.0 Disposal of refuse**

The contractor shall cart away all debris, refuse etc. arising from the work from the site and deposit the same as directed by the Architect / consultant at his own cost. It is the responsibility of the contractor to obtain from the local authorities concerned to the effect that all rubbish arising out of contractor's activities at the construction site or any other off-site activities borrow pits has been properly disposed of.

#### **16.0 Contractor to verify site measurement**



The contractor shall check and verify all site measurements whenever requested other specialist contractors or other sub-contractors to enable them to prepare the own shop drawing and pass on the information with sufficient promptness as will in any way delay the works.

**17.0 Displaying the name of the work**

The contractor shall put up a name board of suitable size as directed by the Architect/ consultant indicating therein the name of the project and other details as given by the Architect/consultant at his own cost and remove the same on completion of work.

**18.0 As built drawings**

- i) For the drawings issued to the contractor by the Architect / Consultant. The Architect Consultant will issue two sets of drawings to the Contractor for the items for some changes have been made. From the approved drawings as instructed by the SBIIMS / Architect / Consultant. The contractor will make the changes made on these copies and return these copies to the Architect / Consultant for their approval. In cases revision is required or the corrections are not properly marked the Architect / Consultant will point out the discrepancies to the contractor. The contractor will have to incorporated these corrections and / or attend to discrepancies either on copies as directed by the Architect / consultant and resubmit to him for approval. The Architect / consultant will return one copy duly approved by him.
- ii) For the drawings prepared by the contractor

The contractor will modify the drawing prepared by him wherever the changes made by the SBIIMS / Architect / Consultant and submit two copies of such modified drawings to the Architect / Consultant for approval. The Architect / consultant will return one copy of the approved drawing to the contractor.

**19.0 Approved make**

The contractor shall provide all materials from the list of approved makes at his own cost and also appoint the specialized agency for the waterproofing anti-termite, aluminum doors and windows and any other item as specified in the tender. The Architect / Consultant may approve any make / agency within the approved list as given in the tender after inspection of the sample/mock up.

**20.0 Procurement of materials**

The contractor shall make his own arrangements to procure all the required materials for the work. All wastages and losses in weight shall be to the contractors account

**21.0 Excise Duty, Taxes, Levels etc.;**

The contractor shall pay and be responsible for payment of all taxes, duties, levies, royalties, fees, cess or charges in respect of the works including but not limited to sales tax, tax on works contract excise duty, and octroi, payable in respect of materials, equipment plant and other things required for the contact. All of the aforesaid taxes, duties, levies, fees and charges shall be to the contractor's account and the SBIIMS shall not be required to pay any additional or extra amount on this account. Variation of taxes, duties, fees, levies etc. if any, till completion of



work shall be deemed to be included in the quoted rates and no extra amount on this account. Variation of taxes, duties, fees, levies etc. if any, till completion of work shall be deemed to be included in the quoted rates and no extra claim on this account will in any case be entertained. If a new tax or duty or levy or cess or royalty or octroi is imposed under as statutory law during the currency of contract the same shall be borne by the contractor.

#### **22.0 Acceptance of tender**

The SBIIMS shall have the right to reject any or all tenders without assigning any reason. They are not to bind to accept the lowest or any tender and the tenderer or tenderers shall have no right to question the acts of the SBIIMS However adequate transparency would be maintained by the SBIIMS

#### **23.0 Photographs:**

- The Contractor shall at his own expense supply to the Architects with duplicate hard copies of large photographs not less than 25 cm. x 20 cm. (10" x 8") of the works, taken from two approved portions of each building, at intervals of not more than one months during the progress of the work or at every important stage of construction.
- In addition to above, the contractor shall be bound to submit adequate no. of site photographs along with each Running Bill for the project clearing showing major progress of work measured and claimed therein failing which the Architect/ SBIIMS may consider returning the Bill to the contractor and no claim for delay on this account will be entertained.



### **SAFETY CODE**

1. First aid appliances including adequate supply of sterilized dressing and cotton wool shall be kept in a readily accessible place.
2. An injured person shall be taken to a public hospital without loss of time, in cases when the injury necessitates hospitalization.
3. Suitable and strong scaffolds should be provided for workmen for all works that cannot safely be done from the ground.
4. No portable single ladder shall be over 8 meters in length. The width between the side rails shall not be less than 30 cm. (clear) and the distance between two adjacent rungs shall not be more than 30 cm. When a ladder is used an extra handrail shall be engaged for holding ladder.
5. The excavated material shall not be placed within 1.5 meters of the edge of the trench half of the depth of trench whichever is more. All trenches and excavations shall be provided with necessary fencing and lighting.
6. Every opening in the floor of a building or in a working platform be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be one meter.
7. No floor, roof or other part of the structure shall be so overloaded with debris or material as to render it unsafe.
8. Workers employed on mixing and handling material such as asphalt, cement, mortar, concrete and lime shall be provided with protective footwear and rubber hand gloves.
9. Those engaged in welding works shall be provided with welders' protective eye shield and gloves.
10. (i) No paint containing lead or lead products shall be used except in the form of paste readymade paint.  
(ii) Suitable facemasks should be supplied for use by the workers when the paint applied in the form of spray or surface having lead paint dry rubbed and scrapped.
11. Overalls shall be supplied by the contractor to the painters and adequate facilities shall be provided to enable the working painters to wash during cessation of work.
12. Hoisting machines and tackle used in the works including their attachments anchor and supports shall be in perfect condition.
13. The ropes used in hoisting or lowering material or as a means of suspension shall be durable quality and adequate strength and free from defects.



**APPENDIX HEREINBEFORE REFERRED TO**

- 1) Name of the organization Offering Contract: Vice President & Circle Head,  
SBI Infra Management Solutions Pvt.  
Ltd. SBI, Local Head Office, 3<sup>rd</sup> floor, C-  
6, G-Block, Synergy Building, Bandra-  
Kurla Complex, Bandra (East),  
Mumbai-400 051.
- 2) Consultants : M/s. RAJVILAS D. GADKARI  
Architects & Interior Designers  
1B, JMD Comm. Complex, Opp.  
Allahabad Bank, V. N. Purav Marg,  
Chembur-East, Mumbai-400071.  
TEL. NO. 2528 9963  
M: 98210 49457
- 3) Site Address : Ground Floor, G 4, SMC, Khopat  
Thane west, 400 601.
- 4) Scope of Work : Interior Renovation/ Furnishing
- 5) Name of the Contractor : \_\_\_\_\_  
\_\_\_\_\_
- 6) Address of the Contractor : \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- 7) Period of Completion : 60 **days** from the date of  
Commencement
- 8) Earnest Money Deposit : Rs. 24,000/- (Rupees Twenty Four  
Thousand only) by means of Demand  
Draft / Pay Order (Valid for a period of  
90 Days from the last date of  
submission of the tender) from any  
scheduled Nationalized Bank drawn in  
favour of SBI Infra Management  
Solutions Pvt. Ltd. and payable in  
Mumbai.
- 9) Retention Money : As per clause no. 11(a) of general  
Conditions
- 10) Defects Liability Period : Twelve Months from the date of  
Virtual Completion.

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



- 11) Insurance to be undertaken by the Contractor at his cost : 125% of Contract Value (Contractor's all risk policy)
- 12) Liquidated damages : 0.5% of the Contract amount shown in the tender per week subject to max. 5% of the contract value or actual final bill value.
- 13) Value of Interim Bill (Min.) : **Rs. 5.00 Lakhs.**
- 14) Date of Commencement letter : 7 days from the date of acceptance  
is issued to the Contractor/ or the day on which the Contractor is instructed to take possession of the site whichever is earlier.
- 15) Period of Final Measurement : 2 Months from the date of Virtual Completion.
- 16) Initial Security Deposit Tender. (Clause No. 22) : 2% of the Accepted Value of the
- 17) Total Security Deposit : As per clause No. 11 a
- 18) Refund of initial Security Deposit Comprising of EMD and ISD. : 50% of the Security Deposit shall be refunded to the Contractor on completion of the work and balance refunded only after the Defect Liability Period is over.
- 19) Period for Honoring Certificate : 1. One Month for R.A. Bills  
2. The final bill will be submitted by the Contractor within one month of the date fixed for completion work and the Bill shall be Certified within 3 months from the date of receipt of final bill provided the bills are submitted with all pre-requisite documents/test reports etc. prescribed in the tender.

---

Signature of Tenderer.  
Date:





**INDEX**  
**PROFORMAS OF VARIOUS TESTS**

<b>TABLE NO.</b>	<b>DESCRIPTION</b>	<b>PAGE NO.</b>
1.	Record of Cement/Received/Used/Balance.	
2.	Proforma of Paint/Lead/CICO Register.	
3.	Bank for Reinforcement Bars Received.	
4.	Proforma for Register of Material of Site Account.	
5.	Proforma for Account of Secured Advance Register.	
6.	Proforma for Bulkage Test of Sand Register.	
7.	Proforma for Silt Test Register.	
8.	Proforma for Sieve Analysis of Fine Aggregate Register.	
9.	Proforma for Sieve Analysis of Coarse Aggregate Register.	
10.	Proforma for Slump Test Register.	
11.	Proforma of Cube Test Register.	
12.	Proforma for Hindrance to Work.	
13.	Proforma for Running A/c. Bill.	
14.	Account of Secured Advance if Admissible on Materials Held at Site by the Contractors	
15.	Memorandum for Payment.	



TABLE-I

**RECORD OF CEMENT RECEIVED / USED / BALANCE**

S. No.	Cement in stock Bags	Cement received (Bags)	Total Cement received (Bags)	Source4 from which received	Description of work where cement is used	Number of cement bags consumed	Balance in stock	Signature of Contractors Bank / Engineer
1	2	3	4	5	6	7	8	9



**RECORD OF PAINT / LEAD / CICO REGISTER**

Name of work :

Name of the Contractor :

Agreement No. :

Date of Receipt	Source Receipt with Ref. To S.O./Incident	Qty. Received	Progressive Total	Item of work for which issued with approx. qty. work done in case of paint only	Date of issues	Quantity issued	Qty. returned at the end of the day	Total issued	Delay Balance at hand	Contractors initials	Site Engineers initials	Signature of Banks/ Architect
1	2	3	4	5	6	7	8	9	10	11	12	13

Register for bitumen should be maintained. The format will be similar to that for cement.

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



TABLE-III

**BANK FOR REINFORCEMENT BARS RECEIVED**

Truck No.	Challan No.	Name of Supplier	Binding Wire	6mm dia.	8mm dia.	12mm dia.	16mm dia.	20mm dia.	25mm dia.	Total Received
1	2	3	4	5	6	7	8	9	10	11

Number of diameters given is only illustrative. Open more columns for other diameters wherever needed.

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



**PROFORMA FOR REGISTER OF MATERIAL AT SITE ACCOUNT**

Name of Work : Name of Article :  
Name of Contractor : Estimated Requirement :  
Agreement No. : Issue Rate :

Date of Receipt	Received from/Issued to (with Ret. to So/Indent)	Receipt	Issue	Balance	Initials of Contractor	Initial of Bank's/Architect's representative	Remark
1	2	3	4	5	6	7	8

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



**PROFORMA FOR REGISTER OF MATERIAL AT SITE ACCOUNT**

Name of Work :

Name of Contractor :

Agreement No. :

Descripti on of Material	Qty. outstanding from previous Bill	Deduct Qty. utilised in works measured since previous bill	Qty. outstanding & Qty. brought to site since previous bill	Signature of Site Engineer	Signature of Contractor	Initial of Bank's/ Architect's representative	Remark
1	2	3	4	5	6	7	8

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



**PROFORMA FOR BULKAGE TEST OF SAND REGISTER**

Sr. .No.	Date of Test	Volume of dust sand in Cylinder inundated & stirred	Volume inundated Sand in Cylinder	Percentage of Bulkage	Signature of Site Engineer	Signature of Contractor	Initial of Bank's Architect's representative (Periodical)
1	2	3	4	5	6	7	8

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



**PROFORMA OF SILT TEST REGISTER**

Sr. No.	Date of Test	Height of Sand in Cylinder inundated & stirred	Height of Silt	Max percentage of silt as specified	Percentage of silt obtained	Signature of Site Engineer	Signature of Contractor	Initial of Bank's / Representative (Periodical)
1	2	3	4	5	6	7	8	9

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal





**PROFORMA SIEVE ANALYSIS OF FINE AGGREGATE REGISTER**

Sr. No	Date of Test	Wt. of Material to be tested	Sieve as per I.S. designation	Wt. of Sand retained in sieve	%a retained in each sieve successively	Cumulative % retained in each sieve	F.M.	Signature of Site Engineer	Signature of Contractor	Signature of Banks/ Architect's representative & Remarks (Periodical)



**PROFORMA OF SIEVE ANALYSIS OF COARSE AGGREGATE REGISTER**

S. No.	Date of Testing	Wt. of Material to be tested	Nominal size of Aggregate	I.S. Sieve designation	Standard passing for graded aggregate. of nominal size	Test Result	Obtained passing	Signature of Site Engineer	Signature of Contractor	Signature of Banks/ Architect's representative & Remarks (Periodical)
1	2	3	4	5	6	7	8	9	10	11

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



TABLE-X

**PROFORMA FOR SLUMP TEST REGISTER**

Sr. No .	Date of Testing	Type of work for which slump taken	Specified slump		Slump Obtained		Signature of Site Engineer	Signature of Contractor	Signature of Banks/ Architect's representative & Remarks (Periodical)
			When Vibrator s are used	When Vibrators are not used	When Vibrators are used	When Vibrators are not used			
1	2	3	4	5	6	7	8	9	10

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



TABLE-XI

**PROFORMA OF CUBE TEST REGISTER**

Date of taking Cube + Lime	Sample No.	No. of Cubes taken	Specific marking of Cubes	Proportion of mixture	Description of work carried out	Signature of Engineer taking sample	Signature of Contractor	7/28 Days Testing				Permissible Compressive strength of Concrete / 28 Days / 7 days		Remarks on Test Report and No.	Remarks of Banks/ Architects representative Periodicals
								Date of Test	Test Result Kg/ Sq.cm	Av. Strength Kg. / Sq.cm.	Standard strength Kg / Sq.cm.	7 Days	28 Days		
1	2	3	4	5	6	7	8	9	10	11	12	13		14	15



**PROFORMA FOR HINDRANCE TO WORK**

Name of Work : Date of Start of work :  
Name of Contractor : Period of Completion :  
Agreement No. : Dt. of Completion of work :

S.No.	Nature of Hindrance	Date of Occurrence of Hindrance	Date of which Hindrance was removed	Period of which Hindrance existed	Signature of Site Engineer	Signature of Bank / Architects Representative
1	2	3	4	5	6	7

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



### **PROFORMA FOR RUNNING A/C BILL**

- i. Name of Contractor / Agency :  
 ii. Name of Work :  
 iii. Sl. No. of this Bill :  
 iv. No. & Date of previous Bill :  
 v. Reference to Agreement No. :  
 vi. Date of Written order to commence :  
 vii. Date of Completion as per Agreement :

S. No.	Item Description	Unit	Rate (Rs.)	As per Tender	
				Quantity	Amount (Rs.)
1	2	3	4	5	

Up to Previous R.A. Bill		Up Date (Gross		Present Bill		Remarks
Quantity	Amount (Rs.)	Quantity	Amount (Rs.)	Quantity	Amount (Rs.)	
6		7		8		9

- Note: 1. If part rate is allowed for any items, it should be indicated with reasons for allowing such a rate.  
 2. If ad-hoc payment is made, it should be mentioned specifically.

\_\_\_\_\_  
 Net Value since previous bill

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
 with Seal



**CERTIFICATE**

The measurements on the basis of which the above entries for the Running Bill No. ----- were made have been taken jointly on ----- and are recorded at pages ----- to ----- of measurement book No. ----  
-----.

-----  
Signature and  
date of Contractor

-----  
Signature and  
date of Architects  
Representative (Seal)

-----  
Signature and  
date of Site Engineer

The work recorded in the above-mentioned measurements has been done at the site satisfactorily as per tender drawings, conditions and specifications.

-----  
Architect

-----  
Signature and  
date of Site Engineer

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



**ACCOUNT OF SECURED ADVANCE, IF ADMISSIBLE ON  
MATERIALS HELD AT SITE BY THE CONTRACTOR**

S. No.	Item	Quantity	Unit	Amount	Remarks
1	2	3	4	5	6

Total value of materials at Site.

Secured Advance @ ----- of above value - B

**CERTIFIED:**

- (i) That the materials mentioned above have actually been brought by the Contractor to the site of the work and on advance on any quantity of any of this item is outstanding on their security.
- (ii) That the materials (are of imperishable nature) and are all required by the Contractor for use in the work in connection with the items for which rates of finished work have been agreed upon.

Dated Signature of  
Site Engineer  
Preparing the bill  
Rank -----

Date signature of  
Banks Architects-----  
(Name of the Architects)

-----  
Dated Signature of  
the Contractor

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



**MEMORANDUM FOR PAYMENT**

R/A BILL NO.

- |    |   |           |
|----|---|-----------|
| 1. | Total value of work done since previous bill (A)  | Rs. ----- |
| 2. | Total amount of secured advance due since Previous Bill (B)   | Rs. ----- |
| 3. | Total amount due since Previous Bill (C) (A+B)  | Rs. ----- |
| 4. | PVA on account of declaration in price of Steel, Cement and other materials and labour as detailed in separate statements enclosed. | Rs. ----- |
| 5. | Total amount due to the Contractor  | Rs. ----- |

**OBJECTIONS:**

- |      |   |           |
|------|---|-----------|
| i)   | Secured Advance paid in the previous R/A  | Rs. ----- |
| ii)  | Retention money on value of works as per accepted tenders up to date amount Rs.                                       | Rs. ----- |
|      | Less already recovered  | Rs. ----- |
|      | Balance to be recovered   | Rs. ----- |
| iii) | Mobilization Advance, if any  |           |
| (a)  | Outstanding amount (principal + interest) as on date  | Rs. ----- |
| (b)  | To be recovered in this bill  | Rs. ----- |
| iii. | Any other Departmental materials cost to be recovered as per contract, if any   | Rs. ----- |
| iv.  | Any other Departmental service charges to be recovered if any, as per contract (water, power etc.) enclose statement. | Rs. ----- |

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



Total Deduction as per contract (F) Rs. -----

Adjustments, if any ----- Rs. -----  
Amount less received by Contractor in  
----- R/A Bill (as per statement of  
Contractor)

P.V.A. Rs. -----

Total amount payable as per contract  
(E+F+G) Rs. -----

(Rupees ----- in  
words)

The bill amount to Rs. ----- (both figures and words) has been scrutinized by us  
after due checking of the measurements of work as required and is recommended for  
payment.

Date: -----

-----  
Signature of Architect  
with Seal

The bill amount to Rs. ----- certified by Consultants has been scrutinized by me  
after due test checking of measurements of works as required and is recommended for  
payment for an amount of Rs. ....

Date : -----

-----  
Signature of Owners  
Engineer

**STATUTORY DEDUCTION:**

i) Total Amount due (E) Rs. -----

ii) Less I.T. Payable Rs. -----

iii) Less S.T. Payable Rs. -----

Net Payable Rs. -----

These figures given in the Memorandum for payable has been verified and bill passed for  
payment ----- (in words and figures)

Date: -----

-----  
Signature of the MD&CEO

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



# LIST OF MATERIALS OF APPROVED BRAND AND THEIR MANUFACTURERS

S.N.	MATERIALS	APPROVED MANUFACTURERS
1	Laminate	Archid, Aerolam, Greenlam, Century, Royal Touch
2	Veneer	Archid, Green, Century, Duro
3	Plywood	Archid Ply, Duro, Century, Greenply
4	MDF Board	Century MDF, Greenply MDF, Duratuff MDF, Archid MDF
5	Flush Doors	Archid, Duro, Century, Green
6	Calcium Silicate	Ramco Hilux, Yunion Board
7	Aluminum Extruded Sections	Jindal, Hindalco, Bharat, Maan
8	Aluminum Fittings	Jindal, Hindalco, Bharat, Maan
9	Drawer Sliding Fittings	Godrej, Hettich, Haffle
10	Readymade Computer Drawer	Godrej, Hettich, Haffle Blum
11	Glazing	Saint Gobain, Aasahi Float, Modi Guard
12	Patch Fittings & Locks	Dorma, Godrej, Dorset
13	Handles	Godrej, Hettich, Haffle
14	FRP Doors	Godrej, Aditya FRP, Rawji FRP
15	Mineral Fibre False Ceiling	Armstrong
16	Tapered Edge Gypsum Plain Board	India Gypsum
17	Roller / Venetian Blinds	Vista Levour, Marshall, MAC, Dack
18	ACP Panels	Aluco bond, ALU Décor, Alstrong, Alstone
19	Acrylic Sheets	Sanmati Acrylics, Acrylic Sheet India, Acry Plus
20	Oil Bound Distemper	Nerolac, Asian, Sherwin Willams Paints.
21	Synthetic Enamel Paint	Nerolac, Asian, Sherwin Willams Paints.
22	Acrylic Emulsion paint	Nerolac, Asian, Sherwin Willams
23	Texturized Interior Paint	Sandtex Matt, Dulux, Berger, Asian
24	Cement Paint	Snowcem/ Surfacem/ Durocem
25	Wooden Flooring	Pergo, Xylox, Armstrong, Vista
26	False Flooring	Unifloor, Armstrong, Flexi Access
27	Vitrified Tiles	Kajaria, Simpolo, Nitco, RAK
28	Anti-skid Ceramic Tiles	Kajaria, Bell Ceramics, Simpolo, RAK Ceramics
29	Ceramic Wall Tiles	Kajaria, Bell Ceramics, Simpolo, RAK Ceramics.
30	Waterproofing Compound	Sunanda, Pidilite, Roff Chemicals, BASF, Dr. Fixit,
31	Cement (43/53 Grade), (OPC/PPC)	Ultratech, A.C.C., Lafarge.
32	CPVC Pipes	Prince, Supreme, Astral
33	PVC Waste Pipe	Prince, Supreme, Astral
34	Kitchen SS Sinks	Nirali, Faber, Neelkant
35	Sanitary Wares	Makes: Parryware, Hindware, Cera
37	Faucets	Jaquar, Plumber, Cera



- NB. 1) The contractor should obtain prior approval from Employer / Consultants before placing order for any specific materials. Employer may / delete any of the makes or brands out of the above list.
- 2) All materials should conform to relevant standards and codes of BIS.
- 3) Materials with I.S.I. mark shall be used duly approved by the SBIIMS Engineer / Architect.

Note: - If any material is found to be not up to the mark, the contractor will have to produce original bills/certificate from the manufacturer or his authorized Distributor for authenticity and genuineness of the material for consideration and as per make approved by the SBIIMS. The same will not be considered for payment.



### **PREAMBLE TO SCHEDULE OF QUANTITIES**

Note: While quoting rates for each item of work, the contractor shall include for the following irrespective whether it has been mentioned or not in the description of the item without any extra claim / payment.

1. All unexposed surfaces of timber (any variety) used shall be treated with necessary coats of wood preservative.
2. All exposed surfaces of timber (any variety) shall also have necessary coat of wood primer / putty and paint / polish as per description in the item.
3. Before making bulk quantities, the contractor shall make each of the item as sample and get it approved in writing from the consultant's minor modification if and as suggested by the consultant the same shall have to be incorporated without any extra cost.
4. All exposed edges of ply board shall be fixed with cedar / teak wood lipping.
5. All fabrics / leatherite to be used shall cost Rs. 300/- per meter unless otherwise specified in the item.  
Difference in cost for approved sample shall be adjusted accordingly.
6. For furniture item where required whether mentioned or not shall be include providing fixing of Brass / Power coated handles /knobs multipurpose locks, mini tower bolts, ball catchers, hinges, screws and sliding rails etc.
7. Back of all storage, cabinets, and consoles shall be in 6mm commercial ply only.
8. Thickness of laminates to be used shall be 1 mm except where specified.
9. Ant termite treatment is to provide for all wood / board /ply used in the storage.



## **SECTION – A: MATERIALS**

- 1) Material shall be of best approved quality obtaining and they shall comply with the respective Indian Standard Specification.
- 2) Samples of all materials shall be got approved before placing order and the approved sample shall be deposited with the Architect.
- 3) In case of non-availability of materials in metric sizes the nearest size in FPS units shall be provided with prior approval of the Architects for which neither extra will be paid nor shall any rebates be recovered.
- 4) If directed, materials shall be tested in any approved Testing Laboratory and the test certificates in original shall be testing including charges for repeated tests, if ordered, shall be borne by the Contractor.
- 5) It shall be obligatory for the Contractor to furnish certificate, if deemed by the Architects, from manufacturer or the material supplier that the work has been carried out by using their material and as per their recommendations.
- 6) All materials supplied by the Employer / any other Specialist Firms shall be properly stored and the Contractor shall be responsible for its safe custody until they are required on the works and till the completion of the work.
- 7) Unless otherwise shown on the Drawings or mentioned in the “Schedule of Quantities” or special specification, the quality of materials, workmanship, dimensions, etc., shall be as specified as hereunder.
- 8) All equipment and facilities for carrying out field tests on materials shall be provided by the Contractor without any extra cost.

a) **Timber** :

Timber shall be well seasoned and of the best quality Indian Teak of specified species viz., Dandeli, Balarshah, Melabar, C.P.

Timber shall be considered as well seasoned, if its moistures content does not exceed the following limits.

a) Timber for frames	14%
b) Timber for planking, shutters, etc.	12%

The moisture content of timber shall be determined according to method described in paragraphs 4 of IS:287 for Maximum permissible moisture content of timber used for different purpose in different climatic zones.

