

# TECHNICAL BID

( Part A of tender to be submitted in envelope no 1 along with D.D of 1% of quoted amount)

## C L I E N T

### **THE MAHARSHTRA STATE CO-OPERATIVE BANK LTD.**

(incorporating The Vidarbha Co-operative Bank Ltd.)  
9, Maharashtra Chamber of Commerce Lane,  
Fort,  
Mumbai 400 001

## P R O J E C T

THE MAHARASHTRA STATE CO.OP BANK LTD BRANCH AT KANDIVALI, Mumbai.

Note: There is shifting of existing furniture in unaltered conditions from existing branch to new premises and installation of same in unaltered condition. The contractor shall visit the site and ascertain himself of the same. No additional is payable on this account.

## **T E N D E R ( in two bid systems)**

For INTERIOR ELECTRICAL WORK and AC of above project.

## **A R C H I T E C T**

### **SATYAJIT RANE & ASSOCIATES**

Architects / Interior Designers  
1076/24, Giriraj Apartments, Old Chaturringi Road, Pune 411016  
M: 9890084268 Email: satyajit.rane@gmail.com

TENDER FEE:                      INR 1000/- (non refundable) payable in DD drawn on THE MAHARSHTRA STATE CO-OPERATIVE BANK LTD, payable at Mumbai

Tender Issued to:

M/s

Address

Issued on

Last date of submission

Tender Opening:

ON 10/08/2018 BEFORE 3.00 P.M

WILL BE CONVEYED LETTER.

Tender to be submitted at:-

Joint Manager ( General Administration)

3<sup>rd</sup> floor.

THE MAHARSHTRA STATE CO-OPERATIVE BANK LTD.

(incorporating The Vidarbha Co-operative Bank Ltd.)

9, Maharashtra Chamber of Commerce Lane,

Fort, Mumbai 400 001. ( contact no 022-22800584,589,592)

STAMP & SIGNATURE OF CONTRACTOR.

**Mandatory info. required for Prequalification of the bidder for Interior work of Kandivali Branch Important:**

- 1.) Please type or handwrite in capital letters.
- 2.) Attach copies of the supporting documents.
- 3.) Please use additional sheets if required.