In measuring cross-sectional dimensions of the frame pieces tolerance up to 1.5 mm. shall be allowed for each planed surface.

b) **Superior quality Indian Teak Wood** :

Superior quality Indian Teakwood means Dandeli, Balarshah, and Malabar Teak. It shall be of good quality and well-seasoned. It shall have uniform colour, reasonably straight grains, and shall be free from large. Loose, dead knots, cracks, shakes, warp, twists, bends, borer holes, sap-wood or defects of any kind. No individual hard and should knot shall be more than 1 cm. in diameter and aggregate areas of all knots shall not exceed ½% of area of the piece. There shall not be less than 6 growth rings per 2.5 cm. width.



c) **1<sup>st</sup> Class Indian Teakwood :**

1<sup>st</sup> Class Indian Teakwood means C.P. and Bulsar teak of good quality and well-seasoned. It shall have uniform colour, reasonably straight grains and shall be free from large. Loose dead knots, cracks, shakes, warp, twists, bends, sap-wood or defects of any kind. No individual hard and should knot shall be more than 2.5 cm. in diameter and aggregate areas of all the knots exceed 1% areas of the piece. There shall not be less than 5 growth tings per 2.5 cm. width.

d) **2<sup>nd</sup> Class Indian Teakwood :**

Shall be similar to first class Indian teak wood except that knot up to 4 cm. diameter and aggregate area of all knots up to 1 ½% of the area of the piece shall be allowed. There shall not be sapwood up to 15% is allowed.

e) **Flush Doors :**

All flush doors shall be solid core exterior grade unless otherwise specified and it shall generally confirm to IS:2202 and shall be fabricated as described under specification.

f) **Steel Windows and Doors :**

Steel windows and doors shall be fabricated of steel sections conforming to IS:226. They shall conform to IS 1038. Unless otherwise specified the details of construction etc., shall be as described under specification.

g) **Glazing :**

Glass used for glazing shall be float glass of best quality, free from flaws, specks bubbles and shall be 2.9 mm. thick up to 0.60 x 0.60 mm. size and for larger size it shall be 4 mm. thick unless otherwise specified in the Schedule of Quantities.

The following type of glasses shall be used:-

1) For Office Building	Clear glass or as specified in the Schedule of Quantities.
2) Office (toilets)	Clear or frosted
3) Partitions	Frosted

h) **Paints :**

Lime for lime wash, dry distemper, oil bound distemper cement primer, oil paint, enamel paint, flat oil paint, plastic emulsion paint, anti-corrosive primer, red lead, water-proof cement paint and exterior grade Acrylic Emulsion paint, cement paint, sand-tex matt shall be from an approved manufacturer and shall conform to the latest Indian Standard for various paints. Ready mixed pains as received from the manufacturer without any admixture shall be used, except for addition of thinner, if recommended by the manufacturer.



Note :

In connections with the I.S. Code numbers indicated under Section, Specification,  
Section A – General

Refer to the following I.S. Code numbers and the year and or otherwise latest modified  
I.S. Code Number.

1) Cement	:	I.S. 269 – 1976
2) Lime	:	I.S. 712 – 1964
		I.S. 1624 – 1960
3) Fine – Aggregate	:	I.S. 383 – 1970
4) Coarse – Aggregate	:	I.S. 515 – 1970
5) Reinforcement	:	I.S. 432 – 1966 Fe 415
		I.S. 1786 – 1966 (Tor Steel)
		I.S. 1139 – 1966
6) Bricks	:	I.S. 1077 – 1970
7) Neeru	:	I.S. 712 – 1964
8) Surkhi	:	I.S. 1344 – 1968
9) Timber	:	I.S. 287 – 1960
10) Flush Doors	:	I.S. 2202 – 1966
11) Floor Tiles	:	I.S. 1237 – 1980
12) Ceramic / Vitrified Tiles	:	I.S. 777 – 1970
13) Asbestos Roofing and Rainwater pipes	:	I.S. 459 – 1962
14) R.C.C. design mix M-25	:	I.S. 456 – 2000

### **SECTION – B: MODE OF MEASUREMENTS**

The method of measurement for various items in the tender shall be generally in accordance with the IS: 1200 subject to the items for which the mode of measurements is not given under or elsewhere in the tender.

#### **1) Wood Work:**

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal





All work shall be measured net as fixed. No extra measurement will be given for shape, joints, splayed meeting styles of doors and windows and shall be measured in unit of square meters.

Area over the face inclusive of exposed frame thickness (excluding width of cover mould) shall be measured in case of door, windows and ventilators when frames are included in the item. Portions embedded in masonry or flooring shall not be measured. Where frames are measured separately mode of measurement shall be as per C.P.W.D. practice or IS:1200.

2) **Steel doors, windows, ventilators, louvers:**

Clear area over one face inclusive of exposed frame shall be measured. Holdfasts or portions embedded in masonry or flooring shall be measured.

3) **Steel rolling shutters and rolling grilles:**

Clear width between side jambs and clear height between floor and bottom of lintel / beam shall be measured. Hood shall not be measured separately. The rate should be inclusive of the cost of hood.

4) **Plastering and Pointing:**

All plastering and pointing shall be measured in square meters unless otherwise described.

Net area of surface plastered shall be measured. No deductions will be made for ends of joints, beams, posts, etc., and opening not exceeding 0.5 sq.mtr. each and no additions shall be made neither for reveals, jambs, soffits, sills, etc. of these openings nor for finishing the plaster around openings, ends, of joists, beam and posts, etc.

Full deductions will be made for door, window and ventilator from each side with adding jambs for door, window and ventilator.

5) **Painting, White Washing, Colour Washing and Distemping:**

All painting work shall be measured in square meters.

Net area of surface painted shall be measured. No deductions will be made for unpainted surfaces of ends of joists, beams, posts etc., and opening not exceeding 0.5 sq.mtr. each and no additions shall be made for reveals, jambs, soffits, sills, etc., of these openings.

Full deductions will be made for door, window and ventilator from each side with adding jambs for door, window and ventilator.

No coefficient will be considered for painting over sponge finished or sand faced plaster.

The following multiplying factors for obtaining equivalent areas shall be adopted.



No.	Description of works	How measured	Multiplying Factor
a)	Wood paneled framed ledged, braces and battened.	Measured flat (not girthed) including frame, edges, chawkats, cleats, etc., shall be deemed to be included in the item.	1 1/8 (for each side).
b)	Wood flush part paneled and part.	-- do -- glazed or gauzed.	1 (for each side).
c)	Fully glazed or gauzed or glazed louvered ventilators / window / door.	-- do --	1/4 (for each side).
d)	Fully venetioned of louvered (not with glazing).	-- do --	1 1/2 (for each side).
e)	Weather boarding.	Measured flat (not girthed supporting frame work shall not be measured separately).	1 1/8 (for each side).
f)	Trellis (or Jaffri) work one way or two ways.	Measured flat overall, no deduction shall be made for opening (supporting members shall not be measured separately)	1 (for each side).
g)	Guard bars, balustrades, gratings, grille railings, grille partitions, etc.	--- do ---	1 (for painting all over).
h)	M.S. gates & open palisades fencing, door including standards, braces, rails, stays, etc.	See note below	1 (for painting over all).
i)	Steel rolling / alligator type shutters.	Measured flat over jambs, guides, bottoms, rails and locking arrangement etc. shall be deemed to be included in the item.	1 1/4 (for each side).
j)	Carved or enriched work.	Measured flat.	2 (for each side).
k)	Fully glazed or gauzed steel windows or partitions.	Measured flat.	1 1/4 (for all over).

**Note :**

The height shall be taken from the bottom of the lowest rail, if the palisades do not go below it (or from the lower end of the palisades, if they project below the lowest rail) up to the top of the palisades, but not up to the top of the standards, if they are higher than the palisades. Similarly, for the gates, depth of roller shall not be considered while measuring the height.



Area painted over sand cement plaster, sponge finished / sand faced plaster / rough cast plaster area painted without considering any coefficient for painting over sand faced plaster

### **SECTION – C: WORKMANSHIP**

**Note:** Workmanship for all items related to the construction work should be as per relevant I.S. Code.

#### **WOOD WORK**

Timber used shall conform to specifications described under Materials, Doors, Windows, Ventilators, walls, Paneling, False Ceiling, etc., shall be in accordance with Architect's drawing in every detail and all joiner's work shall be accurately set out, framed and finished

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



in a proper workman-like manner, frames of doors, windows and ventilators etc. and shutter styles and rails shall be best solid teak of quality specified in the schedule of quantities. The scantlings shall be accurately planed smooth, rebates, rounding and mouldings shall be made as shown on the drawings, patching or plugging of any kind shall not be allowed. Joints shall be simple, neat and strong. Framed joints shall be coated with suitable adhesive like glue or synthetic resin before the frames are put together. All mortice and tenon joints shall be fit and fully and accurately without wedging on filling. The joints shall be pinned with hard wood or bamboo pins of 10 mm. to 12 mm. dia. or rust resisting star shaped metal pins 8 mm. after the frames are put together and pressed in position by means of press. The frames are put together and pressed in progress of work by suitable boxing. All portions of timber abutting against or embedded in masonry or concrete shall be treated against termites by giving a coat of any approved wood preservative.

Unless otherwise specified all doors, frames shall have six M.S. flat holdfasts and window frames shall have four holdfasts shall be provided to the ventilators, if directed. Size of holdfasts shall be 30 mm. x 40 mm. x 6 mm. M.S. flat bent to shape worth fish tail end and it shall be fixed to frame with sufficient number of screws as directed. When door / window frames are to be fixed to R.C.C. column or R.C.C. wall, holdfasts shall be substituted by suitable arrangements such as coach crews, rawl bolts etc., to secure frames to R.C.C. column or R.C.C. wall as directed by the Architect.

Frames and shutter shall not be painted or erected before being approved by Architect.

#### **Paneled Shutter :**

Panels shall be of pattern and size as shown on the drawings or as directed by Architect. Solid teak wood panels shall be in one piece wherever possible. Where two or more pieces are permitted, they shall be of equal width. Panels shall be framed into grooves made in styles and rails to the full depth of groove and faces shall be closely fitted to sides of groove.

Where panels specified are block board, it shall be solid core with teak internal lipping and of approved make.

Partly paneled and partly glazed shutter shall be similar to paneled shutters except that such parts as are directed shall be glazed with plain or ground glass as specified. Styles and rails shall be rebated 12 mm. to receive glass. Sash bars shall be moulded and rebated and mitred on sides to receive the glass which shall be fixed with putty and beads.

#### **Hardware Fittings :**

Unless otherwise specified all hardware, fittings and fixtures shall be supplied by the employer free of charge. However, the cost of fixing fittings shall be included in the rate quoted. The fixing shall be done in the best workman-like manner in accordance with the manufactures specifications. The Contractor shall be held responsible for working of all moving parts dependent on proper fixing. He will also be responsible for any breakage due to negligence during fixing or lack of protection before the building is handed over. The



Contractor shall also take delivery of all hardware fittings etc., as and when supplied and arrange for safe storage etc.

Hardware required for fixing false ceiling, wall paneling etc., shall be arranged by the Contractor at his cost. Apart from the hardware fittings required for the joinery items, the Contractor shall have to fix all other items of hardware fittings to be supplied by the employer viz. coat / picture hooks, numerical, letters to denote buildings, hanging rods etc., as directed by the Architects.

Painting and polishing of wood work shall be as per specifications under respective heads.

#### **Flush Doors :**

All flush doors shall be solid core unless otherwise specified. It shall conform to the relevant specifications of I.S. 2202 and shall be obtained from approved manufactures. The finished thickness of the shutter shall be mentioned in the items. Face veneers shall be of the pattern and colour approved by the Architect and an approved sample shall be deposited with the Architect for reference.

The solid core shall be wood laminae prepared from battens of well-seasoned and treated good quality wood having straight grains. The battens shall be of uniform size of about 2.5 cm. width. These shall be properly glued and machine pressed together, with grains of each piece reversed from that of adjoining one. The longitudinal joints of the battens shall be staggered and no piece shall be less than 50 cm. in length. Alternatively, the core shall be of solid teak particle board. Edges of the core shall be lipped internally with 1<sup>st</sup> Class teak wood battens of 4 cm. (1.5") minimum depth, glued and machine pressed along with the core.

The core surface shall then have two or three veneers firmly glued on each face. The first veneer (called cross band) shall be laid with its grains at right angles to those of the core and the second and the third veneers with their grains parallel to those of the core. The under veneers shall be of good quality, durable and well-seasoned wood. The face veneers shall be of minimum 1 mm. thickness and of well-matched and seasoned 1<sup>st</sup> class teak, laid along with grains of the core battens. The combined thickness of all the veneers on each face shall not be less than 4 mm. Thermosetting synthetic resin conforming to I.S. 303 or moisture-proof plywood grade MPF.I. shall be used in manufacture.

In addition to internal lipping all doors shall have external lipping all round.

#### **STEEL DOORS, WINDOWS, VENTILATORS ROLLING SHUTTER, M.S. GRILLES ETC.**

Steel used in the manufacture of rolled steel sections shall not have more than 0.060 per cent of Sulphur and 0.065 per cent of phosphorus. The carbon content shall not exceed 0.30 per cent and shall be of weldable quality. In all other respects, the rolled steel sections shall conform to I.S. 226-1955 and I.S. 1977-1962.

Frames shall be square and flat. Both the fixed and openable frames shall be constructed of sections which have been cut to length, mitred and electrically welded at corners. Sub-dividing bar units shall be tenoned and rivetted into the frames. All frames shall have the

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



corners welded to a true right angle and welds shall be neatly cleaned off. Couplings, mouldings and weather bar shall be provided as directed by the Architects.

Outer frames shall be provided with fixing holes centrally in the web of the sections and fixing screws and lugs shall be used for fixing the frame to masonry. Mastic cement shall be used for making the joints watertight.

Hinges shall be strong projecting type. If directed friction type hinges shall be used in which case windows shall not be fitted with peg stays.

Projecting type hinged shutter shall be fitted with bronze or brass peg stays, 30 cm. long with peg and brackets welded / riveted to the frame or as stated under item.

All windows shall be provided with handles of brass or bronze or otherwise as stated under them.

Top hung ventilators shall be fixed with plain hinges rivetted / welded to the fixed frame. A brass or bronze peg stay 30 cm. long as in windows shall be provided or as stated under item.

Center hung ventilators shall be hung on two pairs of brass or leaded tin bronze cup pivots rivetted to the inner and outer frames of the ventilators to permit the ventilators to swing through an angle of approximately 85. The opening position of the ventilator shall be so balanced to keep it open at any desired angle under normal weather conditions. A bronze spring catch shall be fitted in the center of the top bar of the ventilator for the operation of the ventilator. This spring catch shall be secured to the frame with brass screws and shall close into a mild steel malleable iron catch plate rivetted or welded to outside of the outer ventilator frame bar. A brass cord pulley wheel in mild steel or malleable iron brackets shall be provided along with card eye.

The windows and ventilators shall be painted. All the steel surfaces shall be thoroughly cleaned free of rust, scale or dirt and mill scale by picking or phosphating and before erection painted with one coat of approved primer and after erection painted with two finishing coats of synthetic enamel paint of approved shade and quality.

Glazing of specified thickness shall be provided on the outside of frames and unless otherwise specified, metal beading of approved shape, and section shall be used for fixing glasses. Special metal sash putty of approved make shall be used, if directed.

#### **Rolling Shutters:**

Shall be of approved manufacture suitable for fixing in the position ordered i.e. outside, inside, on or below lintel or between jambs. Shutters up to 12 sqm. (130 Sq.ft.) in area shall be manually operated or Push Up type while bigger sizes shall be of reduction gear type mechanically operated chain or handles.

These shall be consisting of 8 gauges or as specified with 75 mm. (3") M.S. laths of best quality mild steel strips machine rolled and straightened with an effective bridge depth of 16 mm. (5/8") and shall have convex corrugation. These shall be interlocked together



throughout their entire length with end locks. These shall be mounted on specially designed pipe shaft.

The spring shall be of approved make coiled type. These shall be manufacture from tested high tensile spring steel wire or strip of adequate strength to balance the shutters in positions. The spring pipe, shaft etc., shall be supported on strong M.S. or malleable cast iron brackets.

Both the side guides and bottom rail shall be jointless and of single piece of pressed steel.

Top cover of shaft, spring etc., shall be of the same material as that of lath.

For rolling shutter with wicket-gate, night latch shall be provided free of cost.

The shutter and cover etc., shall be painted with one coat of anti-corrosive paint and two coats of synthetic enamel paint of approved quality and shade.

#### **Collapsible Steel Gate:**

It shall consist of vertical double channels at 10 cm. centers. The sizes of channels T-Section for top and bottom shall be as approved by the Architects. The gate shall be provided with necessary bolts, nuts, locking arrangements, stoppers and brass handles on both sides. The gate shall be painted with one coat of anti-corrosive paint before erection and two coats of synthetic enamel paint of approved quality and shade.

#### **Wrought Iron Grilles:**

Grilles hall be manufactured as per drawings and the welded joints shall be smooth. The grilles shall be painted with one coat of anti-corrosive paint before fixing and two coats of synthetic enamel paint of approved quality and shade.

#### **Aluminum Doors, Windows, Ventilators & Partitions etc.:**

These shall be obtained from approved and established manufactures and shall be of Aluminum alloy conforming to I.S. 733 and sections shall generally conform to I.S. 1948. Theses shall be fabricated as per the details drawings,

Frames for windows, ventilators etc., shall be square and flat. Both fixed and openable frames shall be constructed of section which have been cut to length, mitred and welded at corners. Sub-dividing bars shall be tenoned and rivetted into the frames. All frames shall have corners welded to a true right angle. For side hung shutters, hinges shall normally be of projecting type made of Aluminum alloy and rivetted / welded to frames. Handles, peg stays etc., or approved quality Aluminum or its alloy conforming to IS Specifications.

All types of shutters shall be fabricated, supplied and fixed as specified in the IS:1948. The rate shall include supplying and fixing all fittings and fixtures required for proper and safe operation.



The doors shall be fabricated by using standard aluminum alloy extruded sections as specified in IS:1948. The rate shall include supplying and fixing all fittings and fixtures including approved locking arrangement as directed.

All aluminum fabricated work shall be anodized to the British Standard 1616:1961 to give an anodized film of 25 micron.

The Contractor shall take to stack the fabricated frames etc., on site under cover. They shall be handled with care, stacked on edge on level bearers and supported evenly. Before erecting, the frames coming in contact with concrete, masonry, plaster of dissimilar metals shall be coated with a coat of Zinc Chromate conforming to IS:104-1950. The Contractor shall cover all anodized finish work with a thick layer of clear transparent lacquer based on methacrylate or cellulose butyrate to protect the surface from wet cement during installation. This coating shall remove on completion. Before handing over, the aluminum work shall be washed with mild solution of non-alkali soap and water.

#### **Glazing:**

Glazing shall be approved especially quality glass of specified thickness and unless otherwise directed it shall be provided the exterior with metal beading.

### **PAINTING**

#### **General:**

Wherever scaffolding is necessary, it shall be double scaffolding.

The surface shall be thoroughly brushed free from mortar droppings and foreign matter. All steel work shall be cleaned of loose rust, mill scales etc. so as to expose the original surface. All broken edges, cracks, loose plaster and wavy surface shall be brought up either by patch plaster work or by plaster of paris.

All materials viz., dry distemper, oil bound distemper, oil paint, flat oil paint, synthetic enamel paint, plastic emulsion paint, cement primer, red lead and other primers and metallic paints shall conform to respective I.S. specifications and shall be obtained from approved manufactures. All paints shall be brought on site in sealed thins in ready mixed form and shall be applied direct with the addition of thinner, if recommended by the manufacturers.

#### **White Washing:**

White was shall be prepared from lime slaked on spot, mixed and stirred with sufficient water to make a thin cream. This shall be allowed to stand for 24 hours and shall be screened through clean cloth. Four kg. gum dissolved in hot water shall be added to each cubic meter of the cream (115 gm. per cft.).

Blue shall be added to give required whiteness. The approximate quantity of water to be added in making cream shall be five liters per kg. of lime.





White wash shall be applied in specified coats by using flat brushes or spray pumps. Each coat shall be allowed to dry before next coat is applied. If additional coats than what have been specified, are necessary to obtain uniform and smooth finish, it shall be given at no extra cost.

The finished dry surface shall not show any signs of cracking and peeling nor shall it come off readily on the hand when rubbed.

If directed by the Architects one coat of chalk and glue shall be applied before application of white / colour wash at no extra cost.

**ColourWash:**

Colour wash shall be prepared by adding mineral colours not affected by lime to white wash. No colour wash shall be done until a sample of the colour wash to the required tint or shade has been got approved from the Architects.

Colour wash shall be applied as specified under white wash.

**Dry Distemper:**

Shade shall be got approved from the Architects before application of distemper.

The surface shall be prepared as specified earlier. A primer coat using approved primer or sizing shall be applied. Distemper prepared as per manufacturer's directions shall be applied and each coat shall be allowed to dry before subsequent coat is applied. The finished surface shall be free from chalking when rubbed, even uniform and shall show no brush marks. If additional coats are necessary, they shall be given at no extra cost.

**Oil Bound Distemper:**

The surface shall be prepared as specified above. A primer coat of either cement primer or any approved distemper primer shall be applied.

After the primer coat has dried, the surface shall be lightly sand papered and dusted to make it smooth to receive distemper.

Distemper shall be prepared as per the directions of the manufacturer and conforming to shade approved. It shall be applied in specified coats, taking care to allow for drying of each coat before subsequent coats are applied.

**Water-proof Cement Paint / Sand-tex matt Paint:**

The surface shall be prepared as specified above and thoroughly wetted with clean water before water-proof cement paint is applied.

The paint shall be prepared strictly as per manufacturers specifications and in such quantities as can be used up in an hour of its mixing, as otherwise the mixture will set and thicken, affecting flow and finish.



The paint thus prepared shall be applied on clean and wetted surface with brush or spraying machine. The solution shall be kept stirred during the period of application. It shall be applied on the surface which is on the shady side of the building so that the direct heat of the sun on the surface is avoided. The completed surface shall be watered after the days work. Number of coats shall be as specified in the item.

**Painting – Oil / Enamel / Plastic Emulsion etc.:**

Ready mixed oil paint, flat oil paint, plastic emulsion paint, ready mixed synthetic enamel paint, etc., shall be brought in original containers and in sealed tins. If for any reason thinner is necessary, the brand and quantity of thinner recommended by the manufacturer or as instructed by the Architect shall be used. The surface shall be prepared as specified above and a coat of approved primer shall be applied. After 24 hours drying approved or specified quality paint shall be applied evenly and smoothly. A filler putty coating may be given to give a smooth finish. Each coat shall be allowed to dry out thoroughly and then lightly rubbed down with sand paper and cleaned of dust before the next coat is applied. Number of coats shall be as specified in the item and if the finish of the surface is not uniform, additional coats as required shall be applied to get good and uniform finish at no extra cost. After completion no hair marks from the brush or clogging of paint puddles in the corners of panels, angles or mouldings etc., shall be left on the work. The glass panes, floor etc. shall be cleaned of stains.

When the final coat is applied, if directed, the surface shall be rolled with a roller or if directed, it shall be stippled with a stippling brush.

**POLISHING AND VARNISHING**

**French Polishing:**

French spirit polish shall be of an approved make conforming to IS:348. If it has to be prepared on site, the polish shall be made by dissolving 0.7 kg. of best shellac in 4.5 liters of methylated spirit without heating. To obtain required shade pigment may be added and mixed.

Surface shall be cleaned. All unevenness shall be rubbed down smooth with sand paper and well dusted. Knots, if visible, shall be covered with a preparation of red lead and glue. Resinous or loose knots and gaps shall be filled with season timber pieces and make level with rest of the surface. Holes and indentations on surface shall be filled with putty made of whiting and linseed oil. Surface shall be given a coat of filler made of 2.25 kg. of whiting in 1.5 liter of methylated spirit. When it dries, surface shall again be rubbed down perfectly smooth with sand paper and wiped clean.

Piece of clean fine cotton cloth and cotton wool made into shape of pad shall be used to apply polish. The pad shall be moistened with polish and rubbed hard on the surface applying the polish sparingly but uniformly and completely over the entire surface. It shall be allowed to dry and another coat applied in the same way. To give finishing coat, the pad shall be covered with a fresh piece of clean fine cotton cloth, slightly dampened with methylated spirit and rubbed lightly and quickly with a circular motion, till the finish surface attains uniform texture and high gloss.

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



**Wax Polishing :**

Wax polish shall either be prepared on site or obtained readymade from market. Polish made on the site shall be prepared from a mixture of pure bee's wax, linseed oil, turpentine oil and varnish in the ratio of 2:1.5:1:1½ by weight. The bees wax and the boiled linseed oil shall be heated over a slow fire. When the wax is completely dissolved the mixture shall be cooled till it is just warm, and turpentine oil and varnish added to it in the required proportions and the entire mixture is well stirred.

Surface shall be prepared as described under French polishing except that the final rubbing shall be done with sand paper which has been slightly moistened with linseed oil.

Mixture or polish shall be applied evenly, with a clean cloth pad in such a way that no blank patches are left and rubbed continuously for half an hour. When the surface is quite dry a second coat shall be applied in the same manner and rubbed continuously for an hour or until the surface is dry. Final coat shall then be applied and rubbed for two hours or more if necessary, until the surface has assumed a uniform gloss and is quite dry showing no sign of sickness when touched. Gloss of the polish depends on the amount of rubbing, therefore rubbing must be continuous and with uniform pressure and frequent change in direction.

**Varnishing :**

Surface shall be prepared as described above. After preparation of surface, two coats of clean boiled linseed oil shall be applied at sufficient interval of time. After the linseed oil has dried two coats of varnish obtained from approved manufacturer shall be applied at sufficient interval of time. If the surface fails to produce the required gloss an additional coat shall be applied without any extra cost.

**MATERIAL TEST LIST**

The Contractors will have to take necessary material test as per I.S. code which is applicable, at their own cost for the following materials or any other material using in construction work periodically or as and when required by the Architects / Consulting Engineer.

The materials should be got tested in an approved Laboratory as per IS standard and test reports in duplicate should be submitted to the Architect's Office.

- |    |                                |   |    |                                     |
|----|--------------------------------|---|----|-------------------------------------|
| 1) | Sand                           | : | a) | Silt Content.                       |
|    |                                |   | b) | Bulking.                            |
|    |                                |   | c) | Particle size distribution.         |
|    |                                |   | d) | Or as directed.                     |
| 2) | Stone aggregate                | : | a) | Soft and deleterious material.      |
|    |                                |   | b) | Particle size distribution.         |
| 3) | Cement Concrete RCC mix design | : | a) | Slump.                              |
|    |                                |   | b) | Cube strength.                      |
|    |                                |   | c) | Or as per I.S. 456-2000             |
| 4) | Bricks                         | : | a) | Dimensions                          |
|    |                                |   | b) | Water absorption and efflorescence. |
|    |                                |   | c) | Compressive strength.               |
| 5) | Timber                         | : |    | Moisture.                           |
| 6) | Ceramic/Vitrified Floor Tiles  | : | a) | Transverse strength.                |
|    |                                |   | b) | Water absorption.                   |
|    |                                |   | c) | Abrasion test.                      |
| 7) | Steel                          | : | a) | Tensile                             |
|    |                                | : | b) | Bend.                               |

**Note:** The Contractor will have to take necessary material test other than above test as per relevant I.S. code, if required and as directed by Architect / Owner.



### MATERIAL TESTING

A chart showing the recommended time and quantity scheduled for conducting test on various building materials is given. Please ensure that tests are carried out according to the above guidelines. Contractor's rate should include for necessary expenditure for testing including transport of samples of following tests.

No	Material	Test	Test Procedure	Minimum Quantity	Frequency
1	Sand	a) Silt Content b) Bulking c) Particle size distribution	Field Field Field	20 Cum 20 Cum 40 Cum	20 Cum or part thereof --- Do --- Every 40 Cum required for RCC work.
2	Stone	a) Soft and Deleterious b) Particle size distribution	IS - 2336 Part – II Field	45 Cum.	As required. Every 45 Cum part thereof for RC work. For rest of work as desired.
3	Cement Concrete or RCC	Slump Cube Strength	Field Field Laboratory /	20 Cum slab, beams and connected columns 5 Cum in columns	Once a day or as desired. Every 20 Cum of a day's concrete. Every 5 Cum column concrete.
4	Steel	a) Tensile Strength	IS - 1529	20 tonnes	Every 20 tonnes or part.
		b) Bend Strength	--- Do ---	--- Do ---	--- Do ---

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



5	Lime	Chemical and Physical properties of lime.	IS - 6932	5 M.T.	10 M.T. or part thereof
No	Material	Test	Test Procedure	Minimum Quantity	Frequency
6	Bricks	Dimensions Water absorption Efflorescence compressive strength		Designation 100 75) 50) 40,000 35) --- Do --- 100-40,000 75) 50) 100,000 35)	Every 40,000 or part thereof. Every 100,000 or part thereof one test for source of 40,000 or part thereof. Two tests for 1 <sup>st</sup> lot of 40,000 and one test later for every 40,000 and part thereof.
7	Brick Tiles	Compressive Strength Efflorescence		40,000 40,000	For 40,000 or part. One test per Source.
8	Marble	Moisture absorption Mohs scale hardness	IS – 1124 – 1974 IS – 1706 – 1972	Rs.10,000/- Value	Rs. 10,000/- or part thereof. (Value)
9	Timber	Moisture	IS – 11215 – 1985	1 Cum.	Every one Cum and part.
10	Aluminum door or window fitting	Thickness of anodic coating.	IS – 5523 – 1969	Rs. 5,000/-	Rs. 10,000/- or part thereof.
11	Ceramic Tiles / Vitrify Tiles / Designer pre-cast Concrete Tiles and interlocking paver block	a) Transverse Strength b) Water Absorption c) Abrasion test	IS – 1237 --- Do --- --- Do ---	200 Tiles --- Do --- --- Do ---	2000 Tiles or part. --- Do --- --- Do ---



12	Flush Door	a) End Immersion b) Knife c) Adhesion	IS – 2207	22 – 65 66 – 100 101 – 180 181 – 300 301 – 500 501 – above	Destructive tests No. of shutters. 1 2 2 3 4 5
----	------------	---	-----------	---	--

No	Material	Test	Test Procedure	Minimum Quantity	Frequency
13	Tar felt Type-3 Grade - I	Conform to I.S. 1322 – 1970			One Test
14	Pig lead	I.S. 782 – 1978			One Test
15	R.C.C. design mix M-25	All test as per I.S.:456-2000		As per directed	As per directed

**Note :** The Contractor will have to take necessary material test other than above test as per I.S. code for above material or other than above material, if required and as directed by the Architect / Owner.



**SPECIFICATIONS FOR SANITARY, PLUMBING  
AND WATER SUPPLY INSTALLATION WORK**

**GENERAL**

**SECTION – A**

The scope of work covers supplying and installing sanitary plumbing, water supply and drainage items of the **Civil/ External painting & renovation work at Bhivandi** in accordance with drawings and relevant I.S. code specifications.

**CONTRACT:**

The form of Contract shall be according to the printed form “Conditions of Contract”. The following Clause shall be considered as an extension and not in limitation of the obligation of the Contractor.

**DRAWINGS:**

All-important drawings shall be mounted on boards and placed in racks and indexed; no drawings shall be rolled.

**DIMENSIONS :**

Figured dimensions shall in all cases be accepted in preference to scaled sizes. Large scale details take precedence over small scale drawings. In case of any discrepancies the Contractors shall ask for clarification from the Architect before proceeding with the work.

**CONTRACTOR TO INSPECT SITE:**

The Contractor should visit and examine the site of work and satisfy himself as to the nature of existing roads and other means of communication and other details pertaining to the work and local conditions and facilities for obtaining his own information on all matter affecting the execution of the work. No extra charge made in consequence, if any misunderstanding or incorrect information on any these points or on grounds of insufficient description will be allowed.

**SETTING OUT:**

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal





The Contractor shall set out the drainage, soil, waste and water pipe lines and other fittings and fixtures in accordance with the plans and instructions of the Architects. The Contractor shall be responsible for the correctness of the above and any inaccuracies are to be rectified at his own expense as stated in Clause of the Conditions of Contract. He will be responsible for taking levels of the site before setting out and putting them on record without extra charge.

**WORK PROGRAMME:**

The Contractor should not that the work should be executed and completed ahead of the completion of the general building work and the Contractor shall take care to see that no damage or breakage is done to work once it is constructed and finished. The sanitary and water supply work shall be programmed in such a way that it does not hold up the general construction or works of other trades.

In case of non-availability of materials in metric sizes, the nearest sizes in FPS units shall be provided with prior approved of the Architects for which neither extra will be paid nor any rebate shall be recovered.

If directed, materials shall be tested in any approved Testing Laboratory and the Contractor shall produce the test certificate in original to the Architect and entire charges for originals as well as repeated tests shall be borne by the Contractor. If required by the Architects, the Contractor shall arrange to test portions of the work at his own cost in order to prove their soundness and efficiency. If after any such test the work or portion of work is found, in the opinion of the Architects, to be defective or unsound, the Contractor shall pull down and re-do the same at his own cost. Defective materials shall be removed from the site.

It shall be obligatory for the Contractor to furnish Certificate, if demanded by Architect, from manufacturer or the material supplier, that the work has been carried out by using their material and installed / fixed as per their recommendations.

**CEMENT:**

Cement shall comply in every respect with the requirement of the latest publication of IS:269 and unless otherwise specified, ordinary Portland Cement shall be used.

The weight of cement in sealed bags shall be considered as 50 kgs. being equivalent to 35 liters (1.2 Cft.) in volumes.

Cement shall be stored in weather-proof shed with raised wooden plank flooring to prevent deterioration by dampness or intrusion by foreign matter.

**SAND:**

River Sand shall be clean, free from salt, clay, shells vegetable matter and fit for use in the opinion of Architects.

**COARSE AGGREGATE:**

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



Coarse Aggregate shall be angular, tough, sharp and well graded stone metal from approved source. It shall be clean and free from any foreign material. If directed the materials shall be washed.

**BRICKS:**

Bricks shall be locally available and of the approved quality and well burnt, free from cracks, chips, flaws and stones. It shall not absorb water more than 20% of its own weight when dry.

**CEMENT MORTAR:**

Cement mortar shall be of the proportion specified in the particular item in the Schedule of Quantities. Sand shall be measured in suitable measuring boxes and correct quantity of cement shall be added. The materials are mixed dry on a clean platform. Clean water is then added and mixed thoroughly. It shall be prepared in such quantity as can be readily used up. Mortar which has partially set shall under no circumstances be re-tampered by mixing with additional materials or water.

**I. DRAINAGE (INTERNAL AND EXTERNAL)**

**STONEWARE PIPE AND FITTINGS:**

Shall comply IS:651 in every respect and all stoneware pipes, bends, gully traps and sewer traps shall be of the best salt glazed, variety, glazed inside as well as outside, hard, smooth, even, textured, free from fire cracks, blows and blisters. The pipes shall be truly circular in cross section perfectly straight and of standard nominal diameter, length and depth of socket.

**TREASURE TROVE:**

Should any treasure, fossils, minerals or work of are antiquarial interest be found during excavation or while carrying out the work, the Contractor shall give immediate notice to the Architects of any such discovery and shall make over such finds to the Employer.

**ACCESS FOR INSPECTION:**

The Contractor shall provide at all times during the progress of the works and the maintenance period, proper, facilities and necessary attendance for inspection or measurement of works by the Architects or their representatives.

**WATER SUPPLY:**

Water shall be arranged in accordance with Clause No. 56 of Special Conditions of Contract.

**ELECTRIC SUPPLY:**

Electric energy shall be arranged in accordance with Clause No. 57 of Special Conditions of Contract.

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



**VOUCHERS:**

The Contractor shall furnish to the Architects with vouchers on request to prove that the materials are as specified and to indicate the rates at which the materials are purchased in order to work out the rate analysis of the non-tender items which he may be called upon to carry out.

**SECTION – B**

**WORKS TO COMPLY LOCAL REGULATIONS AND RATE TO INCLUDE:**

- 1) All sanitary installations, water supply and drainage work shall conform to the Local Municipal Bye-Laws and / or rules and regulations of Local Bodies and the work shall be inspected and passed by the various authorities having jurisdiction.
- 2) The work shall be carried out through a Licensed Plumber.
- 3) The Contractor shall arrange with the Local Municipal and / or Public Authorities for obtaining water and drainage connections and the Employer will reimburse the permanent connection charges on production of receipts.
- 4) The Contractor shall obtain all necessary permission forms from the various authorities having jurisdiction and shall make application and file all plans required for obtaining permission and satisfactory completion of the work.
- 5) The rates quoted shall be for complete items as fixed in position and cover all costs of materials, labour, tools, supervision, cutting of holes, chases, etc., and also for providing, fixing arrangements viz. clamps, brackets, wooden blocks etc. The rates shall also include restoration to original condition of all damage to walls, floors etc., during the process of fixing of sanitary installations, water supply and drainage. All debris of plumber's excavation etc., shall be removed without any extra charge.
- 6) All C.I. pipes, brackets, C.I. cisterns, G.I. pipe and fixtures, M.S. fixtures, A.C. pipes and fittings shall be painted externally with one coat of approved primer and two coats of enamel / flat oil paint. All painting work shall be carried out to the entire

satisfaction of the Architects. If directed, additional coats of paint shall be applied to get uniform and matching finish without any extra cost.

- 7) In the interior of the building all pipe whether of Cast Iron lead or G.I. shall be embedded in an approved manner in chases made in walls or floors if required by the Architects. The plumbers shall make necessary holes in the walls, etc., and restore them to the original condition.
- 8) All water supply and sanitary fixtures, pipes and pipe fittings, traps etc., which are to be embedded into the concrete or masonry work or other building work shall be placed in position and embedded or concealed at the time of casting concrete or erecting brick work. In case where chasing or cutting of concrete, masonry, or other structural or construction work is unavoidable, the locations of such fittings, pipe lines and traps,



etc., shall be marked suitably and the cutting, chasing or disturbing of the construction work shall proceed only after due approval of the Architects.

- 9) All cutting, chasing and fixing work shall be completed before commencement of any plastering, tiling or finishing work.
- 10) Unless otherwise specified Galvanised Iron pipes and pipe fittings shall be of medium quality conforming to IS: 1239 and shall be tested if required by the Architects.
- 11) The Contractor shall be responsible for the adequacy and efficiency of the entire plumbing system and if, in his opinion he finds any serious objection to the system shown on the drawing, he shall set forth his objection or his suggestions to ensure adequacy and efficiency of the said system and notify the Architects before proceeding with the work.
- 12) The work in every respect during its progress and till final acceptance by the Employer, including raw materials delivered to the work site to be incorporated for use in construction of the work by the Contractor shall be under the charge and in the care of and under the responsibility of the Contractor and at his risk. Any loss or damage to such materials or work prior to final acceptance of the work by the Employer shall immediately be replaced by the Contractor at his expense.

## **SECTION – C**

### **MATERIALS:**

- 1) Materials shall be of best approved quality obtainable and unless otherwise specified they shall conform to the respective Indian Standard Specification.
- 2) Samples of all material be got approved before placing order and the approved samples shall be deposited with the Architects.
- 3) In case non-availability of materials in metric sizes, the nearest size in FPS units shall be provided with prior approval of the Architects for which neither extra will be paid nor any rebate shall be recovered.
- 4) If directed, materials shall be tested in any approved Testing Laboratory and the Contractor shall produce the test certificate in original to the Architect and entire charges for original as well as repeated tests shall be borne by the Contractor. If required by the Architects, the Contractor shall arrange to test portions of the work at his own cost in order to prove their soundness and efficiency.

If after any such test the work or portion of works is found, in the opinion of the Architects, to be defective or unsound, the Contractor shall pull down and redo the same at his own cost. Defective materials shall be removed from the site.

- 5) It shall be obligatory for the Contractor to furnish certificate if demanded by Architect, from manufacturer or the material supplier, that the work has been carried out by using their material and installed / fixed as per their recommendations.

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



## **TRENCHES FOR S.W PIPE DRAINS:**

### **EXCAVATION :**

The trenches for the pipes shall be excavated to lines and levels as directed. The bed of the trench shall be truly and evenly dressed throughout from one change of grade to the next.

The gradient is to be set out by means of boning rods and should the required depth exceeded at any point, the trench shall be refilled by means of lime concrete of proportion 1:2:4 at the Contractor's own expense.

The bed of the trench, if in soft or made up earth, shall be well watered and rammed and depression thus formed shall be made up with sand or other suitable materials as directed by the Architects without any extra cost.

If rock is met with, it shall be removed to 15 cm. below the level of the pipe and the trench refilled with concrete or sand or other suitable material as directed by the Architects without any extra cost.

The rates shall include keeping trenches dry either by bailing out or pumping water, timbering and shoring of sides of excavation if required and directed by the Architects.

The trench width shall be nominal diameter of the pipe plus 38 cm. (15") but it shall not be less than 52 cm. (21").

### **PROTECTION OF EXISTING SERVICES:**

All pipes, water mains, cables, etc., meet with in the course of excavation shall be carefully protected and supported.

### **REFILLING:**

Refilling in trenches for pipes shall be commenced as soon as the joints are tested, approved and haunching is done. The refilling on the top and around the drain shall be done with great care and in such a manner as will obtain the greatest amount of compactness and a solidity possible. For this purpose, the earth shall be laid in regular layers of 15 cm. (6") watered and each layer rammed.

All surplus earth shall be disposed of as directed by the Architects.

### **CONCRETING:**

All pipes shall be laid on bed of 15 cm. (6") concrete with one part of cement, four parts of sand and eight parts of brickbats of 38 mm. (1.5") down gauge or stone metal properly consolidated. Concrete shall be laid to the full width of the trench and also in haunches as per the standard drawings.

Or as described under item in Schedule of Quantity.

### **LAYING AND JOINTING S.W. PIPES :**

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



**LAYING :**

The pipes shall be carefully laid to the levels and gradients shown on the plans and sections with "Socket Up" the gradient.

**JOINTING:**

Spun yarn soaked in neat cement wash shall be passed round the joint and inserted in it by means of caulking tool. More skeins of yarn shall be added and well rammed home. Cement mortar with one part of cement and one part of sand shall be slightly moistened and must on no account be soft or sloppy and shall be carefully inserted by hand into the joint. The mortar shall then be punched and caulked into the joint and more cement mortar added until the space of the joint has been filled completely with tightly caulked mortar. The joint shall then be finished off neatly outside the socket at an angle of 45 degree.

**CURING :**

The joint shall be cured at least for seven days.

**TESTING:**

All joints shall be tested to a head of two feet of water above the top of the highest pipe between the two manholes. Any joint found leaking or sweating shall be remade or embedded in 15 cm. thick layer of cement concrete (1:2:4) 30 cm. in length and section retested at Contractors own cost.

**STONEWARE GULLY TRAPS:**

S.W. gully traps of specified sizes and quality as described earlier shall be fixed on 15 cm. thick and 70 cm. square cement concrete 1:4:8 bedding and the gully outlet to the branch drain shall be jointed similar to jointing of S.W. pipes. A brick masonry chamber 30 cm. x 30 cm. internally shall be constructed in half brick masonry with 1:5 cement mortar and the space between the trap and the wall filled up with cement concrete (1:4:8) and the upper portion of the chamber finished internally with 1:3 cement mortar and finished with neat cement. The corners and bottom of the chamber shall be rounded off so as to slope towards the grating.

In addition to 15 cm. x 15 cm. C.I. grating, the chamber shall have a C.I. cover with frame 30 cm. (inside) with machined seating faces, fixed on the top of the brick masonry with cement concrete 1:2:4 and rendered smooth. The weight of cover shall not be less than 4.53 kgs. and that of frame 2.72 kgs. The finished top of cover shall be left 4 cm. above the adjoining surface so as to exclude the surface water from entering the gully trap.

Or as described under item in Schedule of Quantity.

**HUME PIPE DRAINS :**

**PIPES:**



Shall be reinforced and conform to relevant I.S. Specification. They shall be new and perfectly sound, free from cracks, cylindrical, straight and of specified nominal diameter. Each pipe shall have one collar.

#### **TRENCHES AND REFILLING :**

Shall be as described under S.W. pipes.  
Or as described under item in Schedule of Quantity.

#### **CONCRETING :**

No concreting is ordinarily necessary. In cases where the soil is made up or is very soft, concreting may be resorted to as described under "Stoneware pipe fitting" without any extra cost.

#### **LAYING AND JOINTING :**

The pipe shall be laid as described under Stoneware pipe and fittings by placing the collar centrally over the joint.

#### **CAST IRON PIPES FOR DRAINAGE:**

All drainage lines passing under buildings, floors and roads, in exposed horizontal positions above ground, shall be cast iron pipes. Pipes shall be sand cast conforming to Class "A" IS:1537 or centrifugally spun cast iron Class LA conforming to IS:1536.

Nominal dia. in mm.	BARREL			Socket Wt. in kgs.	Depth of socket in mm.	Total Wt. per 3.66 m. in kgs.
	Outside dia. in mm.	Wall thickness in mm.	Wt. per m (approx.) in kgs.			
80	98	7.2 (7.9)	14.7 (16)	5.5	84	59 (64)
100	118	7.5 (8.3)	18.6 (20.5)	7.1	88	75 (82)
125	144	7.9 (8.7)	24.7 (26.4)	9.2	91	98 (106)
150	170	8.3 (9.2)	30.1 (33.2)	11.5	94	122 (133)
200	222	9.2 (10.1)	44 (48.1)	16.8	100	178 (193)
250	274	10.0 (11.0)	59.3 (65.0)	22.9	103	240 (261)

Note : Figures in brackets indicate particulars of pipes conforming to Class "A" IS:1537 quality and other particulars remaining the same.

These shall be free from cracks and other flaws. The interior of pipes and fittings shall be clean and smooth and painted inside and outside with Dr. Angus Smith's solution or other approved anti-corrosive paint, if not painted initially by the manufacturer.

The access door fittings shall be of proper design so as not to form any cavities in which filth may accumulate. Doors shall be provided with 3 mm. (1/8") rubber insertion packing and when closed and bolted they shall be watertight.

The joints shall be filled with lead as described under Soil Pipes.

#### **MANHOLES, VENT SHAFT, GULLY CHAMBER ETC.:**

##### **SIZE OF MANHOLES:**



The size specified in the Schedule of Quantities shall be internal size of the manhole.

The work shall be done strictly as per standard drawing and following specifications.

**BED CONCRETE:**

Shall be in 1:4:8 cement concrete 23 cm. (9") thick.

**BRICK WORK :**

Shall be with locally available best quality bricks in 1:4 cement mortar.

**PLASTER:**

Inside of the walls shall be plastered with 12 mm. thick cement plaster 1:3 and finished with a floating coat of neat cement.

In wet grounds 20 mm. thick plaster of the above specification shall be done on the exterior surface of the walls also and this plaster shall be waterproofed with the addition of approved waterproofing compound as per manufacturers specification Or as described under item in Schedule of Quantity.

**POINTING:**

In dry ground, pointing shall be done in 1:2 cement mortar to the outside surface.

**BENCHING:**

Channels and benching shall be done in cement concrete 1:2:4 rendered smooth with neat cement.

The following size of channels for the bench shall be added.

Size of Drain		Depth at the Center		Depth at the sides i.e. at walls	
In cm.	In inches	In cm.	In inches	In cm.	In inches
10	4	15	6	25	10
15	6	20	8	30	12
23	9	28	11	38	15
30	12	35	14	45	18
38	15	43	17	53	21
45	18	50	20	61	24

**FOOT RESTS:**

C.I. foot rests or M.S. square rods of 22 mm. (7/8") shall be embedded in masonry. They shall be fixed 30 cm. apart and projecting 11 cm. from the wall. Foot rests shall be painted with bitumen as directed.

**MANHOLE COVERS :**

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal





Manholes covers shall be of tough homogenous cast iron of heavy or light type as specified. The sizes specified are the clear internal dimensions. Covers for manholes in the road proper shall not weight less than 200 kgs. On foot-paths and backyards, lightweight covers of 45 cm. diameter having weight not less than 58 kgs. or covers of size 92 cm. x 45 cm. or 61 cm. x 45 cm. having weight of 90 kgs. shall be used. Or as described under item in Schedule of Quantity.

**DROP CONNECTION:**

In case of drop connection C.I. pipes shall be provided with heel rest bend at the bottom and bend with access door at the top for cleaning purposes.

**II. SANITARY INSTALLATION:**

**SANITARY FIXTURES:**

**INDIAN TYPE W.C.PANS :**

The W.C. pan shall be of White Vitreous China, of specified size and pattern. Pan shall be of approved quality and shall bear the mark of the firm manufacturing it. It shall have 10 cm. (4") porcelain trap ("P" or "S" type with effective seal) and 5 cm. (2") vent arm.

**ORISSA TYPE PANS :**

Shall be from an approved manufactures and traps as specified above.

**FIXING :**

Pan shall be fixed securely with a cushioning bed in an approved manner taking care that the cushion is uniform and even, without having any hollows between pan and the concrete. The joint between the pan the trap be made with cement mortar 1:1 and shall be leakproof.

Each closet shall be provided with the following accessories and the rate shall be all inclusive.

- 1) Necessary length of 10 cm.; H.C.I. pipe or lead pipe connecting the pan and plug bend. (The plug bend / tee connection to vertical stack shall be paid under appropriate item).
- 2) Wherever anti-syphonage pipe connections are required necessary length of lead pipe 6.25 cm. shall be provided.
- 3) Flushing cistern shall be 10 litres capacity and cast-Iron overhead type with heavy G.I. Chain pull unless otherwise specified. If low down cistern is specified it shall be White Vitreous China cistern of best quality from an approved manufacturer with Chromium plated flush handle. The cistern shall have G.I. overflow pipe of length as per Municipal requirement or as per Architects drawing with mosquito-proof Brass screw cap and C.I. brackets with wall plugs and Brass union and couplings for flush pipe etc. complete unit.



- 4) 12 mm. PVC water inlet pipe with 12 mm. Brass stop cock.
- 5) The flush pipe from the cistern shall be of 32 mm. dia. telescopic G.I. pipe or lead pipe or as specified, which shall be connected to the W.C. pan by means of an approved type of joint.
- 6) Painting : All fittings and fixtures shall be painted with two coats of enamel paint over a coat of primer.  
Or as described under item in Schedule of Quantity.

**EUROPEAN TYPE W.C. :**

The closet shall be of White Vitreous China readily flushed, of wash down type and shall be of best quality manufactured by an approved firm, and fixed to the floor by approved means, as described under item in Schedule of Quantity.,

Each closet shall be provided with the following accessories and the rate shall be all inclusive.

- 1) **Seat** : Heavy black plastic seat of approved quality and seat cover with rubber buffers fixed to the pan with C.P. Brass bar hinge.
- 2) **Cistern** : Low level flushing tank 10 litres capacity of White Vitreous China cistern of best quality manufactured by an approved firm with C.P. flush handle and C.P. overflow pipe of length as per Municipal requirement or as per Architects drawing with mosquito-proof brass C.P. Cap etc., complete unit including enameled or C.P. flush pipe and bend.  
Or as described under item in Schedule of Quantity.
- 3) Necessary length of PVC water inlet pipe and 12 mm. dia. C.P. brass stop cock.
- 4) Necessary length of porcelain or lead or C.I. connecting pipe 10 cm. dia. (plug bend / tee connection to vertical stack shall be paid under appropriate item).
- 5) Wherever anti-syphonage pipe connections are required, necessary length of lead pipe 6.25 cm. dia. shall be provided.

**PAINTING :**

All fittings and fixtures shall be painted with two coats of enamel paint over a coat of primer, externally.

**LIPPED URINALS:**

Shall be flat back or angle urinal of specified dimensions and shall be of White Vitreous China from an approved manufacturer.

They shall be screwed to the wall with coach screws of Chromium Plated Brass on dowel shaped wooden plugs built into the walls or fixed as per manufacturers specification. Each basin should have an outlet with C.P. Brass hinged grating connected to 40 mm. diameter



waste pipe through a C.P. bottle trap. When a range of urinals are provided only a straight length of 40 mm. diameter waste pipe and white glazed half round channel with tread platform finished with white glazed tiles complete as per Architects drawings shall be provided. All joints shall be in plumbers wiped solder joint with necessary C.P. Brass sockets and thimble etc.

#### **STALL WALL TYPE URINALS :**

Shall be White Vitreous China of approved design and manufacture.

They shall be fixed to the wall as per manufacturer's specification. Each urinal should have an outlet with C.P. Brass hinged grating connected to 40 mm. diameter waste pipe through a C.P. Brass bottle trap. All joints shall be in plumber's wiped solder joint with necessary C.P. Brass sockets and thimble etc.

#### **FLUSHING CISTERN :**

These shall be automatic flushing cistern of vitreous China or as specified in the Schedule of Quantities complete with valve less syphon fittings. Cistern shall be supported on brackets of standard pattern and fixed to wooden dowel plugs embedded in the wall with C.P. Brass screws.

#### **ANGLE VALVE :**

The cistern shall be fed with 15 mm. (1/2") C.P. Brass inlet tube angle valve of approved make with necessary length of lead inlet pipe complete with C.P. Brass unions unless otherwise specified in the Schedule of Quantities.

The capacity of flushing cistern and size of the flush pipe for the number of urinals shall be as follows :

Numbers of Urinals	Capacity of flushing cisterns		Mains		Size of distribution	
	In Litres	In Gallons	In mm.	In inches	In mm.	In inches
1	5	1	--	--	15	1/2
2	10	2	20	3/4	15	1/2
3	10	2	25	1	15	1/2
4	15	3	32	1.25	15	1/2

The main and distribution pipe fittings and clamps shall be of C.P. Brass unless otherwise specified in the Schedule of Quantities. Distribution pipes shall feed the urinals with C.P. brass spreaders of approved make.

#### **PAINTING :**

All brackets etc., shall be painted with two coats of enamel paint over a coat of primer.

#### **LAVATORY BASINS:**

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



They shall be of White Vitreous China of best quality manufactured by an approved make and size as specified in the Schedule of Quantities. They shall be supported on a pair of C.I. brackets of approved design.

- a) **Fittings**: Each lavatory basin shall be provided with a single cold water C.P. Brass pillar tap of approved design and make, C.P. Brass waste, C.P. Brass chain and rubber plug, C.P. Brass bottle trap of approved quality and design, with C.P. brass stop cock and PVC water inlet pipe of standard length 1/2" dia. complete.
- b) **Waste Pipe** : Waste pipe beyond bottle trap shall be measured and paid separately under appropriate item.  
Where specified, lavatory basins shall be provided with puff pipe with a brass perforated screws cap.
- c) **Painting** : All brackets, pipes etc. shall be painted with two coats enamel paint over a coat of primer.

#### **SINKS :**

They shall be of White Vitreous China or as specified in the Schedule of Quantities with weir type overflow. The size of sink shall be as specified and shall be of approved make. They shall be supported on a pair of C.I. brackets of approved design.

- a) **Fittings** : Each sink shall be provided with 40 mm. (1.5") C.P. Brass waste of approved pattern with C.P. Brass chain and 40 mm. rubber plug and 40 mm. dia. C.P. Brass trap and union which shall be connected to 40 mm. diameter waste pipe.  
Waste pipe beyond the trap shall be measured separately and paid under appropriate item.  
Where specified sinks shall be provided with puff pipe with a Brass perforated screw item.
- b) **Painting** : All fittings, brackets and pipes shall be painted with two coats of enamel paint over a coat of primer.

#### **DRAINAGE BOARD :**

Drainage boards of type and size as specified in the Schedule of Quantities shall be provided. These shall be fixed on strong brackets of approved design and where necessary provided with hinges. Brackets shall be painted with two coats of enamel over a coat of primer.

### **III. TOILET REQUISITES :**

#### **MIRRORS :**

Mirrors shall be of the best quality, specified size, approved design and make. It shall be mounted on plywood / particle board backing and shall be fixed in position by means of four C.P. Brass screws and cup washers over rubber washers on wooden plugs firmly embedded in the wall. Alternative method for fixing could be by using Brass clamps with



C.P. Brass screws. A suitable T.W. cover mould of approved design shall be fixed all round as directed.

#### **GLASS SHELF :**

The shelf shall be of glass of approved quality and thickness with edges rounded off. The size of the shelf shall be as specified and shall rest on C.P. Brass brackets which shall be fixed with C.P. Brass screws to wooden plugs, firmly embedded in the wall. The shelf shall have C.P. Brass guard rail all round.

#### **TOWEL RAIL :**

Towel rail shall be of C.P. Brass with two C.P. Brass brackets. The size of the rail shall be as specified. The brackets shall be fixed by means of C.P. brass screws to wooden cleats firmly embedded in the wall. Where specified, Aluminum towel rails may be used of approved quality and design.

#### **TOILET PAPER HOLDER :**

Toilet paper holder shall be of White vitreous China or as specified. It shall be recessed in wall.

### **IV. C.I. SOIL, WASTE AND VENT PIPES AND FITTINGS:**

#### **C.I. PIPES AND FITTINGS:**

Cast Iron Soil, Waste and Vent pipes and fittings shall be of heavy quality conforming to IS:3989 for spun pipes which is preferred to Sand Cast Soil pipes conforming to IS:1729. The standard weights and thickness of pipes are given below and a tolerance up to 4% may however be allowed against these standard weights.

(IS:3989-1967 for centrifugally spun soil pipe)

Nominal dia.		Thickness	Overall weight 1.83 m. length (Six feet)	Internal dia. of socket
In mm.	In inches	In mm.	In kgs.	In mm.
50	2	3.5	8.5	73
75	3	3.5	12.7	99
100	4	4.0	19.2	126
150	6	5.0	35.5	179

(IS:1729-1964 for sand cast soil pipes)

Nominal dia.		Thickness	Overall weight 1.83 m. length (Six feet)	Internal dia. of socket
In mm.	In inches	In mm.	In kgs.	In mm.
50	2	5	11.41	76
75	3	5	16.52	101

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



100	4	5	21.67	129
150	6	5	31.92	181

### **LAYING :**

The pipes shall be laid as described in the Schedule of Quantities and as shown on the Architects drawings.

### **FIXING:**

The pipes and fittings shall be fixed to walls by using proper holder bat clamps, if directed. The pipes shall be fixed perfectly vertical or in approved alignment. The spigot end shall about the shoulder of the socket and leave no annular space in between. All soil and waste water pipes shall be carried up above the roof parapet wall and shall have vent cowl.

Connections between main pipe and the branch pipes shall be made by using appropriate branches and bends invariably with access doors for cleaning.

### **NAHANI OR FLOOR TRAPS:**

The traps shall be of self-cleansing, design deep seal type with a minimum seal of 5 cm. (2"). If directed, 25 mm. puff pipe shall be provided. The other specifications for these shall be the same as those for C.I. soil, waste and vent pipes and fittings.

### **PAINTING :**

All exposed C.I. pipes and fittings shall be painted externally to match the colour of the surroundings with two coats of flat / enamel paint over a coat of approved primer. If directed, additional coats shall be given at no extra cost.

### **LEAD PIPE :**

All lead pipes shall be hydraulic drawn and of equal substance throughout conforming to IS:404-1962. Weights and wall thickness of pipes shall be as under:

Nominal dia.		Wall thickness	Wt. in Kgs.
In mm.	In inches	In mm.	Per meter.
32	1.1/4	2.6	3.28
40	1.5	2.6	3.95
50	2	2.7	5.07
75	3	2.7	7.48
100	4	2.7	9.88

When not supported on bearers, all led pipe shall be supported by strong lead stacks at least 40 mm. (1.5") wide soldered on to the pipes at suitable intervals.

### **WIPED SOLDER JOINTS:**

All joints of lead pipe shall be wiped solder joints as described below.

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



The pipe ends to be jointed shall be cleaned with a wire brush and freed from oxide, if any. Chalk shall then be rubbed to kill the greasy nature of lead. After this, plumbers black shall be applied. The length of the joint as given below shall then be marked on the pipe. A fine shaving of lead shall be removed from this length with shave hook. Tallow shall then be smeared over the prepared surface. The molten solder, an alloy composed of three parts of tin and seven parts of seven parts of lead, shall be poured in a thin stream from a ladle moved in an elliptical direction over the joint position including a portion of the soil pipe at each end beyond the mark. When sufficient solder has long continuous movements in one direction only so as to leave a neatly formed elliptical shaped joint. Surplus solder remaining on the joint shall be removed.

The length of the wiped solder joint shall be as follows :

No	Size of pipe		Length of Joint			
			Minimum		Maximum	
	In mm.	In inches	In mm.	In inches	In mm.	In inches
1	15	1/2	60	2.1/4	70	2.3/4
2	20	3/4	65	2.5	70	2.3/4
3	25	1	70	2.3/4	75	3
4	32	1.1/4	70	2.3/4	80	3.1/4
5	40	1.5	70	2.3/4	80	3.1/4
6	50	2	75	3	90	3.5
7	75	3	75	3	90	3.5
8	100	4	80	3.1/4	90	3.5

The joints shall be watertight, airtight and shall be free from tears, burrs, strings, ribbons or droppings.

#### **LEAD PIPE CONNECTION:**

The joints between lead pipe and C.I. or stoneware pipe shall be made as follows :

One end of Brass thimble or ferrule shall be slipped into or over the lead pipe and jointed to it by means of a wiped solder joint. The other end of the ferrule shall then be inserted into the socket of the C.I. or stoneware pipe. In case of former the joint shall be made with molten lead (lead caulked) and in case of the latter with cement mortar as in stoneware pipe drains.

The joints between outgo of a W.C. Pan and a lead pipe shall be made as under :

The lead pipe shall be slipped into Brass socket and jointed to it by a wiped solder joint. The outgo of a W.C. pan shall then be inserted into the socket and jointed by using cement mortar as in stoneware pipe drains.

#### **PAINTING:**

All exposed lead pipes shall be painted as in H.C.I. pipes and fittings, externally.



## ASBESTOS CEMENT PIPES:

Where specified, asbestos cement pipes and fittings may be used for soil, waste and vent pipes and rain water pipes. Asbestos cement pipes shall be of the best quality conforming to IS:1629-1960.

Pipes shall be of painted as described for C.I. pipes, with two coats of approved quality and shade cement paint.

## V. INTERNAL WATER SUPPLY:

### G.I. PIPES AND FITTINGS:

The pipes shall be of the class specified in the Schedule of Quantities and shall be of galvanised welded or seamless, screws and socketed and shall conform to IS: 1239. They shall be manufactured by a firm of repute. All fittings shall be malleable iron galvanised fittings of approved best Indian make.

The details of pipes regarding nominal bore thickness and weight are given below.

Approx outside dia.	Nominal Bore		Screwed and Socketed wt. per meter			Screwed and Socketed meter per 1000 kgs.		
In mm.	In mm.	In nearest inch.	Light kgs.	Medium kgs.	Heavy kgs.	Light kgs.	Medium kgs.	Heavy kgs.
10.2	6	1/8	0.364	0.410	0.496	2747	2439	2016
13.5	8	1/4	0.521	0.654	0.773	1919	1529	1294
17.2	10	3/8	0.680	0.858	1.03	1470	1166	971
21.3	15	1/2	0.961	1.23	1.46	1040	813	685
26.9	20	3/4	1.42	1.59	1.91	704	629	524
33.7	25	1	2.03	2.46	2.99	493	407	334
42.4	32	1 1/4	2.61	3.17	3.87	383	316	258
48.3	40	1.5	3.29	3.65	4.47	304	274	224
60.3	50	2	4.18	5.17	6.24	239	193	160
76.1	65	2.5	5.92	6.63	8.02	169	151	125
88.9	80	3	6.98	8.64	10.3	143	116	98
101.6	90	3.5	8.92	9.90	11.8	112	101	84.7
114.3	100	4	10.2	12.4	14.7	98	80.6	68.0
139.7	125	5	--	16.7	18.3	--	59.9	54.6
165.1	150	6	--	19.8	21.8	--	50.5	45.9

**Note :** The above weights are for black pipes and theoretical weights of galvanized pipes are 6% higher.

### LAYING AND FIXING:

Where pipes have to be cut or re-threaded, ends shall be carefully filled out so that no obstruction to bore is offered.

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal





For internal work all pipes and fittings shall be fixed truly vertical and horizontal, either by means of standard pattern holder-bat clamps keeping the pipes 12 mm. (1/2") clear of the wall everywhere or concealed as directed.

For external work, G.I. pipes and fittings shall be laid in trenches. The width of the trench shall be of minimum width required for the working. The pipes laid underground shall not be less than 60 cm. (2 ft.) from ground level. They shall be painted with hot asphalt and wrapped with Hessian cloth and again painted with two coats of hot asphalt (pipe embedded in masonry / concrete shall be treated similarly). They shall be surrounded with 15 cm. thick sand of approved quality all around. The work of excavation and refilling shall be done as directed.

**PAINTING:**

All exposed pipes and fittings shall be painted with two coats of approved shade of flat / enamel paint over a coat of approved primer and if directed, additional coat of paint shall be given without any extra cost.

**TESTING:**

All G.I. pipes and fittings shall be tested in an approved manner to ensure that pipes have proper threads and those proper materials such as white lead and hemp have been used in jointing. All leaky joints must be made leak proof by tightening or redoing at Contractors expenses.

**BRASS WATER FITTINGS:**

All Brass water fittings shall be of approved quality and design and shall generally comply with the latest I.S. Specifications. They shall be fixed in the pipeline in a workmanlike manner and care shall be taken to see that joints shall be tested in an approved manner to ensure that the joint is leak proof. The defective fittings and the joints shall be repaired or redone / replaced at Contractor expenses.

**VI. EXTERNAL WATER SUPPLY:****CAST IRON PIPES AND SPECIALS:**

All pipes and special for water supply shall be of cast or spun iron straight with spigot and socket ends and shall conform to the latest edition of the I.S. Specification for Class "B" pipes. Heavier quality pipes and specials shall be used when the water pressure exceeds 122 meters (400 ft.) of head, flanged end pipes may also be used where required and specifically approved.

Details of nominal bore and weights for Class "B" pipes shall be as specified below:

Nominal	Barrel			Socket	Total weight for one working length in meters			
	Outside	Wall	Wt. per		3.66	4.00	4.88	5.5



dia. meter	dia.	thick- ness	meter (approx.)	weight (approx.)				
In mm.	In mm.	In mm.	In kgs.	In kgs.	In kgs.			
80	98	8.6	17.3	5.5	69	74.5	--	--
100	118	9.0	22.0	7.1	88	95	--	128
125	144	9.5	28.7	9.2	114	124	--	167
150	170	10.0	35.9	11.5	143	125	--	209
200	222	11.0	52.1	16.8	207	255	271	304
250	274	12.0	70.6	22.9	281	305	368	411
300	326	13.0	91.4	29.8	364	395	476	533
350	378	14.0	114.5	37.5	457	495	596	667

Note : Specification and specials shall be coated inside and outside while hot with Dr. Angus Smith's solution or other approved anti-corrosive paint, if not painted initially by the manufacturer.

#### TRENCHES FOR C.I. PIPES AND SPECIALS:

Trenches shall be excavated as described under "Drainage" for S.W. pipes.

#### LAYING:

Before laying the pipes, they shall be examined to see that there are no cracks or defects. Subject to the approval of the Architects the damaged portion of the cracked pipe may be cut at a point not less than 15 cm. beyond the visible extremity of the cracks with diamond pointed chisel.

The pipes shall be thoroughly cleaned of all dust and dirt. Special care shall be taken to clean the insides of the sockets and the outside of the spigots before lowering the pipes into the trenches. Holes to receive the sockets shall be scooped out in the trench bed so as to firmly bed the full length of the pipe.

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, they shall be arranged to coincide the center line of pipes with the center line of alignment. The spigot of the one pipe shall be carefully centered into the socket of the next pipe and driven to the full distance to the full distance that it can go and pipe line laid to levels required, being kept in position by earth filling, well-watered and rammed at two or more places in its length.

Special shall also be laid in their proper position as stated above. The pipes shall be laid with socket facing the direction of flow of water facing uphill.

Any deviation either in plan or elevation of less than 11.1/4 shall usually be affected by laying the straight pipes round a flat curve of such radius that minimum or lead at the face of the socket shall not be reduced below 12 mm. or the opening between spigot and socket increased beyond 12 mm. at any joint. Deviation of about 2.1/4 can be affected at each joint in this way. At the end of each day's work, the last pipe to be laid shall have its open end securely closed with a wooden plug, to avoid rats and other small animals getting in.

Cement concrete thrust blocks of suitable design shall be provided at 45 to 90-degree bends of the pipes so as to withstand dynamic and static forces likely to be developed due

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



to water running through the pipes. The thrust blocks shall be made after the joints have been caulked with lead and these shall be paid for separately, unless otherwise specified.

#### LEAD CAULKED JOINTS:

- 1) Lead for joints: It shall be bluish grey in colour, very soft and malleable, readily melted, free from mixture of zinc or tin.
- 2) Spun yarn for joints: This shall be of best quality preferably white, it shall be free from dust etc. It shall be soaked into hot coal tar or bitumen and dried before use.
- 3) Jointing: The spigot shall be carefully centered in the socket by two or three laps of treated spun yarn, twisted into ropes of uniform thickness, well caulked into the back of the socket, leaving the requisite depth for the lead. The laps of the yarn must be longer than the circumference of the pipe. No making up of the pieces shall be allowed.
- 4) The leading of the pipes etc., shall be done by means of ropes covered with clay or by using special leading rings. The lead shall be rendered thoroughly fluid and each joint shall be filled in one pouring.
- 5) Approximate weight of lead and yarn required for joints for various sizes of C.I. pipes and specials shall be as under:

Dia. of pipe		Lead		Yarn		
In mm.	In inches	In kgs.	In lbs.	In kgs.	In lbs.	In ozs.
75	3	1.8	4	0.114	0	4
100	4	3.0	6.5	0.170	0	6
125	5	3.6	8	0.199	0	7
150	6	4.2	9.5	0.227	0	8
180	7	4.8	10.5	0.255	0	9
200	8	5.5	12	0.298	0	10.5
230	9	6.4	14	0.340	0	12
250	10	6.6	14.5	0.397	0	14
300	12	8.0	17.5	0.539	1	3

- 6) Caulking : After the joints have been run they must be thoroughly caulked until they are perfectly watertight. Caulking of joints will be done after a convenient length has been laid and leaded. The leading rings shall first be removed with a flat chisel and then the joint caulked round three times with caulking tools of increasing thickness and a hammer of 2 to 3 kgs. (4 to 6 lbs) weight. Lead joints shall not be covered till the pipeline has been tested under pressure but the rest of pipeline may be covered to prevent expansion and contraction due to variation in temperature.
- 7) When it is inconvenient or dangerous to use molten lead for joints, they may be made with lead wool inserted in strings not less than 6 mm. (1/4") thick and thoroughly caulked.
- 8) Testing : The lead joints shall be tested to a pressure of 7 kgs. per sq.cm. (100 lbs. per sq.inch.) or such head as otherwise, specified after being caulked and should any



leakage occur, the leaky joint or joints shall be remade and section retested at Contractor's own expenses, until satisfactory results are obtained.

#### **SLUICE VALVES, FIRE HYDRANTS AND MASONRY CHAMBERS:**

- 1) Sluice Valves: The valve shall be of the specified size and shall be approved quality.
- 2) The body and cover of the valve shall be of tough, homogeneous cast iron, the spindle of forged bronze, the nut and the valve seats of high grade gun metal and machine-faced. It shall be fitted with a C.I. Wheel or a cap of standard type, marked with a show the direction of turn for opening of the valve. It shall have flanged ends drilled to Indian Standard Specification.
- 3) The valves shall work easily and smoothly under all conditions and shall be watertight when closed under the working pressure as stipulated as in the relevant I.S.S. unless otherwise specified, valves shall be Class II type as in IS:778:1971.
- 4) The diameter of the waterway, when the valve is fully opened shall not be less than the diameter of the pipe.
- 5) Fixing : Fixing of the valve shall be done by means of bolts nuts and 3 mm. (1/8") rubber insertions with the flanges of the spigot and socket tail pieces drilled to the same specifications. The tail pieces shall be jointed to the pipe line by means of lead caulked joints.

#### **6) APPURTENANCE**

The other appurtenances of the pipeline are mentioned below:

- 1) Air valves: These are placed at every summit in the pipe line to permit the escape of air when the main is filled, and afterwards air, if any is carried into the main (they are also placed on long stretches of nearly level main).
- 2) Scour valves: These are placed at the bottom of all depressions for emptying the main or letting out sediment.
- 3) Reflux valves: These are fixed on the ascending parts of the main which open in the direction of flow, but automatically close if a burst occurs and the water flows back. They diminish damage done by the escape of water at a burst.
- 4) Safety or relief valves: these are fixed at the downstream ends of long lengths of mains or where water hammer may take place so as to reduce to the normal any excessive pressure that may occur.
- 5) Fire hydrants: These shall be of approved design and be fixed as shown in the drawings and as per Architects direction. The cost of hydrant shall include cost of valve and masonry chamber as shown on the drawings with C.I. cover etc., complete with two coat of enamel paint over a coat of enamel paint over a coat of primer.
- 6) Water meter: It shall consist of meter, "Y" strainer and other accessories shall be fixed as per requirement of the Local Water Supply Authority. The cost of meter shall include



the cost of testing and sealing by Municipal Authorities and fixing including a masonry chamber as shown on the drawing, C.I. cover and locking arrangement complete as directed.

- 7) Manhole chambers and surface chambers for housing valves etc., shall be constructed as per standard drawing.

### **MODE OF MEASUREMENT**

General :

The description of each item in the Bill of Quantities shall be read in conjunction with its specifications for materials and work and unless otherwise stated shall be held to include for necessary conveyance and delivery, handling, unloading, storing, fabrication, hoisting, lowering, all labour for finishing to the required shape and size, setting, fitting and fixing in position, straight cutting and waste and other incidental operations. Any item not mentioned hereunder shall be measured and paid for as per IS 1200 for the respective item.

External Drainage:

- a) Pipes shall be classified according to their diameter. The measurement shall be taken along the center lines of pipes between the inner faces of 2 manholes. The rates shall be inclusive of cutting, jointing, testing and commissioning.
- b) Excavation for trenches for laying drainage lines shall be paid as per volumetric measurements. The length of the trench shall be measured along its center line between the outside faces of 2 manholes. The width shall be the average of the width measured at the top and bottom of the trench. The depth shall be arrived at by measuring the depths at, at least 3 places in the trench, and finding the average of the same. If the ground is undulating, then more than 3 readings shall be taken. The volumetric measurements shall be arrived at by length x Average width x Average depth.
- c) Excavation in rock shall be paid on volumetric measurements of the stack after deducting 40% of the volume for voids. Volume of the stack shall be arrived at by using Simpson's Rule.
- d) Manholes, chambers, septic tank shall have enumerated and paid per number as described under:
  - 1) Unless otherwise stated, net length of all pipes shall be measured including all fittings such as bends, junction etc., in running meters. The length shall be taken along the center line of the pipes and fittings.

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



- 2) Length of fittings viz. taps, valves, traps, etc., which are paid under appropriate items shall not be measured under liner measurements as enumerated above.
- 3) Soil waste and vent pipes shall be measured along the center line of the stack including the connecting bends / tees to W.C. Pan, Nahani trap, etc., and shall be paid as enumerated above.
- 4) W.C. Pans, Lavatory basins, Sinks, Drain Boards, Urinals, Mirrors, Glass shelf, Toilet Paper Holder, shall be measured by number and shall include all accessories as enumerated in detail specification under each item.
- 5) Unless otherwise specified, all types of taps, valves, etc., shall be measured by number and paid separately.
- 6) Manholes, Inspection Chambers, Gully Traps, etc., shall be constructed according to detail specification, and measured by number and paid separately. The depth of Manhole shall mean the vertical distance from the top of the Manhole cover to the Outgoing invert of the main drain channel.
- 7) Water meter shall include "Y" strainer and other appurtenances required by the local bodies and shall include brick masonry chamber, with lockable cover etc., as per detailed specifications and items shall be measured by number and paid for accordingly or as or Schedule of Quantity.

---

Employer's Signature.

---

Contractor's Signature.



### **THEORETICAL CEMENT CONSUMPTION STATEMENT (BASE CPWD)**

No	Description of item of work.	Quantity of cement to be used per Unit Quantity of work.	Unit.
1	Cement Concrete (Cast in Situ) Plain or Reinforced.		
a.	1:1:2 (1 Cement : 1 Sand : 2 Graded Aggregate).	12.20 Bags.	Cubic Meter
b.	1:1.5:3 (1 Cement : 1.5 sand : 3 Graded Aggregate).	8.00 Bags.	Cubic Meter
c.	1:2:4 (1 Cement : 2 Sand : 4 Graded Aggregate).	6.40 Bags.	Cubic Meter
d.	1:3:6 (1 Cement : 3 Sand : 6 Graded Aggregate).	4.40 Bags.	Cubic Meter
e.	1:4:8 (1 Cement : 4 Sand : 8 Graded Aggregate).	3.40 Bags.	Cubic Meter
f.	1:5:10 (1 Cement : 5 Sand : 10 Graded Aggregate).	2.60 Bags.	Cubic Meter
g.	Providing and laying cement concrete 1:2:4 (1 Cement: 2 Coarse Sand: 4 Graded Aggregate of 20 mm. nominal size) including finishing exposed surface with 6 mm. thick cement mortar 1:3 (1 Cement: 3 Fine Sand). Kerbs, Steps, and the like.	7.02 Bags.	Cubic Meter
h.	String or lacing courses, parapets, coping, bed blocks, anchor blocks, plain window sills and the like moldings in cornices, window sills etc.	7.62 Bags.	Cubic Meter
2.	Cement Mortar		
a.	1:1 (1Cement: 1 Sand)	20.40 Bags.	Cubic Meter
b.	1:2 (1Cement: 2 Sand)	13.60 Bags.	Cubic Meter
c.	1:3 (1Cement: 3 Sand)	10.20 Bags.	Cubic Meter
d.	1:4 (1Cement: 4 Sand)	7.60 Bags.	Cubic Meter
e.	1:5 (1Cement: 5 Sand)	6.20 Bags.	Cubic Meter
f.	1:6 (1Cement: 6 Sand)	5.00 Bags.	Cubic Meter
g.	1:2 (1Cement: 2 Stone Dust)	13.60 Bags.	Cubic Meter
h.	1:2 (1Cement: 2 Marble Dust)	13.60 Bags.	Cubic Meter
i.	1:5 (1Cement: 5 Marble Dust)	6.20 Bags.	Cubic Meter
j.	1:1:3 (1Cement: 1 Marble Dust: 3 Stone Dust)	7.60 Bags.	Cubic Meter
k.	White Cement Mortar 1:2 (1 White Cement : 2 Marble Dust)	13.60 Bags.	Cubic Meter
l.	White Cement Mortar 1:3 (1 White Cement : 3 Marble Dust)	10.20 Bags.	Cubic Meter
m.	White Cement Mortar 1:5	6.20 Bags.	Cubic Meter

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



	(1 White Cement : 5 Marble Dust)		
3.	Cement Lime Mortar		
a.	1:1:3 (1 Cement:1 Lime putty:3 Sand)	8.20 Bags.	Cubic Meter
b.	1:1:6 (1 Cement:1 Lime putty:6 Sand)	5.00 Bags.	Cubic Meter
4.	Brick Work in All Classes		
a.	In Cement Mortar 1:3 (1 Cement:3 Sand)	2.56 Bags.	Cubic Meter
b.	In Cement Mortar 1:4 (1 Cement:4 Sand)	1.90 Bags.	Cubic Meter
c.	In Cement Mortar 1:5 (1 Cement:5 Sand)	1.56 Bags.	Cubic Meter
d.	In Cement Mortar 1:6 (1 Cement:6 Sand)	1.24 Bags.	Cubic Meter
5.	Half Brick Work in All Classes		
a.	In Cement Mortar 1:3 (1 Cement:3 Sand) With or without hoop iron.	28.56 Bags per 100 Square Meter	
b.	In Cement Mortar 1:4 (1 Cement:4 Sand)	21.28 Bags per 100 Square Meter	
c.	In Cement Mortar 1:5 (1 Cement:5 Sand)	14.50 Bags per 100 Square Meter	
d.	Molding and cornices in brick masonry in cement mortar 1:4 Cement:4 Sand) Joining old brick work with new brick work.	0.18 Bags per 100 Square Meter per cm. girth	
	a) Old Brick in metric or FPS. System with new brick work in metric system in cement mortar 1:4 (1 Cement : 4 Sand).	4.20 Bags per 100 Square Meter	
	b) Old Brick work in FPS. System with new brick work in cement mortar 1:4 (1 Cement: 4 Sand).	5.44 Bags per 100 Square Meter	
6.	Random Rubble Masonry		
a.	Cement Mortar 1:6 (1 Cement : 6 Sand)	1.70 Bags.	Cubic Meter
b.	Cement Lime Mortar 1:1:8 (1 Cement : 1 Lime Putty : 8 Sand)	1.32 Bags.	Cubic Meter
7.	Coursed Rubble Masonry		
a.	Cement Mortar 1:6 (1 Cement : 6 Sand)	1.50 Bags.	Cubic Meter
8.	Ashlar Masonry In plain ashlar punched (ordinary) in superstructure in cement mortar 1:6 (1 Cement : 6 Sand ) including pointing with cement mortar 1:2 (1Cement:6 Stone dust) with an admixture of pigment matching the	1.08 Bags.	Cubic Meter





	stone shade.		
9.	Stone Veneering Work For wall lining etc., average thickness 40 mm. to 170 mm. in cement lime mortar 1:1:6 (1Cement:1 Lime Putty:6 Sand) including pointing in White cement mortar 1:2 (1 White Cement : 2 Stone Dust) with an admixture of pigment matching the stone shade.	17.50 Bags per 100 Square Meter	
10.	Marble work in steps jambs, walls, pillars and other plain work in cement mortar 1:4 (1 Cement : 4 Sand) including pointing in White cement mortar 1:2 (1 Cement : 2 Marble dsust).	0.136 Bags per 1.52 Bags per	Cubic Meter (Grey Cement) Cubic Meter (White Cement)
11.	Marble work in steps jambs, walls, pillars and other plain work in cement mortar 1:4 (1 Cement : 4 Sand) including pointing in cement mortar (1 Cement : 2 Marble dsust).	1.66 Bags per	Cubic Meter
12.	Marble work for wall lining (Veneer) work) 2.5 cm. thick in cement mortar 1:3 (1 Cement : 3 Sand) including pointing in White cement mortar 1:2 (1 Cement : 2 Marble dust).	14.28 Bags per 100 Square Metre 3.40 Bags per 100 Square Metre	(Grey Cement) (White Cement)
13.	Marble work for wall lining (Veneer) work) 2.5 cm. thick in cement mortar 1:3 (1 Cement : 3 Sand) including pointing in cement mortar 1:2 (1 Cement : 2 Marble dust).	17.68 Bags per	Square Meter
14.	Marble work for wall lining (Veneer) work) 4 cm. thick in cement mortar 1:3 (1 Cement : 3 Sand) including pointing in White cement mortar 1:2 (1 Cement : 2 Marble dust).	20.40 Bags per 100 Square Metre. 3.40 Bags per 100 Square Metre	(Grey Cement) (White Cement)
15.	Marble work for wall lining (Veneer) work) 4 cm. thick in cement mortar 1:3 (1 Cement : 3 Sand) including pointing in cement mortar 1:2 (1 Cement : 2 Marble dust).	23.80 Bags per 100 Square Metre.	
16.	Cement Concrete Flooring Flooring 1:2:4 (1 Cement : 2 Sand : 4 Graded Stone Aggregate) finished with a floating coat of neat cement including cement slurry rounding of edges and strips etc., but excluding cost of nosing of steps etc., complete.		
a.	25 mm. thick with 20 mm. nominal	0.244 Bags	Square Meter



	size stone aggregate.		
b.	40 mm. thick with 20 mm. nominal size stone aggregate.	0.34 Bags	Square Meter
c.	50 mm. thick with 20 mm. nominal size stone aggregate.	0.404 Bags	Square Meter
d.	75 mm. thick with 20 mm. nominal size stone aggregate.	0.564 Bags	Square Meter
17.	Cement Plaster Skirting (upto 30 cm. height) with cement mortar 1:3 (1 Cement : 3 Coarse Sand) finished with a floating coat of neat cement including rounding of junctions with floor, including slurry complete.		
a.	18 mm. thick.	0.32 Bags	Square Meter
b.	21 mm. thick.	0.35 Bags	Square Meter
18.	Pavement (25 to 50 mm. thick) with 1:2:4 (1 Cement : 2 Coarse Sand : 4 Graded Stone Aggregate 20 mm. nominal size) including finishing complete.	6.80 Bags	Cubic Meter
19.	Terrazo Flooring 40 mm. thick marble chips flooring rubbed and polished to granolithic finish, under layer 34 mm. thick cement concrete 1:2:4 (1 Cement: 2 Coarse Sand : 4 Graded Stone Aggregate 12.5 mm. nominal size) and top layer 6 mm. thick with white, black or white and black marble chips of size 1 mm. to 4 mm. nominal size laid in cement marble powder 3:1 mix. (3 Cement : 1 Marble Powder) by weight in proportion of 4:7 (4 Cement marble powder) by weight in marble powder mix:7 Marble chips) by volume including cement slurry etc., complete.		
a.	Dark shade / Light shade pigment with ordinary cement.	0.339 Bags per	Square Meter
b.	Light shade pigment with white cement.	0.258 Bags per 0.081 Bags per	Square Meter (Grey Cement) (White Cement)
c.	Medium shade pigment with approximately 50% white cement and 50% ordinary cement.	0.298 Bags 0.0440 Bags per	Square Meter (Grey Cement) (White Cement)
20	40 mm. thick marble chips flooring rubbed and polished to granolithic finish, under layer 31 mm. thick cement concrete 1:2:4 (1 Cement: 2		



	Coarse Sand : 4 Graded Stone Aggregate 12.5 mm. nominal size) and top layer 9 mm. thick marble chips, chips, size 4 to 7 mm. size, laid in cement marble powder mix. 3:1) (3 Cement : 1 Marble Powder) by volume in proportion of 4:7 (4 Cement marble powder mix. 7 Marble chips) by volume including cement slurry etc., complete.		
a.	Dark shade / Light shade pigment with ordinary cement.	0.357 Bags	Square Meter
b.	Light shade pigment with white cement.	0.241 Bags 0.116 Bags	Square Meter (Grey Cement) Square Meter (White Cement)
c.	Medium shade pigment with approximately 50% white cement and 50% ordinary cement.	0.299 Bags 0.058 Bags	Square Meter (Grey Cement) Square Meter (White Cement)
21	40 mm. thick marble chips flooring rubbed and polished to granolithic finish, under layer 28 mm. thick cement concrete 1:2:4 (1 Cement: 2 Coarse Sand : 4 Graded Stone Aggregate 12.5 mm. nominal size) and top layer 9 mm. thick marble chips, chips, sizes 7 mm to 10 mm. nominal size, laid in cement marble powder mix. 3:1) by weight in proportion of 2:3 (2 Cement Marble Powder mix. 3 Marble Chips) by volume including cement slurry etc., complete.		
a.	Dark or Light shade pigments with grey cement.	0.381 Bags	Square Meter
b.	Light shade pigment or without any pigment with white cement.	0.219 Bags 0.162 Bags	Square Meter (Grey Cement) Square Meter (White Cement)
c.	Medium shade pigment with approximately 50% grey cement and 50% white cement.	0.300 Bags 0.081 Bags	S.M. (Grey Cement) S.M.(White Cement)
22	Marble chips skirting (up to 300 mm high) rubbed and polished to granolithic finish top layer 6 mm. thick marble chips of sizes from smallest to 4 mm. nominal size laid to cement marble powder mix. 3:1 (3 Cement: 1 Marble Powder mix. By		



	weight in proportion of 4:7 (4 Cement Marble Powder mix: 7 marble chips) by volume including cement slurry complete.		
a.	18 mm. thick with under layer 12 mm. thick cement plaster 1:3 (1 Cement: 3 Course Sand) dark or light shade pigment with grey cement.	0.298 Bags	Square Meter
b.	Light shade pigment or no pigment with cement.	0.217 Bags Square Meter (Grey Cement) 0.081 Bags Square Meter (White Cement)	
c.	Medium shade colour pigment with 50% grey cement and 50% white cement.	0.258 Bags Square Meter (Grey Cement) 0.0406 Bags Square Meter (White Cement)	
d.	21 mm. thick with under layer 15 mm. thick cement plaster 1:3 (1 Cement: 3 Course Sand) dark or light shade pigment with grey cement.	0.327 Bags	Square Meter
e.	Light shade pigment or no pigment with white cement.	0.246 Bags Square Meter (Grey Cement) 0.081 Bags Square Meter (White Cement)	
f.	Medium shade pigment with 50% grey cement and 50% white cement.	0.286 Bags Square Meter (Grey Cement) 0.04 Bags Square Meter (White Cement)	
23.	Tile Flooring :		
a.	Precast terrazzo tiles 20 mm. thick white black or white and black marble chips of size up to 6 mm. laid in floors treads of steps and landings jointed with neat cement slurry mixed with pigment to match the shade of the tile including rubbing polishing with precast tiles of 30 mm. thick bed of lime mortar 1:1.2 or 1:3 light shade using white cement.	0.088 Bags Square Meter (Grey Cement) 0.088 Bags Square Meter (White Cement)	
b.	Medium shade colour pigment with 50% white cement and 50% grey cement.	0.132 Bags Square Meter (Grey Cement) 0.044 Bags Square Meter (White Cement)	
c.	Dark shades using ordinary cement precast terrazzo tiles 20 mm. thick with marble chips of size 6 mm. in skirting and risers of steps not exceeding 30 cm. in height on wall, laid on 12 mm. thick cement plaster 1:3 mix. (1 Cement: 3 Sand) joint with neat cement slurry, light shades using white cement.	0.235 Bags Square Meter (Grey Cement) 0.044 Bags Square Meter (White Cement)	
d.	Medium shade colour pigment with 50% white cement and 50% ordinary cement.	0.257 Bags Square Meter (Grey Cement) 0.022 Bags Square Meter (White Cement)	
e.	Dark shades using ordinary cement.	0.279 Bags	Square Metre
24.	Chequered Terrazzo Tile Flooring		



a.	Chequered Terrazzo Tile 22 mm. thick with marble chips of sizes upto 6 mm. in floors, jointed with neat cement slurry mixed with pigment to match the shade of the tiles including robbing, polishing complete on 28 mm. thick bed of lime mortar 1:1.2 or 1:3.	
a.	Light shade using white cement.	0.088 Bags Square Meter (Grey Cement) 0.096 Bags Square Meter (White Cement)
b.	Medium shades using 50% grey cement and 50% white cement.	0.136 Bags Square Meter (Grey Cement) 0.048 Bags Square Meter (White Cement)
c.	Dark shade using grey cement.	0.184 Bags Square Meter (Grey Cement)
d.	Chequered Terrazzo Tile 30 mm. thick with marble chips of sizes up to 6 mm. in stairs, treads, jointed with neat cement slurry mixed with pigment to match the shade of the tiles including rubbing polishing rounding of nosing etc., complete on 20 mm. bed of : Lime mortar 1:1:1 (1 Lime putty:1 Surkhi:1 Coarse Sand) :	
i.	Light shade using white cement.	0.088 Bags Square Meter (Grey Cement) 0.136 Bags Square Meter (White Cement)
ii.	Medium shades using 50% grey cement and 50% white cement.	0.154 Bags Square Meter (Grey Cement) 0.066 Bags Square Meter (White Cement)
iii.	Dark shade using grey cement.	0.220 Bags Square Meter (Grey Cement)
e.	Cement mortar 1:4 (1 Cement:4 Coarse Sand)	
i.	Light shade using white cement.	0.258 Bags Square Meter (Grey Cement) 0.132 Bags Square Meter (White Cement)
ii.	Medium shades using 50% grey cement and 50% white cement.	0.324 Bags Square Meter (Grey Cement) 0.066 Bags Square Meter (White Cement)
iii.	Dark shade using grey cement.	0.39 Bags Square Meter (Grey Cement)
25.	White Glazed Tiles.	
	White Glazed Tiles 5,6 or 7 mm. thick in flooring treads risers of steps skirting and dado on 12 mm. thick cement plaster 1:3 (1 Cement : 3 sand) in base and cement jointed with white cement slurry etc. complete.	0.188 Bags Square Meter (Grey Cement) 0.050 Bags Square Meter (White Cement)
26.	Marble Stone Flooring	
	Marble Stone slab flooring over 20 mm. thick base of lime mortar 1:1:1 (1 Lime putty:1 Surkhi:1 Sand) and jointed with grey cement slurry etc. (all marble slabs).	
a.	20 mm. thick	0.098 Bags Square Meter
b.	30 mm. thick	0.102 Bags Square Meter



c.	40 mm. thick	0.107 Bags Square Meter
	Marble stone slab flooring over 20 mm. thick base of cement mortar 1:4 (1 Cement:4 Sand) and jointed with grey cement slurry etc., (all marble slabs).	
d.	20 mm. thick	0.268 Bags Square Meter
e.	30 mm. thick	0.273 Bags Square Meter
f.	40 mm. thick	0.277 Bags Square Meter
g.	Extra if white cement slurry is used instead of grey cement slurry in joints of marble stone flooring.	0.015 Bags Square Meter (White Cement)
h.	Marble slabs 30 mm. thick in risers of steps, skirting dado, wall and pillars, laid on 12 mm. thick cement mortar 1:3 (1 Cement : 3 Sand) and jointed with grey cement slurry.	0.246 Bags Square Meter (White Cement)
27.	Kotah Stone Flooring	
	Kotah stone slab flooring over 20 mm. thick base of lime mortar 1:1:1 (1 Lime putty:1 Surkhi:1 Sand) and jointed with neat cement slurry etc.	
a.	25 mm. thick	0.128 Bags Square Meter
b.	30 mm. thick	0.136 Bags Square Meter
c.	40 mm. thick	0.152 Bags Square Meter
	Kotah Stone slab flooring over 20 mm. thick base of cement mortar 1:4 (1 Cement:4 Sand) and jointed with neat cement slurry etc.	
d.	25 mm. thick	0.298 Bags Square Meter
e.	30 mm. thick	0.306 Bags Square Meter
f.	40 mm. thick	0.322 Bags Square Meter
g.	Kotah stone slab 25 mm. thick risers of steps, skirting, dado and pillar laid on 12 mm. thick cement mortar 1:3 (1 Cement:3 Sand) and jointed with neat cement slurry etc.	0.275 Bags Square Meter
28	Sand Stone Flooring	
a.	40 mm. thick sand stone flooring over 20 mm. thick base of cement mortar 1:5 (1 Cement :5 Sand) with joints finish flush.	0.155 Bags Square Meter
b.	40 mm. thick sand stone flooring over 20 mm. thick base of cement mortar 1:5 (1 Cement :5 Sand) including pointing with cement mortar 1:2 (1 Cement : 2 Stone Dust).	0.186 Bags Square Meter



c.	40 mm. thick sand stone flooring over 20 mm. thick base of lime mortar 1:1:1 (1 Lime :1 Surkhi:1 Sand) including pointing with cement plaster 1:2 (1 Cement :2 Stone Dust).	0.031 Bags Square Meter
d.	40 mm. thick fine dressed and rubbed stone flooring over 20 mm. thick base of cement mortar 1:5 (1 Cement :5 Sand) with joints 5 mm. thick finished flush.	0.166 Bags Square Meter
e.	40 mm. thick fine dressed and rubbed stone flooring over 20 mm. thick base of lime mortar 1:5 (1 Cement : 5 Sand) with joints 5 mm. thick including pointing with cement mortar 1:2 (1 Cement : 2 Stone Dust).	0.196 Bags Square Meter
f.	25 mm. thick cast iron grid flooring using grid tiles of required size weighing 47 kg. per square metre on bed of 12 mm. thick cement concrete 1:2 (1 Cement : 2 Stone Aggregate 6 mm. nominal size) including filling the hollows with cement concrete same mix and tamping with 10 mm. dia. iron bars and grouting the joints with neat cement slurry complete.	0.025 Bags Square Meter
g.	Filling cement concrete 1:2:4 (1 Cement :2 Coarse Sand : 4 Graded Stone Aggregate 12.5 mm. nominal size) in gaps of A.C.Sheet corrugations and wings of ridges.	3.82 Bags Square Meter
29.	Cement Plaster	
a.	12 mm. 1:3 (1 Cement : 3 Sand).	14.68 100 Square Metre
b.	12 mm. 1:4 (1 Cement : 4 Sand).	10.94 100 Square Metre
c.	12 mm. 1:5 (1 Cement : 5 Sand).	8.92 100 Square Metre
d.	12 mm. 1:6 (1 Cement : 5 Sand).	7.20 100 Square Metre
e.	15 mm. 1:3 (1 Cement : 3 Sand).	17.54 100 Square Metre
f.	15 mm. 1:4 (1 Cement : 4 Sand).	12.08 100 Square Metre
g.	15 mm. 1:5 (1 Cement : 5 Sand).	10.66 100 Square Metre
h.	12 mm. 1:6 (1 Cement : 6 Sand).	8.60 100 Square Metre
i.	20 mm. 1:3 (1 Cement : 3 Sand).	22.84 100 Square Metre
j.	20mm. 1:4 (1 Cement : 4 Sand).	17.02 100 Square Metre
k.	20 mm. 1:5 (1 Cement : 5 Sand).	13.88 100 Square Metre
l.	20 mm. 1:6 (1 Cement : 6 Sand).	11.20 100 Square Metre
30.	Cement Plaster with a Floating Coat of neat cement	
a.	12 mm. 1:3 (1 Cement: 3 Sand).	19.08 100 Square Metre
b.	12 mm. 1:4 (1 Cement: 4 Sand).	15.34 100 Square Metre





c.	12 mm. 1:3 (1 Cement: 3 Sand).	21.94 100 Square Metre
d.	12 mm. 1:4 (1 Cement : 4 Sand).	17.48 100 Square Metre
e.	15 mm. 1:3 (1 Cement : 3 Sand).	27.24 100 Square Metre
f.	15 mm. 1:4 (1 Cement : 4 Sand).	21.42 100 Square Metre
31.	Cement Plaster in two coats	
a.	20 mm. Cement Plaster in two coats under layer 12 mm. cement plaster 1:4 (1 Cement :4 Sand) finished with a top layer 8 mm. thick cement plaster 1:3 (1 Cement : 3 Sand)	20.00 Bags per 100 Square Metre
b.	18 mm. thick Cement Plaster in two coats under layer 12 mm. thick cement plaster 1:5 (1 Cement :5 Sand) finished with a top layer 6 mm. thick cement plaster 1:3 (1 Cement : 3 Sand)	16.26 Bags per 100 Square Metre
32.	6 mm. Cement Plaster	
a.	6 mm. Cement Plaster to ceiling 1:3 (1 Cement :3 Sand)	7.34 Bags per 100 Square Metre
b.	6 mm. Cement Plaster to ceiling 1:4 (1 Cement :4 Sand)	5.48 Bags per 100 Square Metre
c.	6 mm. Cement Plaster to ceiling 1:3 (1 Cement :3 Sand) finished with a floating coat of neat cement.	11.74 Bags per 100 Square Metre
d.	Neat Cement Punning.	4.40 Bags per 100 Square Metre
33.	Sand Cement Neeru Finished Plaster	
a.	Sand cement smooth neeru finished plaster for ceiling in cement mortar mix 1:4 (1 Cement :4 Sand), 10 to 15 mm. thick average, finished top smooth with neeru.	13.00 Bags per 100 Square Metre
b.	Sand cement smooth neeru finished plaster for walls in cement mortar mix 1:4 (1 Cement :4 Sand), 18 to 20 mm. thick average, finished top smooth with neeru.	19.00 Bags per 100 Square Metre
34.	Rough Cast Plaster	
	Rough Cast Plaster with a mixture of sand and gravel or crushed stone from 2.36 mm. to 12.5 mm. nominal size dashed over and including the fresh plaster in two layers, top layer 10 mm. cement plaster 1:3 (1 Cement: 3 Sand) mixed with 10% finely grounded hydrated lime by volume of cement and under layer 12 mm. cement plaster : 1:4 (1 Cement: 4 Sand)	
a.	With ordinary cement finish or cement pigment finish.	23.18 Bags per 100 Square Metre





b.	With white cement and pigment finish.	10.94 Bags 100 Sqm.(Grey Cement) 12.24 Bags 100 Sqm. (White Cement)
	1:5 Cement Sand (1 Cement:5 Sand)	
c.	With ordinary cement finish or cement and pigment finish.	21.16 Bags 100 Sqm.(Grey Cement)
d.	With white cement and pigment finish.	8.92 Bags 100 Sqm.(Grey Cement) 12.24 Bags 100 Sqm. (White Cement)
35.	Pointing on Stone Work	
a.	Flush or ruled pointing on stone work with cement mortar 1:3 (1 Cement : 3 Sand)	2.34 Bags per 100 Square Metre
b.	Raised and cut pointing in stone work with cement mortar 1:3 (1 Cement : 3 Sand)	3.88 Bags per 100 Square Metre
36.	Waterproofing	
a.	Proprietary waterproofing treatment to the terrace with brick-bat coba, cement base.	55.00 Bags per 100 Square Metre
b.	Proprietary waterproofing treatment to the canopy with brick-bat coba, cement base.	45.00 Bags per 100 Square Metre
c.	Waterproofing chajja with sand cement plaster average 25 mm. thick in cement mortar 1:3 (1 Cement :3 Sand)	25.00 Bags per 100 Square Metre
d.	Proprietary waterproofing treatment to the sunk portion of toilet, cement base.	30.00 Bags per 100 Square Metre

### **THEORETICAL CEMENT CONSUMPTION STATEMENT (BASE CPWD)**

No	Description of item of work.	Quantity of cement to be used per Unit Quantity of work.	Unit.
1.	Cast Iron Pipes		
	Providing and fixing on wall face C.I. rain water pipes including filling the joints with spun yarn soaked in neat cement slurry and cement mortar 1:2 (1 Cement : 2 Sand)		
a.	75 mm. dia pipe	0.132 Bags per 100 Metre	
b.	105 mm. dia pipe	0.176 Bags per 100 Metre	
c.	150 mm. dia pipe	0.264 Bags per 100 Metre	
2.	Cast Iron Accessories		



	Providing and fixing on wall face C.I. Accessories for rain water pipes including filling the joints with spun yarn soaked in neat cement slurry and cement mortar 1:2 (1 Cement : 2 Fine Sand)		
a.	75 mm. dia pipe C.I. Plain bend.	0.0052	Each
b.	100 mm. dia pipe C.I. Plain bend.	0.0062	Each
c.	150 mm. dia pipe C.I. Plain bend.	0.010	Each
d.	75 mm. dia C.I. head flat or corner type.	0.003	Each
e.	100 mm. dia C.I. head flat or corner type.	0.003	Each
f.	150 mm. dia C.I. head flat or corner type.	0.0052	Each
g.	75 mm. dia C.I. plain shoe.	0.003	Each
h.	100 mm. dia C.I. plain shoe.	0.003	Each
i.	150 mm. dia C.I. plain shoe.	0.0052	Each
j.	75 mm. dia C.I. single branch (plain)	0.0052	Each
k.	100 mm. dia C.I. single branch (plain)	0.0062	Each
l.	150 mm. dia C.I. single branch (plain)	0.0010	Each
m.	75 mm. dia C.I. double branch (plain)	0.008	Each
n.	100 mm. dia C.I. double branch (plain)	0.009	Each
o.	150 mm. dia C.I. double branch (plain)	0.0052	Each
p.	C.I. off-sets (plain) 75 mm. dia. 55 mm. projection.	0.0052	Each
q.	C.I. off-sets (plain) 75 mm. dia. 150 mm. projection.	0.0052	Each
r.	C.I. off-sets (plain) 100 mm. dia. 55 mm. projection.	0.0052	Each
s.	C.I. off-sets (plain) 100 mm. dia. 55 mm. projection.	0.0062	Each
t.	C.I. off-sets (plain) 100 mm. dia. 75 mm. projection.	0.0062	Each
3.	A.C. Fittings & Pipes		
	Providing and fixing on wall face asbestos cement rain water pipes including jointing with spun yarn soaked in bitumen and cement mortar 1:2 (1 Cement 2 Coarse Sand) complete.		
a.	50 mm. dia.	0.150	100 Metre
b.	80 mm. dia.	0.250	100 Metre



Page 100 of 100

c.	100 mm. dia.	0.300	100 Metre
d.	150 mm. dia.	0.320	100 Metre
e.	Providing and fixing A.C. Pipe (or any diameter) wall plugs and standard holder bat clamps comprising of two semi-circular halves of flat and cast iron base screwed on wooden plugs.	0.0004	100 Metre
f.	Providing and fixing on wall face asbestos cement rain water pipes including jointing with spun yarn soaked in bitumen and cement mortar 1:2 (1 Cement 2 Coarse Sand) complete.		

		50 mm. (2")	80 mm. (3")	100 mm. (4")	Unit
g.	Bend of required degree with door or without door.	0.0072	0.012	0.015	Each
h.	Off-set 52.2 mm. projection.	0.0058	0.0090	0.0116	Each
i.	Off-set 76.2 mm. projection.	0.0058	0.0090	0.011	Each
j.	Off-set 114.3 mm. projection.	0.0058	0.0090	0.0116	Each
k.	Off-set 152.4 mm. projection.	0.0058	0.0090	0.0116	Each
l.	Off-set 228.6 mm. projection.	0.0058	0.0090	0.0116	Each
m.	Off-set 304.8 mm. projection.	--	0.0090	0.0116	Each
n.	Off-set 457.2 mm. projection.	--	0.0090	0.0116	Each
o.	Off-set 609.6 mm. projection.	--	--	0.0116	Each
p.	Junction equal single of required degree with or without door.	0.0072	0.0116	0.0146	Each
q.	Junction equal double with or without door or required degree.	0.0108	0.0174	0.0220	Each
r.	Standard shoe.	0.00400	0.0058	0.0058	Each

4.	Sanitary Fittings		
a.	Fixing long pan pattern or Orissa pattern squatting pan or pedestal type water closet 12.5 litres or 15 litres flushing cistern and brackets, telescopic flush pipe or bend with fittings and clamps, overflow pipe with specials and mosquito proof coupling complete including cutting and making good the walls and floors.	0.10	Each
	Fixing flat back or wall corner type, lipped front, urinal basin of 430 x 260 x 350 mm. and 340 x 430 x 265 mm. size respectively, white glazed earthenware with automatic C.I. flushing cistern with fittings, brackets, standard size flush pipe and	0.050	Each



	spreaders with brass union and G.I. clamps complete including painting of cistern and fittings, cutting and making good the walls and floors.		
b.	One urinal basin with 5 litres C.I. automatic flushing cistern.	0.050	Each
c.	Range of two urinal basins with 10 litres C.I. automatic flushing cistern.	0.08	Each
d.	Range of three urinal basins with 10 litres C.I. automatic flushing cistern.	0.134	Each
e.	Range of four urinal basins with 15 litres C.I. automatic flushing cistern.	0.190	Each
	Fixing white glazed fire clay stall urinal with automatic C.I. flushing cistern with fittings R.S. or C.I. brackets standard size C.P. brass flush pipe and spreaders with unions and clamps, C.I. trap with outlet grating and other coupling in C.P. brass including painting of cistern and fittings, cutting and making good the walls and floors.		
f.	Single stall urinal with 5 litres C.I. automatic flushing cistern.	0.102	Each
g.	Range of two urinal basins with 10 litres C.I. automatic flushing cistern.	0.204	Each
h.	Range of three urinal basins with 10 litres C.I. automatic flushing cistern.	0.306 Bags	Each
i.	Range of four urinal basins with 15 litres C.I. automatic flushing cistern.	0.406 Bags	Each
	Fixing one-piece construction white squatting plate urinal with an integral longitudinal flushing pipe 100 mm. dia. half round channel automatic C.I. flushing cistern with fittings R.S. or C.I. brackets, standard size. G.I. flush pipe for back and front flush with standard spreader pipes with fittings G.I. clamps, white vitreous tiling 1200 mm. high to the front and side walls with white vitreous china corners and angles set in neat cement, standard urinals C.I. trap 65 mm. diameter with vent arm and outlet grating and coupling in C.P. brass complete, including painting the cistern and fittings and making good the walls and floors.		
j.	Single squatting plate with 5 litres	0.102 Bags	Each



	C.I. automatic flushing cistern.		
k.	Range of two squatting plates with 10 litres C.I. automatic flushing cistern.	0.204 Bags	Each
l.	Range of three squatting plates with 10 litres C.I. automatic flushing cistern.	0.306 Bags	Each
m.	Range of four squatting plates with 15 litres C.I. automatic flushing cistern.	0.406 Bags	Each
n.	Fixing lavatory basin with brackets, pillar taps, rubber plug, waste of standard pattern, trap and unions complete including cutting and making good the walls.	0.050 Bags	Each
o.	Fixing white pedestal for wash basin completely recessed at the back for reception of pipes and fittings.	0.032 Bags	Each
p.	Fixing sink with brackets, 40 mm. rubber plus, brass chain, waste, trap with necessary unions complete including cutting and making good the walls.	0.050 Bags	Each
q.	Fixing teal-wood draining board with skirting and beading, wax polished with brackets painted white complete including making good the walls.	0.028 Bags	Each
5.	Sanitary Fittings (Items separately ordered)		
a.	Fixing long pan pattern or Orissa pattern squatting, or pedestal type W.C. pan.	0.050 Bags	Each
b.	Fixing a pair of white glazed earthenware or vitreous china foot rests of standard pattern for Indian type W.C. pan.	0.010 Bags	Each
c.	Fixing flat back or wall corner type lipped front urinal basin of 430 x 260 x 350 mm. and 340 x 430 x 265 mm.	0.020 Bags	Each
d.	Fixing white glazed fire clay stall urinal of standard size.	0.04 Bags	Each
e.	Fixing white squatting plate urinal with integral longitudinal flush pipe. .	0.040 Bags	Each
f.	Fixing wash basin including making all connections excluding cost of fittings.	0.030 Bags	Each
g.	Fixing kitchen sink including making all connections complete.	0.030 Bags	Each
h.	Fixing in position 32 mm. diameter galvanised steel telescopic flush pipe	0.020 Bags	Each

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



	complete including cutting and making good the walls and floor.		
6.	Sand Cast Iron Pipe and Fittings		
a.	Fixing M.S. holder bat clamp to 100 mm. dia. sand cast iron pipe embedded in cement concrete blocks 10 x 10 x 10 cm. of cement concrete 1:2:4 (1 Cement : 2 Sand : 4 Stone Aggregate) including cost of cutting holes and making good the walls etc.	0.010 Bags	Each
b.	Fixing M.S. stays and clamps for 100 mm. diameter sand cast iron pipe.	0.010 Bags	Each
c.	Fixing M.S. holder bat clamps for 50 mm. diameter sand cast iron pipe embedded in cement concrete block 10 x 10 x 10 cm. of 1:2:4 (1 Cement : 2 Sand : 4 Stone Aggregate) including cost of cutting holes and making good the walls etc.	0.010 Bags	Each
d.	Fixing M.S. stays and clamps for 50 mm. diameter sand cast iron pipe.	0.010 Bags	Each
e.	Fixing sand cast iron trap 100 mm. inlet 100 mm. outlet of self-cleaning design with sand cast iron screwed down or hinged grating with or without vent arm complete including cost of cutting without and making good the walls and floor.	0.050 Bags	Each
f.	Fixing 100 mm. inlet and 50 mm. outlet sand cast iron floor trap of self cleaning design with sand cast iron screwed down or hinged grating with or without vent arm complete including cost of cutting and making good the walls and floors.	0.050 Bags	Each
7.	Asbestos Cement Soil, Waste and Vent Pipes and Fittings		
	Providing and fixing on wall face asbestos cement soil waste and vent pipe including jointing with spun yarn soaked in bitumen and cement mortar 1:2 (1 Cement: 2 Sand) complete.		
a.	For 100 mm. diameter.	0.300 Bags	100 Metre
b.	For 50 mm. diameter.	0.150 Bags	100 Metre
	Fixing wooden plugs and standards holder bat clamps comprising of two semicircular halves of flat iron and cast iron base screwed on wooden plugs.		



c.	For 100 mm. diameter.	0.0004 Bags	Each
d.	For 50 mm. diameter.	0.0004 Bags	Each
	Providing and fixing A.C. bends of required degree with access door insertion rubber washer 3 mm. thick, bolts and nuts or plain bend of heel rest unitary bend including jointing with spun yarn soaked in bitumen and cement mortar 1:2 (1 Cement : 2 Sand)		
e.	For 100 mm. diameter.	0.0020 Bags	Each
f.	For 50 mm. diameter.	0.0010 Bags	Each
	Providing and fixing double equal or unequal A.C. junctions of required degree plain or with access door, insertion, rubber washer 3 mm. thick bolts and nuts, including jointing with spun yarn cement mortar 1:2 (1 Cement : 2 Sand) complete.		
g.	100 x 100 x 100 x 100 mm. double equal junctions or 100 x 100 x 50 x 50 mm. double unequal junctions.	0.004 Bags	Each
h.	50 x 50 x 50 50 mm. double equal junctions.	0.002 Bags	Each
	Providing and fixing single equal or unequal A.C. junctions of required degree plain or with access door, insertion, rubber washer 3 mm. thick bolts and nuts, including jointing with spun yarn cement mortar 1:2 (1 Cement : 2 Sand) complete.		
i.	100 x 100 x 100 x 100 mm. single equal junctions or 100 x 100 x 50 x 50 mm. single unequal junctions.	0.0030 Bags	Each
j.	50 x 50 x 50 50 mm. single equal junctions.	0.0016 Bags	Each
	Providing and fixing plain A.C. invert branch of required degree including jointing with spun yarn soaked in bitumen and cement mortar 1:2 (1 Cement : 2 sand).		
l.	50 x 50 x 50 x 50 mm.	0.002 Bags	Each
m.	50 x 50 x 50 x 50 mm.	0.0016 Bags	Each
	Providing and fixing A.C. offset including jointing with spun yarn soaked in bitumen and cement mortar 1:2 (1 Cement : 2 Sand)		
n.	100 mm. dia. A.C. offset with any projection.	0.002 Bags	Each
o.	50 mm. dia. A.C. offset with any	0.0010 Bags	Each



	projection.		
	Providing and fixing A.C. loose socket including jointing with spun yarn soaked in bitumen and cement mortar 1:2 (1 Cement : 2 Sand) complete.		
p.	100 mm.	0.002 Bags	Each
q.	50 mm.	0.0010 Bags	Each
	Providing and fixing A.C. Terminal guard including jointing with spun yarn soaked in bitumen and cement mortar 1:2 (1 Cement : 2 Sand).		
r.	100 mm.	0.002 Bags	Each
s.	50 mm.	0.0010 Bags	Each
t.	Cutting chase in brick masonry walls for fixing 100 mm diameter sand cast iron pipes and making good the same with brick work in cement mortar 1:3 (1 Cement : 3 Sand)	10.00 Bags	100 Metre
u	Cutting chase in brick masonry walls for fixing 50 mm. diameter sand cast iron pipes and making good the same with the brick work in cement mortar 1:3 (1 Cement : 3 Sand).	6.66 Bags	100 Metre
8.	Drainage		
	Jointing glazed stone ware pipes grade "A" with stiff mixture of cement mortar in the proportion of 1:1 (1 Cement : 1 Sand)		
a.	100 mm. dia.	4.34 Bags	100 Metre
b.	150 mm. dia.	6.46 Bags	100 Metre
c.	200 mm. dia.	8.66 Bags	100 Metre
d.	230 mm. dia.	9.74 Bags	100 Metre
e.	250 mm. dia.	10.80 Bags	100 Metre
f.	300 mm. dia.	12.94 Bags	100 Metre
g.	450 mm. dia.	19.54 Bags	100 Metre
	Laying cement concrete 1:5:10 (1 Cement : 5 Sand : 10 Graded Stone Aggregate 40 mm. nominal size) around S.W. pipe including bed concrete 15 cm. thick.:		
h.	100 mm. dia. S.W. Pipe.	47.32 Bags	100 Metre
i.	150 mm. dia. S.W. Pipe.	50.70 Bags	100 Metre
j.	200 mm. dia. S.W. Pipe.	58.24 Bags	100 Metre
k.	230 mm. dia. S.W. Pipe.	62.92 Bags	100 Metre
l.	250 mm. dia. S.W. Pipe.	66.04 Bags	100 Metre
m.	300 mm. dia. S.W. Pipe.	73.58 Bags	100 Metre
n.	350 mm. dia. S.W. Pipe.	81.12 Bags	100 Metre
o.	400 mm. dia. S.W. Pipe.	88.40 Bags	100 Metre





p.	450 mm. dia. S.W. Pipe.	96.20 Bags	100 Metre
	Laying cement concrete 1:5:10 (1 Cement : 5 Sand : 10 Graded Stone Aggregate 40 mm. nominal size) upto haunches of S.W. pipe including bed concrete 15 cm. thick.:		
q.	100 mm. dia. S.W. Pipe.	31.72 Bags	100 Metre
r.	150 mm. dia. S.W. Pipe.	34.84 Bags	100 Metre
s.	200 mm. dia. S.W. Pipe.	40.56 Bags	100 Metre
t.	230 mm. dia. S.W. Pipe.	44.20 Bags	100 Metre
u.	250 mm. dia. S.W. Pipe.	46.54 Bags	100 Metre
v.	300 mm. dia. S.W. Pipe.	52.26 Bags	100 Metre
w.	350 mm. dia. S.W. Pipe.	58.24 Bags	100 Metre
x.	400 mm. dia. S.W. Pipe.	62.96 Bags	100 Metre
y.	450 mm. dia. S.W. Pipe.	69.94 Bags	100 Metre
z.	Laying light duty non-pressure NP2 or P1 class R.C.C. pipes with collars jointed with stiff mixture of cement mixture of cement mortar in the proportion of 1:2 (1 Cement : 2 Sand) including joints etc.		
Z1.	100 mm. dia. R.C.C. pipe (NP2) or (P1)	1.00 Bags	100 Metre
Z2.	150 mm. dia. R.C.C. pipe (NP2) or (P1)	1.20 Bags	100 Metre
Z3.	250 mm. dia. R.C.C. pipe (NP2) or (P1)	1.80 Bags	100 Metre
Z4.	300 mm. dia. R.C.C. pipe (NP2) or (P1)	2.20 Bags	100 Metre
Z5.	450 mm. dia. R.C.C. pipe (NP2) or (P1)	4.80 Bags	100 Metre
Z6.	500 mm. dia. R.C.C. pipe (NP2) or (P1)	5.20 Bags	100 Metre
Z7.	600 mm. dia. R.C.C. pipe (NP2) or (P1)	6.40 Bags	100 Metre
Z8.	700 mm. dia. R.C.C. pipe (NP2) or (P1)	7.40 Bags	100 Metre
Z9.	800 mm. dia. R.C.C. pipe (NP2) or (P1)	8.40 Bags	100 Metre
Z10.	900 mm. dia. R.C.C. pipe (NP2) or (P1)	9.80 Bags	100 Metre
Z11.	1000 mm. dia. R.C.C. pipe (NP2) or (P1)	11.00 Bags	100 Metre



## **TECHNICAL SPECIFICATIONS FOR INTERIOR MATERIALS**

### **1. GENERAL**

This specification is for work to be done, item to be supplied and materials to be used in the works as shown and defined on the drawings and described herein, all under the supervision and to the satisfaction of the Competent Authority.

**Competent authority means Architects / Engineer in charge.**

- 1.1 The workmanship is to be the best and of high standard, use must be made of special trades men in all respects of the work and allowances must be made in the rates for doing so.
- 1.2 The materials and items to be provided by the contractor shall be approved by the Competent Authority in accordance with any samples which will be submitted for approval by Contractor and generally in accordance with the Specifications Also if products are specified in the catalogue reference, the contractor will be required to obtain the approval of the Competent Authority before using a material. The Contractor shall produce all invoices, vouchers or receipts for any material if called upon to do so by the Competent Authority.
- 1.3 Samples of all materials are to be submitted to the Competent Authority for approval before the Contractor orders or delivers the materials at site. Samples together with their packing are to be provided free of charge by the Contractor and should any materials be rejected, they will be removed from the site at the Contractor's expense. All samples will be retained by the Competent Authority for comparison with materials, which will be delivered at the site. Also, the Contractor will be required to submit specimen finishes of colours, fabrics etc. for the approval of the Competent Authority before proceeding with the work.
- 1.4 The contractor shall be responsible for providing and maintaining and boxing or other temporary coverage required for the protection of dresses or finished work if left unprotected. He is also to clean out all shelving's, out ends and other waste from all parts of the works before coverings or in-fillings are constructed.
- 1.5 Templates, boxes and moulds shall be accurately set out and rigidly constructed so as to remain accurate during they are in use.
- 1.6 All unexposed surface of timber e. g. false ceiling, backing fillets, backs of door frames, cupboard framing, grounds, etc. are to be treated with two coats of approved timber preservative before fixing or converging.
- 1.7 Only first-class workmanship will be accepted. Contractor shall maintain uniform quality and consistency in workmanship throughout.

### **2. JOINERY:**

- 2.1 Joinery is to be prepared immediately after the placing of the contract, framed up, bonded and waged up. Any portions that are wrapped or found with other defects are

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



to be replaced before wedging up. The whole of the work is to be framed and finished in a workmen-like manner in accordance with the detailed drawings wrought and wherever required, fitted with all necessary metal ties, straps, belts, screws, glue etc. Running beaded joints are to be cross-tongued with teak wherever 1½ thick double cross tongued. Joiners work generally to be finished with fine sand/glass paper.

- 2.2 Joints:** All joints shall be standard mortise and tenon, dowel, dovetail, and cross-halved. Nailed or glued butt joints will not be permitted, screws, nails etc. will be standard iron or wire of oxidized nettle fold tenon should fit the mortises exactly.
- 2.3** Nailed or glued butt joints will not be permitted except in exceptional cases with approval of Competent Authority.
- 2.4** Where screws shown on a finished surface, those will be sunk and the whole plugged with a wood plug of the same wood and grain of the finished surfaces will be neatly punched and the hole filled with wood filler to match the colour.
- 2.5** Should joints in joiner's work open, or other defects arise within the period stated for defect liability in the contract and the clause thereof, be deemed by the Competent Authority to be due such defective joinery shall be taken down, and refilled, redecorated and/or replaced if necessary and any work disturbed shall be made good at the Contractor's expense.
- 2.6** Nails spikes and bolts shall be of lengths and weights approved by the Competent Authority. Nails shall comply with is 1959-1960 approved quality sample. Brass-headed nails are to comply with B. S. 1210. Wire staples shall comply with B. S. 1494 .
- 2.7** The contact surface of dowels, tennons wedges etc., shall be glued with an approved adhesive. Where glued, joinery and carpentry works are likely to come into contact with moisture, the glue shall be waterproof.

### **3.0 HARDWARE AND METALS:**

The hardware throughout shall be of approved manufacture or supplier well-made and equal to in every respect to the samples to be deposited with the Competent Authority. The contractor may be required to produce and provide samples from many different sources before the Competent Authority takes decision and he should allow his rates for doing so.

- 3.1** Fittings generally shall be brass oxidized, unless otherwise specified and shall be suitable for their intended purpose. In any case, it will have to be approved by Competent Authority before the Contractor procures it at site of work.
- 3.2** Screws are to match the finish of the article to be fixed, and to be round or flat headed or counter sunk as required.



- 3.3** The contractor should cover up and protect the brass and bronze surfaces with a thick grease or other suitable productive material, renew as necessary and subsequently clean off away on connection.
- 3.4** Aluminum and stainless steel shall be of approved manufacture and suitable for its particular application. Generally, the surface of aluminum shall have an anodized finish and both shall comply with the samples approved by the Competent Authority. All stainless-steel sheets shall be 304 S. S. Japan with gauge as specified but not thinner than 16G.
- 3.5** All steel, brass, bronze, aluminum and stainless-steel articles shall be subjected to a reasonable test at the Contractor's expense.
- 3.6** All brazing and welds are to be executed in a clean and smooth manner rubbed down and left in the flattest and tidiest way, particularly where exposed.
- 3.7** Chromium plating shall be in accordance with I. S. Standard or as per approved specification for normal outdoor conditions and shall be on a base material of copper or brass.

#### **4.0 GLAZIER:**

- 4.1** All glass to be of approved manufacturer complying with IS 3548-1966 as per approved quality and sample to be of the selective qualities specified and free from bubbles, smoke, air holes and other defects.
- 4.2** Polished plate glass shall be "glazing glass" (G. G.) quality and that for mirrors shall be "silvering quality" (S.G.) conforming to IS 3438-1965 or as per approved sample and quality.
- 4.3** The compound for glazing to metal is to be a special non-hardening compound manufactured for the purpose and of a brand and quality approved by the Competent Authority.
- 4.4** While cutting glass, proper allowance be made for expansion. Each square of glazing to be in one whole sheet. On completion of work clean all glass inside and cut, replace all cracked scratched and broken panes and leave in good condition.

#### **5.0 PAINT AND POLISHES:**

- 5.1** All material required for the works shall be of specified and approved manufacturer, delivered to the site in the manufacturer's container's name or trade mark with a description of the contents and colour. All materials are to be stored on the site.
- 5.2** Spray painting with approved machines will be permitted only if written approval has been obtained from the Competent Authority prior to painting. No spraying will be permitted in the case of priming costs nor where the soiling of adjacent surfaces is likely to occur. The buzzle and pressure to be so operated as to give an even coating throughout to the satisfaction of the Competent Authority. The paint used for spraying



is to comply generally with the specification concerned and is to be specially prepared by the manufacturer for spraying. Thinning of paint made for brushing will not be allowed.

- 5.3 Wood preservative shall be Solignum or other equal and approved impregnating wood preservative and all concealed woodwork shall be treated with wood preservative.
- 5.4 All brushes, tools, pots kettles etc. used in carrying out the work shall be clean and free from foreign matter and are to be thoroughly cleaned out before being used with a different type of class of materials.
- 5.5 All iron or steel surfaces shall be thoroughly scraped and rubbed with wire brushes and shall be entirely free from rust, mill scale etc. before applying the priming coat.
- 5.6 Surfaces of new wood work which to be painted are to be rubbed down, cleaned, down to the approval of the Competent Authority.
- 5.7 Surfaces of previously painted woodwork which are to be painted are to be cleaned down with soap and water, detergent solution or approved solvent to remove dirt, grease etc. Whilst wet the surfaces shall be flatted down with a suitable abrasive and then rinsed down and allowed to dry. Minor areas of defective paint shall be removed by scraping back to a firm edge and the exposed surface touched in with primer as described and soaked with putty. Where woodwork has been previously painted or polished and it is to be newly polished, with scrapping, burning off or rubbing down and making surface properly.
- 5.8 Surfaces of previously painted metal which shall be painted are to be cleaned down and flattened down as described in surfaces of any rust and loose scale shall be removed completely by chipping, scrapping and wire brushing back to the bare metal and touched in with primer as described.

#### **5.0 UPHOLSTERY:**

- 5.1 This will be of first class standard workmanship with webbing, no-sag springs, coiled springs, padding and filling as specified on drawing. Covering fabrics will be seen, tufted, and corded as shown on the drawing and as approved by the Competent Authority.
- 5.2 **Cushion Vents:** Brass "cushion Vents" should be installed at the back or under side or seat cushions (especially those covered in leather vinyl plastic or very tightly woven fabric) to allow air to escape easily and to prevent torn seems.
- 5.3 **Materials:** Finished timber shall be of the type specified. Furnishing fabrics, colour, pattern, substance to be as specified, no variations of this will be permitted unless with prior approval of the Competent Authority.

#### **6.0 POLISH:**

- 6.1 **French polish:** The basic material shall be shellac dissolved in mentholated spirit.



**Preparation:**

The timber must be well sanded and cleaned and the grain filled with grain filler. Any staining must be done before applying the polish.

**Equipment:**

The polishing rubber the most important implement in French polish shall consist of a pad of cotton wool, which acts as a reservoir for the polish, and a cover of soft white linen of cotton fabric, similar to a well-worn handkerchief which acts as a fitter. The rubber must never be dipped into the polish; it should be charged by pouring the polish on to the pad with the cover removed.

**Application:**

Work evenly over the surface with a slow figure-of-eight motion until the timber is coated with a thin layer of polish. The object is to apply a series of thin coats, allowing only a few minutes for drying between the coats. When a level and even-bodied surface is obtained the work is ready for the second stage i.e. spiriting off.

Allow the work to stand for at least eight hours, then take a fresh rubber with a double thickness of cover material and charge it with mentholated spirit. The object of spiriting off into and remove the rubber marks and to give the brilliance of finish.

Finally, work in the direction of the grain and continue until the surface is free from smears and rubber marks then leave to harden off.

**6.2 Wax polish:**

Wax polish shall contain silicones and driers. A good silicon wax is to be used not a creamy or spray. The timber shall be sealed first with another finish such as Ron seal, before applying wax.

**Application:**

Apply coat of the sealer by brush or cloth direct to the unfilled timber, working it well in and finishing evenly with the grain. Allow to dry thoroughly then sand lightly with fine abrasive paper. Apply a heavy coat of wax by cloth on flat surfaces, with a stiff brush. Work it well into the timber and finish off by stroking with the grain before leaving to harden. Leave for four hours before rubbing up with a soft brush. Finally, buff the grain with a soft cloth.

**6.03 Transparent Coloured Polyurethane (Melamine)**

This shall be applied where natural grain of the wood is required to show. Polyurethane gives tough surface which resist chipping, scratching and boiling water.

**Application:**

Clean off all grease and wax with an abrasive and white spirit, this should not be applied in humid conditions. Apply the first coat, preferably of clear hard glaze with a cloth pad. Leave this to dry for at least six hours, then apply further coats with a paintbrush. If you wait for longer than 24 hours between coats, rub down the previous coat with fine glass



paper or a medium grade of steel wool. Obtain a matt finish, if required, by giving a final coat of clear Reseal Matt coat.

**7.0 TIMBER:**

7.1 Only seasoned Teakwood to be used unless otherwise specified.

7.2 Use of Rose wood wherever specified.

7.3 All the wood shall be properly seasoned, natural growth and shall be free from worm holes, loose or dead knots or other defects, saw die square and shall not suffer warping, splitting or other defects.

7.4 The moisture content shall not exceed 12%.

7.5 All internal frame work shall be treated with approved wood preservative.

7.6 All wood brought to site should be clean shall not have any preservative or other coating/covering.

7.7 All rejected decayed, bad quality wood shall be immediately removed from site.

7.8 All wood brought to site must be stacked-stored properly as per instructions.

**8.0 PLYWOOD:**

8.1 Plywood/medium density fibre board/teak practical board/ Veneer shall be as specified in the approved list of manufacturers shall be used.

8.2 Commercial ply shall conform I. S. I. 303 of approved make.

8.3 Marine plywood shall generally conform to generally I. S. 303 BWR or unless specified I.S.710-1980(BWP)

8.4 Particle board shall be phenol formaldehyde bonded and generally conform to I. S. 3087-1965.

8.5 Only 3mm to 4mm thick straight-grained groups matching approved veneers shall be used. No extra claim will be entertained for veneer if found of extra thickness.



**TECHNICAL SPECIFICATIONS FOR ELECTRICAL WORK**  
**GENERAL:**

These specifications are for work to be done, item to be supplied and materials to be used in the works as shown and denned on the drawings and described herein, to the satisfaction of the Owners / Architects.

1.1 The workmanship is to be the best possible and of a high standard. The contractor shall take all steps immediately to make up deficiency if any noticed by the Owners / Architects. Use must be made of special tradesmen in all aspects of the work and allowance must be made in the rates for the same.

1.2 The materials to be provided by the contractor shall be in accordance with the samples already got approved from the Owners / Architects by the contractor and in conformity with specification and approved list of manufacturers and brand. The contractor shall produce all invoices, vouchers or receipts for any material if called upon to do so by the Owners / Architects.

1.3 Samples of all materials are to be submitted to the Owners / Architect for their approval before the contractor orders or delivers the material to the site. Samples together with their packing are to be provided free of charge by the contractor and should any materials be rejected they will be removed from the site at the contractors expense. All samples will be retained by the Owners / Architects for comparison with materials which will be delivered at site. Also, the contractor will be required to submit specimen finishes of colours, fabrics, etc., for the approval of the Owners / Architects before proceeding with the work.

1.4 The contractor shall be responsible for providing and maintaining temporary coverages required for the protection of finished work. He is also to clean out all wood

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal





shavings, cut ends and other waste from all parts of the works before covering or infilling are constructed.

1.5 Contractor shall maintain uniformed quality and consistency in workmanship throughout the execution of the work.

## SECTION - XI

### TECHNICAL SPECIFICATIONS (Electrical – part I)

The Electrical installation work shall confirm to the following I.S. Standards (latest additions), Local Supply Authorities Rules and Regulations and Fire Safety Norms.

- 1) IS:732 Code of Practice for Electrical wiring installation.  
(System Voltage not exceeding 650V)
- 2) IS:1646 Code of Practice for fire safety of buildings  
(General Electrical Installation).
- 3) IS:9537 (PART-II) 1981 Rigid steel conduits for electrical wiring.
- 4) IS:2667 Fittings for rigid steel conduits for electrical fittings.
- 5) IS:2509 Rigid non-metallic conduits for electrical installations.
- 6) IS:1293 Pin Plugs and Sockets.
- 7) IS:694 PVC insulated cables with copper conductors for  
voltages up to 1100 volts.
- 8) IS:9532 Specification for conduits for Electrical Installation.
- 9) IS:3854 5A & 15A Switch socket and accessories.
- 10) IS:3043 (1981) Earthing.
- 11) IS:2026 Specification for power transformer.
- 12) IS:3639 Specification for fittings and accessories for power  
transformers.
- 13) IS:2099 Specification for high voltage porcelain bushings.
- 14) IS:335 Specification for insulating oil.
- 15) Indian Electricity Act, 1956 and Rules and Fire Insurance Regulations.

#### A-01. POINT WIRING

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



**a) METAL CONDUITS**

All conduit pipes shall confirm to IS 9537, PART-II 1981. Metal conduits shall be ERW black enameled 20mm/25mm as the case may be depending upon the number of wires permitted as table-1. The conduits shall be fixed to walls/ceiling with MS saddles and spacers at an interval of 0.45 meter and on either side of bends, junction boxes, pull boxes etc.,

All conduit accessories shall be 16 gauge & bends shall be of inspection type. All bends, couplers, threaded portions etc., shall be painted with anti-corrosive paint. Bends in the pipes shall be done with bending hickies.

All pipes shall be cleaned for sharp burrs. Switch boxes shall be of GI 16/14 gauge. The switch boxes shall be concealed as per site requirement & as per Architect's/Consultant's Instructions.

Point shall be controlled with 5A switch or directly from DB as specified in schedule of quantities. Where plate type switches are not specified the switch board shall have 3mm thick hylum sheet on which switches shall be mounted.

The point wiring shall be carried out with multi stranded PVC insulated copper wires of 1.5 sq.mm. 2nos (for Phase & Neutral) & 2.5sq.mm. (for Earth). In all cases the earth shall be of green colour and neutral shall be of black colour. All wires used shall be of 660 V grade. The point wiring shall be inclusive of circuit wiring from Distribution Board to the switch board unless otherwise stated in schedule of quantities. The circuit wiring shall be with 3 nos. of 2.5 sq.mm. PVC insulated multi stranded copper conductors colour coded as detailed above. The rate shall also be inclusive of any chasing as directed by the Architects/Consultant/Client's Engineer to conceal the drops and finishing the same.

In case of group control directly from Distribution Board, the primary point shall be considered from DB to the first point and secondary point shall be from first point to the next looped point. The point shall terminate into the 3 plate-ceiling rose.

While laying the conduits in the slab before casting the slab, all drops shall be laid accurately to fall in position of the switchboard. Junction boxes shall be fixed with sand-cement mortar. All joints shall be airtight. Conduits shall be fastened to the re-enforcement properly so that the conduits do not get dislocated while casting the slab. All conduits shall have 18 SWG fish wire.

**b) PVC CONDUITS**

The PVC Conduits shall confirm to latest IS standards and shall be of medium gauge unless otherwise specified. The conduits shall be joined with PVC adhesive at Joints. The Conduits shall be fixed to walls/ceilings with GI spacers and saddles at an interval of 45 cms & on either side of bends, junction boxes, pull boxes etc., The number of wires drawn in the conduits shall be as per table 1. The point wiring shall be controlled as in (a) above.

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



The wiring shall be done with 2 nos. of 1.5 sq.mm. (for Phase & Neutral) & 1.5sq.mm. (for earth) PVC insulated, copper conductors, multi stranded and colour coded with green as earth and black for neutral.

The circuit main wiring shall be with 3 nos. of 2.5 sq.mm. PVC insulated, copper conductors, multi stranded wires laid from distribution board to switch board and the rate shall be included in the point wiring unless otherwise stated in the schedule of quantities. All other details shall be as per metal conduits.

#### C) CASING CAPPING/ TRUNK AND TRUNKLING

PVC casing shall be fixed to wooden partitions by means of screws spaced not more than 45 cms apart. Holes for fixing the PVC capping shall be done by drilling machine only and these holes shall be plugged with PVC plugs or grips to which the screws shall be fastened. Nowhere less than 1 inch PVC casing shall be used. All bends, tees, joints etc., shall be done in workman like manner with standard accessories. The number of wires in PVC casing capping shall be limited to a fill factor of not more than 60%. The point shall be controlled by 5 amp switch. The switch boards shall either be flush mounted with partitions or surface mounted or concealed mounted as per site requirements and as directed. The wiring shall be carried out as described in (a) and (b) above.

Casing Capping wiring shall not be done for concealed wiring & for wiring over the false ceiling work.

#### **A.2. DISTRIBUTION BOARDS**

This specification covers the design, manufacture, assembly, testing at works, supply, installation and commissioning of distribution boards at site.

The system and accessories shall be complete in all respects and any device not included specifically in this specification, but essential for proper operation of the equipment and also to meet statutory requirements shall deemed to be within the scope of the specification whether it is mentioned in the Technical Specification, or not.

If the vendor finds that it is required to undertake any work which is not sufficiently defined in this specification or discovers that this specification conflicts with any other codes, standards and regulations which shall be required to comply, the same shall be clarified in writing from the Owner/Consultant before undertaking the work involved for avoiding the delay.

These shall be of sheet metal and of standard design with copper bus bars. The board shall be fixed at accessible heights. The boards shall be solidly fixed on MS brackets to walls/partitions, concealed or open as directed. All connections inside the distribution board shall be neatly arranged and tied with PVC strings. The MCB's shall be of 9KA for fault

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



level. The distribution boards shall be suitably earthed. Legend shall be written on DB with paint for identification of DB & Circuits.

#### A.2.1 CONSTRUCTION

The distribution boards shall be fabricated out of 14/16 swg CRCA sheet steel, metal clad, totally enclosed dust damp and vermin proof, dead front, hinged door type of bolted/welded construction suitable for wall or floor mounting.

#### A.2.2 BUSBARS

The busbar shall be air insulated and made up of high conductivity high strength aluminum or copper busbars liberally sized with high safety factor for the required rating. The neutral busbars shall have adequate number of terminals for all number of outgoing single-phase circuits and the holes shall be suitable for multi strand wires. In the same way suitable earth bus shall be provided inside each distribution board for earthing of the lighting/power circuits and also earthing of distribution board. In the case of 3 phase distribution boards used for single phase outgoing, three independent neutral bars shall be provided.

#### A.2.3 MINIATURE CIRCUIT BREAKERS

Miniature circuit breakers (MCB) shall be of heat resistant, moulded type designed, manufactured and tested as per IS-8828.

The MCBs shall have inverse tripping characteristic against overloads and instantaneous trip against short circuits. The MCB shall be of fault current limiting device also.

The MCB shall be slip on type to the DIN rail. The ON & OFF positions of the switch handle shall be clearly marked. The MCB shall be suitable for operating in an ambient temperature of 45 deg centigrade without de-rating. The MCB shall be suitable for 415V, 3 phase, 415Volts, 50Hz system with a fault level of 9-10KA (rms) symmetrical. The terminals of MCBs shall be suitable for use with eye lugs. The 4 pole, 3 pole and 2 poles MCBs knobs shall be trunked with adequate strength tandem pin.

Each distribution board shall have individual hinged/bolted gasketed doors with suitable screws. Removable conduit entry plates shall be provided at top and bottom of the DB to facilitate drilling the conduit holes at site to suit individual requirements or knock out shall be provided.

Protective hylem / bakelite insulated cover plate shall be provided inside the panel to shroud all the live parts. Only the operating handle of the switch and the operating knob of the miniature circuit breakers shall be projecting outside the cover plate in case of ordinary IP20 DB and shall be inside the front door in case of dust tight IP42 DB. The unused outgoing holes / knockouts / cutouts of DB shall be suitably blanked with PVC plates at no extra cost. The incoming switch terminal should be suitably shrouded to avoid accidental contact. Each outgoing in the MCB DB shall have shrouding between Phases. The



distribution board shall be factory wired and assembled and local fabricated DB shall not be accepted.

For TPN Distribution Board, four pole isolators shall be provided as incomer. For single phase and neutral Distribution Board, double pole isolator / ELMCB shall be provided as incomer. Earth leakage circuit breaker(s) to be provided wherever called for.

Suitable labels shall be provided to mark the circuit numbers of outgoings circuits.

Wiring Diagram shall be provided inside the DB.

#### A.2.4 EARTHING

The DB's shall be provided with two numbers of brass earthing terminals with suitable nuts, washers, etc., for connecting to earth bus. The Earth terminals shall be brought outside the DB. In case of flush mounting DB, these shall be provided inside the DB.

#### A.2.5 PAINTING

The DB sheet steel surface shall be chemically cleaned to remove scale etc., rinsed dried and shall be finished with two coat of powder coat paint over two coats of red oxide / epoxy zinc primer.

#### A.2.6 TESTS

All necessary factory routine tests shall be performed on the equipment before dispatch. The test results shall be sent along with the supply of DB.

#### A-03. CABLES

Cables shall confirm to IS 1554-1976. Cables shall be heavy duty, armored, PVC insulated & PVC sheathed 1.1 KV grade aluminum or copper. Cable shall be fixed with GI spacers & saddles at an interval of 30/45 cms and on every side of bends. The bending radius of cables shall be as per manufacturer's instructions and in no case, it shall be less than 12 times the overall diameter of the cable. Cable shall be so installed that they are not subject to any mechanical damage. If there is a bend in the cable enclosed in a conduit, care has to be taken to prevent undue compression of insulation. This applies also to the top of vertical runs of length longer than 5 meters where there could be compression caused by the weight of unsupported vertical cables. Cables may rest without fixing in horizontal runs or ducts or trunkings. The cables run in cable trays shall be fixed with cable ties at intervals of not more than 30 cms. No joints in the cables shall be permitted unless the cables exceed the standard drum length. Joints, if so necessary shall be located in accessible position. Termination of the cables shall be done with heavy duty copper/Aluminum lugs and brass cable glands.



Cables laid underground shall be to a minimum depth of 750 mm. It shall be ensured that cables laid underground are free of water lines, sewage lines etc. The trenches shall be at least 30 cm wide & filled with 10 cms thick of layer of dry sand on which the cable shall be laid. Further, 10 cms thick sand layer shall be put on the cable over which a brick layer shall be provided. The trench shall then be back filled with soft earth, rammed and consolidated to its original level. Cable route indicators shall be laid at intervals of 15 meters and at all change in directions.

For cables laid on walls aluminum tags shall be fixed showing the size of the cable and the feeder number of the cable. These tags shall be provided at each end and at least one or two places at intermediate positions.

The mode of measurement of the cables shall be as follows:

- i) For top entry of the cable, the measurement shall be taken up to the bottom of that switch- gear.
- ii) For bottom entry of the cable, the measurement shall be taken up to the top of that switch board. No wastage shall be allowed for measurements.

#### A-04. SWITCH FUSE UNITS

Switch Fuse Units shall be of sheet metal or iron clad with HRC fuses as described in schedule of quantities. The unit shall be of robust construction of standard specified make, design to withstand adverse working conditions. It shall have quick break type mechanism with ON and OFF position indicators of the operating handle. The switch shall be interlocked so that the unit cannot be opened in ON condition. The interior shall be so arranged that clearances from live parts are adequate and shrouded. Manufacturer's instructions shall be followed for installation of switch fuse units. The switch shall be solidly earthed. The switch shall be mounted on walls on angle iron support grouted to wall. The supports shall be treated for rust treatment & painted with 2 coats of synthetic enamel paint. The height of the switch board shall be such that it is accessible for operation & maintenance.

#### A-05. POWER PANELS

The Power panels shall be fabricated from MS sheet steel 14/16 gauge and shall be of compartmental design. The main supporting framework shall be of angle iron or of heavier gauge sheet metal. The panel shall be self-supporting design, dust and vermin proof, dead front and fully inter locked with isolating switches. The panel-mounted switches shall have Interlock defeat arrangement for testing and inspection.

The panel shall be designed so as to facilitate inspection, cleaning and repairs. The clearance between phase to phase and phase to earth or metal parts shall be as per relevant IS standards. The metering instruments like volt meter, ammeter etc. shall be flush mounted and shall be of 1.0 class accuracy and of standard design size of 96 mm x 96. All indication lamps shall be of neon /LED type.



The busbars shall be air insulated and made up of high conductivity, electrolytic aluminum / copper bars complying with the requirement of IS 5082:1981 and shall have a fault withstand capacity of 50 KA/1 Sec. All busbars shall be fully screened by means of PVC heat shrinkable sleeves in their own compartment running throughout the length of the Panel. Suitable allowance should be made for bus expansion.

The panel shall have separate cable tray and a bus bar chamber. The bus bars shall be rigid hard drawn tinned electrolytic copper wherever specified & sleeved with heat shrinkable sleeves. The current density shall not exceed 1.25 amp per sq.mm and the neutral bus shall be rated for capacity of phase bus unless otherwise stated in schedule of quantities/drawings. However, the minimum size of bars shall be 25mmx3mm. Minimum electrical clearance shall be maintained between phases, neutral and body as per IS 4237:1982. All outgoing feeders shall have neutral link of appropriate capacity at cable termination end. For Incomers as MCCBs wherein cable is directly connecting at switchgear end the neutral link to be mounted adjacent to switchgear.

The panel shall be powder coated comprising of degreasing and de-scaling in sulphuric acid etc. with synthetic enamel paint for smooth finish. The color of paint shall be battleship grey or as directed. The Panel shall be tested at site before commissioning. The Panel drawings shall be got first approved from Consultants before taking up for fabrication.

All wiring inside the panel shall be done with switchboard copper conductors/cables and/or with solid copper links. The insulators for supporting the Bus-Bars shall be epoxy based cast resin. All hinged doors shall be earthed with flexible braided copper earth. An earth bus of copper shall be fixed along the length of the panel at the lower section. Adequate ventilation for the panel shall be provided. Logic diagram of operation of switches shall be painted on the panel. The name plates for each feeder shall be of engraved design and pasted to the respective switch gear. The letters shall not be less than 10 mm size for individual feeders and not less than 18 mm for the main feeders. All switchgear to be mounted in the panel shall be as per schedule of quantities.

#### A-06. EARTH PITS/STATION

The Earthing station shall be done as per IS 3043 (1981) and as per drawing no. E1. The earth pit shall be at least 2.5mtrs deep with CU/GI Plate electrode. The GI plate electrode shall be hot dipped of 600x600x6 mm thick. The size for copper plate electrode shall be

600x600x3mm thick. An alternate layer of salt and charcoal shall be filled up to 200 mm above the top of the electrode. The electrode shall be connected with 32x6 mm thick GI Flat (for copper earth electrode size of flat shall be 25x3 mm) which shall be terminated with nuts and bolts into brick masonry chamber on top. The brick masonry chamber shall





be of size 300x300x450mm deep which will carry the funneling arrangement for watering. A GI Flat of 32x6 mm from brick masonry chamber to the switch gear inside the switch room shall be laid underground and/or fixed to walls. The rate for laying GI/ CU strip from earth pit to switch room shall be paid under separate item.

All the main earth conductor above the ground level shall be painted with two coats of enamel paint. The following colour codes have to be followed:

- |                                    |   |   |
|------------------------------------|---|---|
| (a) Main body earth bus            | - | Green colour                                    |
| (b) Main neutral earth bus         | - | Black colour                                    |
| (c) Lightning protection earth bus | - | Red colour or as preferred by Owner/Consultant. |

Earthing system of equipment earthing, neutral earthing, Data Networking earthing and lightning protection earthing should not be mixed together above the ground. These systems/connections shall be tested in accordance with IS 3043-1987. Earth resistance of the individual system shall be measured after connecting all the electrodes to the bus and the combined value shall be less than 1 ohm (One ohm).

#### A-07. INSTALLATION OF ELECTRIC FITTINGS

All electrical fittings shall be fixed with down rods or on round blocks as stated in schedule of quantities. The down rods shall be of 19/20 mm dia. and with 1.6mm wall thickness of ERW black enameled MS or GI. The down rods shall be fixed with ball and socket joints, check nuts etc. Special fixtures like spot lights etc.; shall be fixed to the false ceilings as per manufacturer's recommendations. The fittings shall be connected with 3 core 0.5 sq.mm flexible copper cord/cable from ceiling rose and suitable earthed.

#### A-08. POWER FACTOR CORRECTION PANEL

The power factor correction panel shall be fabricated from sheet steel & powder coated. The panel shall be compartmentalized with tinned copper bus bars TP as described for power panels.

The power capacitors shall be APP type, low loss, 3 phase, delta connected & self-discharged type.

The power factor control shall be done by automatic power factor control relay for controlling the power factor within the set limits by auto switching of required capacitor Banks. The required Capacitors / PF Banks shall be as per schedule of quantities. The P.F. shall be automatically corrected to near Unity.

The C.T. ratio given in the Schedule/diagram is indicative. The same shall be matched for correct operation depending upon the operating load. The relay shall be totally microprocessor based for setting the desired target power factor band. The APFC relay





shall have indications like power ON, low current etc. & shall be of required stages as per schedule of quantities. The P.F Panel shall have Auto Manual switching facility.

The general specification shall be as follows:

- i) System supply voltage 415 volts.
- ii) C.T. secondary rating 5A, 5VA Burden.
- iii) Output switching capacity 5A at 230 V AC & 2A at 440V AC, Operating temperature 10 degree Centigrade to 50 degrees Centigrade. Accuracy better than 1%. Low current release 10% of full rated C.T.
- iv) Switching time between stages 4 to 6 seconds.
- v) Range of indications of PF 0.5 lag to 0.5 lead digital.
- vi) Display LED indications.
- vii) Range of target P.F. setting 0.7 to 0.99.
- viii) Switch for auto/manual operation.
- ix) Indications for selection of stages.
- x) Selection of dead band.

#### A-09. TESTING OF ELECTRICAL INSULATION

The following tests shall be carried out during execution and after completion of the electrical installation work.

- 1) Insulation Resistance Test.
- 2) Polarity Test of Switches.
- 3) Earth Continuity Test.

1) Insulation Resistance Test: The insulation resistance shall be measured by applying between earth and whole system of conductors or any section thereof with all fuses in place and all switches closed (except in earthed concentric wiring) all lamps in position & both poles electrically connected together, or direct current pressure of not less than twice the working pressure, provided that it need not exceed 500 volts for medium voltage circuits, be applied. Where the supply is derived from 3 wire DC or Poly phase A.C. System, the neutral pole of which is connected to the earth either direct or through added resistance, the working pressure shall be deemed to be that which is maintained between the phase conductor and the neutral. The insulation resistance measured in mega-ohms between all conductors connected to one pole of phase conductor of the supply and all the other conductors and switches in off position it's value shall be not less than as specified below:

The insulation resistance measured in mega ohms shall not be less than 50 mega-ohms divided by the number of outlets or when PVC insulated cables are used for wiring, 12.5 mega-ohms divided by the outlet subject to a minimum value of 1 mega-ohm.

A preliminary and similar test may be made before lamps etc. are installed and in this event the insulation resistance to earth shall not be less than 100 mega ohms divided by the



number of outlets or when PVC insulated cables are used 25 mega ohms divided by the number of outlets subject to a minimum of 1 mega ohm.

2) Polarity Test of Switches: In a 2-wire system a test shall be made to verify that all switches in every circuit are fitted in the same conductor throughout and such conductors shall be labeled or marked for connection to the phase conductor or to the non-earthed conductor of supply.

In a 3 wire or 4 wire insulation a test shall be made to verify that every non-linked single pole switch is fitted in a conductor which is labeled or marked to one of the phase conductors of supply.

3) Earth Continuity Test: The Earth Continuity Conductor including metal conduits and metallic envelopes of cables in all cases shall be tested for electric continuity and electrical resistance of the same along with the earthing lead but excluding any added resistance or earth leakage circuit breaker measured from connection with earth electrode to any point in the earth continuity conductor in the completed insulation shall not exceed 1 ohm.

#### TECHNICAL SPECIFICATION OF TESTING AND COMMISSIONING

The scope of work for testing and commissioning of the total installation shall be for the capital equipment like transformers, switchgears, cables etc., and also for the associated equipment like relays CTs, PTs, etc.

The scope of work for testing and commissioning of electrical equipment for the above shall include but not be limited to the following:

- a) Providing sufficient number of experienced Engineers, Supervisors, Electricians so that the installation can be commissioned in stipulated time.
- b) All the instruments, tools and tackles required for carrying out the testing and commissioning shall be provided by the bidder.
- c) The testing of electrical equipment shall be carried out as per the relevant Indian Standards/Code or Practices/Manufacturer's instructions.
- d) Cleaning of electrical equipment, contacts cleaning and greasing etc. All the equipment and material required for above shall be supplied by the bidder.
- e) Connecting the panel/equipment wiring for proper functioning of the schemes required/called for.
- f) Installation and wiring of additional equipment on panels like auxiliary contactors, timers, etc. which may be additionally required for proper functioning of the schemes.
- g) Checking of equipment earthing and system earthing as a whole.
- h) Testing of all the cables.
- i) Co-ordination with other contractors for testing and commissioning of interface cables.

#### TESTS TO BE CONDUCTED

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



1. All tests shall be performed in the presence of the bidder and customer/consultant. For all types of visual inspections, checking, pre-commissioning, commissioning test and acceptance tests, IS Code to be followed for the tests given therein in addition to the instructions in this technical specification. The intention of giving the few test procedures, described below, is to provide a guideline for the bidder. However, bidder shall not restrict themselves in carrying out only the tests described in this document.
2. Bidder shall submit their proposed test procedures for approval and shall not commence testing such approval is given.
3. Bidder shall check and test all electrical equipment and systems installed and supplied them, including equipment supplied by the Owner.
4. Bidder shall supply all necessary test equipment and personnel both craft and supervisory category to carry out the work without danger to personnel or damage to equipment.
5. Bidder shall ensure that no tests are applied which may stress equipment above the limits for field testing recommended by the manufacturer. Bidder shall be responsible for any damage to personnel or equipment resulting from improper test procedure.
6. All defective materials furnished by the bidder and defects due to poor workmanship revealed through field testing, shall be corrected at bidder expense without affecting the completion of the project.
7. Client/Consultant reserves the right to interpret and approve all test results prior to energization of circuits or apparatus.
8. Bidder shall visually inspect all equipment for defects immediately upon arrival at site including those supplied by the Owner.
9. Relay coordination chart and final setting before/commissioning.

#### MECHANICAL CHECKOUTS

After installation, but before any power supply is connected, the contractor shall make a complete mechanical check of all installed electrical equipment and systems. This shall include but not to be restricted to the following:

- Check equipment numbers against drawings/documents.
- Check name plates of transformers, switch gears etc., for conformity with the data given in the drawings and specifications.
- Check all equipment bus joints and connections for tightness.
- Check all cable and wire connections for tightness.
- Check phase sequence.
- Check all bushings/insulators to ensure they are clean and unchipped. Inspect tank cooling tubes and radiators for leaks.
- Check silica gel for dryness where breathers are supplied. If the colour of the silica gel is pink, remove from the breather and dry out following manufacturer's recommended procedure, until a light blue colour is restored and then replace it.
- Check valve in the connecting pipe between the conservator and transformer tank to ensure that valve is in 'open' position.



- Check interlocking on access doors for mechanical and electrical safety. Check that key and electrical interlocking system functional and accomplish their purpose.
- Check all plug-in contacts for alignment and 'grip'.
- Check all contactors for free manual operation.
- Remove all locking devices installed for shipment.
- Check all the coils for their continuity and proper voltages.
- Check the arc chutes, arcing horns, main contacts of breakers are clean and undamaged. Check the carriages ride smoothly and reliably on their guide-rails. Check for proper operation of circuit breaker operation mechanism, controls and adjustments.
- Check for the fuses whether correctly rated and installed, undamaged and fit for operation.
- Check all relays and instruments are clean, correctly connected and undamaged. Check test plugs are installed in all protective relays. Check relays for free manual operation, if applicable.
- Check instrument transformer ratings against drawings. Check for proper installation and connection.
- Check interlock and auxiliary devices and the operation of the circuit breaker with the protection relay circuit.
- Clean the equipment by vacuum cleaner before energizing.

#### EARTHING

1. Bidder shall test the buried earth grid and shall record the values.
2. Bidder shall inspect and test all earthing work carried out by him, including all interconnections between ground loops, grounding of equipment and ensure all connections are permanent and that the earthing circuit is continuous.
3. Bidder shall megger and record earth resistance at various earth connection points.

#### SWITCHGEAR

- Switch gears rated 433 volts or more shall be tested with a 1000 volts megger.
- Auxiliary wiring rated less than 415 volts shall be tested with a 500 volts megger.
- All protective relays shall be tested at sufficient points to establish their proper functioning in accordance with the manufacturer's specification and curves.
- Operation checks and functional checks on all switchgear panels.
- For current transformers insulation test, polarity test, ratio test, secondary injection test, operating current check, service setting in consultation with Client / Consultant.



- For potential transformers, ratio test, insulation test, etc.
- Contact resistance for breaker contacts between male and female.

#### WIRES AND CABLES

- Continuity testing of all cables.
- Wires and cables rated for 433 volts or more shall be tested with a 1000 volts megger. Cables rated less than 433 volts shall be tested with a 500 volts megger.
- No wires or cable having resistance between conductors or between conductors and ground of less than 100 mega-ohm shall be accepted.

#### FUNCTIONAL TESTING

1. All circuit breakers, contactors, relays, remote devices, etc.,

#### PRECOMMISSIONING TESTS

- All pre-commissioning tests stated as per IS for respective items.



### PRICE BID (Furnishing Work )

**TENDER FOR PROPOSED FURNISHING WORKS FOR J.K. GRAM Branch at G-4, SMC, Khopat, Thane west - 400 601**

SR.No	DESCRIPTION	QTY.	UNIT	RATE	AMOUNT
<b>A</b>	<b>LOOSE FURNITURE ITEM:</b>				
<b>1</b>	<b>Single Window Counter with front 12mm thick front Toughned glass (5'0" x 3'0" x 2'6"(H) + side Unit (3'6" x 1'6" x 2'6"</b>				
	Providing and fixing in position linear work station of (1500mm x 900mm x 750mm H) as per the instructions and drawing be made out of 19mm thick marine plywood (IS:303 BWR ) for work top and verticals finished with 1.0mm thick approved laminate to the exposed surface externally excluding top and 0.8 mm thick approved laminate internally. The top surface to be finished with approved 1mm thk laminate with 50mm facia inner. side of the top as per detail. The rate shall be inclusive of providing 12mm thick toughned glass with openings for cash transactions as directed, keyboard tray on telescopic channels & drawer unit on side with 2 nos. of equal sized drawers on channels with internal separations in plywood for keeping temporary cash & openable shutters below. The rate shall be inclusive of CPU trolley of approved make, necessary fitting, fixtures, hardware such as channels , hinges, ball catches ,automatic locking arrangement ,wire managers, etc. including providing the necessary opening for electrical/ computer wiring complete in all respect. Work includes storage credenza ( 1050mm x 450mm x 750mm H )	5.00	No		
<b>2</b>	<b>Branch Manager Table -2100mm L x 900mm W x 750mm H ( 7'0" x 3'0" x 2'6"H + side Unit 3'6" x 1'6" x 2'6"H )</b>				
	Providing & fixing table in position for branch manager to be made out of 19mm thick marine plywood (BWR IS 303) finished with 4mm thick approved veneer. The top surface to be finished with approved 4mm thick veneer finished. The rate shall be inclusive of keyboard tray on sliding channels and a drawer unit on side with 2 nos of equal sized drawers on channels & openable shutter below. All internal surface to be finished in approved 0.8mm thick laminate; all external surface to be finished in necessary hardware such as automatic locking, ball catches, wire managers etc., to be provided .Work includes providing 12mm clear glass with beveled edge on top & storage side credenza (1050mm x 450mm x 750mm H)	1.00	No		

M/s Rajvilas D. Gadkari, Architects

Signature of Contractor  
with Seal



<b>3</b>	<b>Officer table -1500mm L x 750mm W x 750mm H ( 5'0" x 2'6' x 2'6"H + side Unit 3'0" x 1'4" x 2'6"H)</b>				
	Providing & fixing table in position of officers to be made out of 19mm thick marine plywood (BWR IS 303) finished with 1mm thick approved laminate. The top of table to have teak wood moulding all around. The rate shall be inclusive of keyboard tary on silding channels and a drawer unit on side with 2 nos of equal sized drawers on channels & openable shutter below. All internal surfaces to be finished in approve 0.8mm thick laminates: all external surfaces to be finished in approved 1mm thick laminate finished. The rate shall include CPU trolley of approved make, necessary hardware such as automatic loaking, ball catches, wire managers etc. to be provided. Work includes storage side credenza (900mm x 400mm x 750mm H)	15.00	No		
<b>4</b>	<b>Staff Table -1500mm L x 750mm W x 750mm H ( 5'0" x 2'6' x 2'6"H + side Unit 3'0" x 1'4" x 2'6"H)</b>				
	Provideing & fixing table in position for staff tables made out of 19mm thick marine plywood finished with 1mm thick approved laminate. The top tha table to have teak wood moulding all around. The rate shall be inclusive of keyboard tary on silding channels and a drawer unit on side with 2 nos of eual sized drawers on channels & openable shutter below. All internal surface to be finished in approved 0.8 mm thick laminate; all external surface to be finished in approved 1mm thick laminate. The rate shall include CPU trolley of approved make , necessray hardware such as automatic locking, ball cathches, wire managers etc. to be provided hardware such as inclhudes storage crednaza (900mm x400mm x750mm H)	5.00	No		
<b>5</b>	<b>Grahak Mitra Table - 1650mm L x 750mm W x 750mm H (5'6" x 2'6" x 2'6"H Rise Glass 1'6" )</b>				
	Providing and fixing in position of Grahak Mitra table in combination of 19mm/12mm thick marine plywood (BWR IS :303) to be finished in approved make, pattern of 1mm laminate, 12mm thk toughned clear glass with beveled edge polished ( 400mm wide with stud / support at 450mm above working top), internally finished with 0.8mm thk laminate, all exposed wood shall be matt polished. Complete as per drawing & instruction.	1.00	No		
<b>6</b>	<b>MEETING TABLE - 2400mm L x 1050mm W x 750mm H ( 8' 0" x 3' 6"x 2' 6" H)</b>				



	P/making wood/ ply/ laminate top finishing <b>Meeting table</b> made of 19mm thk marine plywood (BWR IS :303) / 75mm x 75mm Teak Wood decorative framing, finished with 4mm thk matching group of teak veneer, 3" x 2" TW round beading allround and finished with Matt Melamine polish for veneer & all exposed wood, complete as per detail, drawing and instruction.	1.00	No		
<b>7</b>	<b>DINING TABLE: 1500mm L x 900mm W x 750mm H (5' 0" x 3' 0" x 2' 6" H)</b>				
	Base in stainless steel 304 grade as per approved design for laminate finished top in all sides post formed, engineered wood of density 750 kg/m <sup>3</sup> , membrane with laminate finish. Complete as per drg & instruction.	1.00	No		
<b>8</b>	<b>WRITING TABLE 1050mm L x 450mm W ( to shape)</b>				
	providing and fixing writing table made out of marine 19mm thk plywood with 1mm thick laminate on external surface and 0.8 mm thick approved laminate on internal surface, edges shall have teak wood liping with matt polish , wirting top shall be of 12mm thick glass and suitbale partitions to house banks slips etc.	1.00	No		
<b>9</b>	<b>System Cabin Counter &amp; Sorting Counter</b>				
	providing & fixing table in position of officers to be made out of 19mm thick marine plywood (BWR IS 303) finished with 1mm thick approved laminate. The top of table to have teak wood moulding all around. The rate shall be inclusive of keyboard tary on silding channels and a drawer unit on side with 2 nos of equal sized drawers on channels & openable shutter below. All internal surface to be finished in approved 0.8 mm thick laminate; all external surface to be finished in approved 1mm thick laminate. The rate shall include CPU trolley of approved make , necessray hardware such as automatic locking , ball cathes, wire manager etc. to be provided.	3.05	RMT		
<b>10</b>	<b>Staff Running Counter</b>				
	providing & fixing table in position counter/ table made of 19mm thick marine plywood (BWR IS 303) finished with 1mm thick approved lamiate. The top of table to have teak wood moulding all around. The rate shall be inclusive of keyboard tary on silding channels and two drawers units on side with 2 nos of equal sized drawers on channels & openable shutter below. All inernal surface to be finished in approved 0.8 mm thick laminate; all external syrface to be finished in approved 1mm thick laminate. The rate shall include CPU trolley of approved make , necessary hardware such as automatic locking ball cathes, wire managers ets. To be provided	3.05	RMT		





11	<b>Low height Strogae :</b> Providing and fixing in position 900mm Ht. storage unit made out of 19mm thick approved Marine Plywood (BWR IS : 303) for top sides, bottom, shutters, shelves, etc. and rear in 6 mm thick Marine Plywood backing. The shutters out of 19 mm block board ( BWR IS : 303), etc. shall be finished in 4.0mm thick approved Veneer or 1 thick approved laminate. The shutters shall have approved S.S. hinges, handles,, brass tower bolts, locks, ball catch, etc. The internal surfaces shall be finished in french polish.				
a	<b>1mm thk laminate finish</b> of approved make and shade	14.87	SMT		
b	<b>4 mm Thick Veneer Finish</b> Rate to include Approved Matt Melamine Polish to veneer. (BH cabin)	2.79	SMT		
12	<b>Laminate Finished Full Height Storage:</b>				
	providing and erecting in position 2100mm Ht. storage units made out of 19mm thick marine plywood (BWR IS ;303) having approved laminated top and facia as per detail with openable or sliding shutters. The shutters to be made out of 19mm thick Marine Block Board with all internal surfaces to be finished in 0.8 mm thick approved laminate and externally 1mm thk approved laminate, including brass hings , ball catches, 100 mm brass handles , brass locks etc. complete in all respect ( back of Advances, Service mgr, Staff )	24.16	SMT		
13	Removing carefully existing Veneer of full ht storage and repalced with 1mm thk laminate of matching & approved make/ shade, colour and banks std pattern and matt Melamine polishing for all exposed wood, Work includes repair and making good by replacing damaged hardware etc, complete as per instruction. ( Back side of SW )	16.45	SMT		
14	<b>ROLLER BLINDS:</b>				
	Providing & fixing of Roller Blind of approved make/ Colour and fixing arrangement as per manufacture's specification and details, complete.	5.58	SMT		
15	<b>ELECTRICAL CABINET</b>				
	Specification same as A11, But louvred shutter size; 1050 x 2100 x 350mm deep	2.14	SMT		
A	<b>TOTAL LOOSE FURNITURE ITEM:</b>		<b>Rs</b>		
B	<b>FIXED FURNITURE - CARPENTRY WORK</b>				



	All Plain Exterior Grade Particle Board to be Tarmite Proof , Borer Proof, <b>IS: 3087</b> ALL Plain Exterior Grade Particle Board, Wood , Laminate , Hardware to be as per Client's Brand specifications unless otherwise mentioned or approved. Refer Specifications. All Rate includes cutouts for electrical wires / cables, sockets, ac drain & cooer pipes in partitions. Rate includes cutouts / ply backing with t.w. frames for electrical / light fixtures in the ceiling. Any chipped edge of Laminate, Bubbles & Mismatch in joints of laminate in furniture before handover of site, will invite immediate rejection & replacement All exposed particle board work, woodwork, jambs, edges, trims to be French Polished unless mentioned and this to be included in the rates for furniture work.				
	<b>PARTITIONS</b>				
	<b>Note :- The rate shall be include of frame work above false ceiling level. Measurment should be taken up to false ceiling level)</b>				
	<b>Main Frame:</b> Out of <b>50mm x 50mm 16 Gauge Aluminium Sections</b> at approx . 600mm wide x 600mm high centre to centre vertically and horizontally. All verticals secured to ceiling with anchor fastermers. Well notched frames including making cutout for electrical conduits, support for access control lock complete as per drawings.				
	<b>Skin :</b> 12mm Thick Plain Exterior Grade Particle Board ( IS: 3087) on both side screwed to frame work with joint as shown or directed including Trims : Out of 66mm x 12mm Teak Wood on all edges.				
	<b>Finishing :</b>				
	<b>Veneer :</b> 4.0 mm thk Veneer fixed to plywood skin with glue having joints and grooves as shown or directed. Rate to include Approved Matte Melamine Ploish to veneer as approved by the Architect / Bank.				
	<b>Laminate :</b> 1 mmm thk laminates fixed to plain Exterior Grade particle board skin with glue having joints and grooves as directed				
	<b>Gypsum :</b> 12 mm thk gypsum board on both side with joints duly filled and surface made ready to take paint.				
<b>1</b>	<b>Full Height Partly Glazed One side Veneer - Other Side Laminate Partition:</b>				



	Partition will be supported from true ceiling, measured area will be visible area below False Ceiling. 12 mm Plain Exterior Grade Particle Board to be provided on both sides upto true ceiling level. Rate also to include Approved Matte Melamine Polish to veneer, 8mm thick glazing between 900mm to 2100mm. Work also include providing and fixing in position single leaf solid core water proof marine grade flush door shutter with marine ply (water proof quality) 40mm thick and T.W. lipping 40mm x 12mm with T.W. beading, 8mm thick Clear Glass Panel, including brass oxidized fitting, approved door handle ,floor spring as per door weight and locking arrangements, finished with 4mm thk Approved Veneer on inner side & 1mm thick laminate on outer side, complete as per design and details given by the architect. Door size :900mm w X 1200mm H ( BH cabin)	7.43	SMT		
<b>2</b>	<b>Full Height Partially Glazed Both Side Laminate Partitions:</b>				
	Partition will be supported from true ceiling, measured area will be visible area below False Ceiling. 12 mm plain Exterior Grade Particle Board Exterior Grade IS:3087 to be provided on both sides upto true ceiling level. 8 mm thick glazing between 900mm to 2100mm. Work also includes providind and fixing in position single leaf solid core waterproof marine grade flush door shutter with marine ply (water proof quality ) 40mm thick and T. W. lipping 40mm x 12mm with T.W. beading, 8 mm thick Clear Glass Panel, oncluding brass oxidized fitting , approved door handle , floor spring as per door weight and locking arrangements,finished with 1 mm thick laminates on both sides. Complete as per design and details given by the architect. Door Size : 900mm W x 2100mm H ( Meeting Room)	8.83	SMT		
<b>3</b>	<b>Full Height Both Side Laminated Solid Partition :</b>				
	Partition will be supported from true ceiling, measured area will be visible area below False Ceiling. 12mm Plain Exerior Grade Particle Board ( IS: 3087 ) to be provided on both sides upto true ceiling level. Work also include providing and fixing in position single leaf solid core water proof marine grade flush door shutter with marine ply (water proof quality) 40mm thick and T.W. lipping 40mm x 12mm with T.W. beading, 8mm thick Clear Glass Pane, including brass oxidized fitting, approved door handle , floor spring as per door weight and locking arrangements,finished with Approved laminated sheet of 1 mm thick on both sides complete as per design snd details given by the architect. Door Size :900mm x 2100mm H ( Locker Room passage)	4.65	SMT		



4	Removing carefully existing veneer and repalced with 4mm thk matching group of teak veneer of approved make/ shade and colour ( One side) and matt Melamine machine polishing for all exposed wood, complete. Work includes Door shutter and repairing of the same etc. (BH cabin)	41.33	SMT		
5	Removing carefully existing veneer and repalced with 1mm thk laminate of approved make/ shade, colour and banks std pattern ( One side) and Matt melamine polishing for all exposed wood, complete.( outside of BH cabin, back side of Service mgr, Advances) Work includes re positioning of Safe & Store room's Door as per layout ( 2 nos- 3' x 7' )	65.99	SMT		
6	<b>Both Side Laminated Low Height Partitions (1200mm HT)</b>				
	Specification same as A3. The Glass / soft board shall be fixed at 3' 0" level with 2" x1.5" solid white cedar beading, melamine polished. Glass shall be 8mm thk clear float & egde shall be polished complete as per design,drg, pattern.P & Fixing of Soft board with approved tepastry etc. complete ( SW, Between officer, front of adv & SM ) work includes Door shutter in partition near safe room)	65.06	SMT		
7	<b>Full Height Glazed Partitions: ( toughened glass )</b>				
	Providing and fixing fully glazed partition for External /Internal , using 12mm thick toughened glass, fixed with aluminium 'U' channel in the floor and on the frame above ceiling or on S.S. Patch Fitiings complete in all respects.Framework to be supported on ture ceiling. Work includes 12 mm thoughned doors with floor springs, handles etc.	30.67	SMT		
8	<b>P &amp; Fixing Full Height Partition for UPS &amp; System Room:</b>				
	P/F 12 mm. thk. <b>Calcium Silicate Board</b> on one side 1 mm laminate finished 12mm Plain Exterior Grade particle board on other side. Calcium Silicate Board side should be finished with matching Lusture paint. Wirk also includes providing and fixingin position single leaf solid core water proof marine grade flush door shutters with marine ply (water proof quality) 40mm thick and T.W. lipping 40mm x 12mm with T.W. beading, 8mm thick Clear Glass Panel, including brass oxidzed fitting, approved door handle ,floor spring as per door weight and locking arrangements,finished with 12 mm thick Calcium Silicate Board on inner side & Paint Finished & Other Side 1mm thick laminate on outer side. Complete as per design and details given by the architect. Door Size :900mm x 2100mm H Work includes provision of Flush door with viewing panel of appropriate size on T.W. frame as directed.	9.29	SMT		
9	<b>PANELING</b>				



	<b>Mian Frame:</b> Out of 50mm x 25mm 16 Gauge Aluminium Sections at approx. 600 mm wide x 600mm high centre to centre vertically and horizontally. All verticals secured with anchor fasteners. Well notched frames including making cutout for electrical conduits etc.				
	<b>Skin :</b> 12mm Thick Plain Exterior Grade Particle Board ( IS: 3087) on one side screwed to frame work with joint as shown or directed including Trims : Out of 66mm x 12mm Teak Wood on all edges.				
	<b>Finishing:</b>				
	<b>Veneer :</b> 4.0 mm thk veneer on one side fixed to Plain Exterior Grade Particle Board skin with glue having joints and grooves as shown or directed. Rate to include Approved Matte Melamine Polish to veneer. Veneer as approved by the Architect / Bank				
	<b>Laminate :</b> 1mm thk laminate on one side fixed to Plain Exterior Grade Particle Board skin with glue having joints and grooves as shown or directed.				
	<b>Aluminium Composite Panel :</b> in PVDF coated & LDPE core laminated 'Eurobond' / 'Altobond' / 'Alukbond' Exterior grade 4mm thick composite of (0.5mm -3mm-0.5mm) including required hardware , silicon sealant (dow, coening 789) masking tape,etc.				
	<b>Gypsum :</b> 12 mm thk gypsum board on one side with joints duly filled and surface made ready to make paint				
<b>a</b>	<b>4 mm thick Veneer Finished Paneling</b>		SMT		
<b>b</b>	<b>1 mm thick Laminate Finished Paneling ( meeting Room, Pantry , walls, coloum. upto 4'0" high)</b>	37.17	SMT		
<b>c</b>	<b>4 mm thick Aluminium Composite Paneling</b>	9.29	SMT		
<b>d</b>	<b>12 mm thick Gypsum Board Paneling</b>	9.29	SMT		
<b>e</b>	<b>Column paneling with 4 mm thick Aluminium Composite &amp; 4mm thk Veneer combination.</b>	22.30	SMT		
<b>10</b>	P/f 19mm thk <b>Marine grade ply shutter</b> for pantry platform and store outside using 3" x 2" tw frame, finished approved shade/ make of 1mm thk laminate, necessary hardware,proper support etc.,All expose wood shall be melamine polished. complete as per instruction.	1.86	SMT		
<b>11</b>	Removing carefully existing veneer of Door and repalced with 1mm thk laminate of approved make/ shade, colour and banks std pattern on <u>both sides</u> and wax polishing for all exposed wood, complete.Rate includes addition/ alteration, repair and making good by replacing damaged hardware, Locks etc etc.Size : 3' x 7' ( Safe, Store, RCC, Elec Room)	4.00	Nos		



12	PROVIDING AND FIXING TRAP Doors for accessing the services and utilities like A.C. units in marine plywood 19mm thick, with necessary sized 16 Gauge Aluminium framework, suspended from true ceiling bolted by anchor fasteners. Doors to be finished with laminate on both sides, edge with PVC transparent seal to prevent smells being sucked into the trap door space. Small sized trap doors to be locked with Allen key locks with safety chain stay, larger sized Doors to be divided into removable panels with notched removable framework as directed complete.	9.29	SMT		
<b>B</b>	<b>TOTAL - FIXED FURNITURE</b>		<b>Rs</b>		
<b>C</b>	<b>MISCELLANEOUS WORK:</b>				
<b>1</b>	<b>FALSE CEILING WORK</b>				
	All area will be measured in SQFT				
<b>a</b>	providing and fixing "AMF-Armstrong" or equivalent make approved Regular type <b>Mineral ceiling</b> having 0.70 NRC and board thickness of 15mm and 600mm x 600mm size with regular edge on silhouette frame (Black silhouette) fixed in position of AMF Star make 15mm exposed system hot-dipped galvanized steel with white pre-coated exposed cap and the frame work shall comprise of 24mm x 38mm- main r/tee, etc as per manufacturer's conditioning fittings etc. Complete as directed	214.62	SMT		
<b>b</b>	providing and fixing in position suspended <b>Gypsum Board False Ceiling</b> with G.I suspension system and 12mm thk. Board sheets as manufactured by Saint Gobain" including G.I. corner beads, edge trims and other accessories. Joint taping finishing compound including making all cut outs for fittings, air conditioning grills, diffusers etc. complete as per drawings and as directed. Rate to also include providing and applying 3 coats of Acrylic emulsion paint Asian paints / equivalent as per design and approved shade by the Architect. Coat to include preparing the surface, applying primer putty etc. complete.	223.05	SMT		
<b>2</b>	<b>PAINTING WORKS</b>				



<b>a</b>	providing and applying 3 coats of <b>Acrylic emulsion paint</b> Aisan paints/ equivalent as per approved shade by the Architect. Cost to include prepering the surface applying primer, putyy, etc. complete. All jambs, trims, egde , grooves to be included in rate . NO separate maesurment on Rft. The rate shall include the coats of all materials,labour, scaffolding, cleaning the glass planes, floor for paint drops after completion of painting works etc., complete. Rate shall also include - Filling up the cracks in walls & ceiling, making good surface	185.87	SMT		
<b>b</b>	providing and applying 3 coats of <b>Oil paint</b> , of Asian paints or equivalent on toilet ceiling, MS grill etc, Cost to include preparing the surface, applying primer, putty etc. complete. All jambs , trims, edge, grooves to be included in rate .No seprate maesurement on Rft.	88.29	SMT		
<b>c</b>	providing and applying approved <b>Texture paints</b> on wall and partitions as per design and approved shade by the Architect. Coat to include preparing the surface, applying primer putty, etc. complete. Including all jambs, trims, edges, grooves to be included in rate.No seprate measurement on Rft.	13.94	SMT		
<b>d</b>	providing and applying approved <b>Wall paper</b> after preparaton of surface as required /directed.	4.65	SMT		
<b>C</b>	<b>TOTAL MISCELLANEOUS WORKS</b>		<b>Rs</b>		

	<b>SUMMARY</b>				
<b>A</b>	<b>TOTAL FIXED FURNITURE-PARTITION WORKS</b>			<b>RS</b>	
<b>B</b>	<b>TOTAL FIXED FURNITURE -PANELING ITEMS</b>			<b>RS</b>	
<b>C</b>	<b>TOTAL MISCELLANEOUS WORKS</b>			<b>RS</b>	
<b>D</b>	<b>Rebate Item</b>		<b>( - )</b>	<b>RS</b>	
<b>I</b>	<b>TOTAL OF SECTION A to D</b>			<b>RS</b>	
<b>II</b>	<b>Less: Discount, if any</b>			<b>RS</b>	
<b>III</b>	<b>Sub Total ( I - II )</b>			<b>RS</b>	
<b>IV</b>	<b>ADD: GST</b>			<b>RS</b>	
	<b>Grand Total ( III + IV )</b>			<b>RS</b>	





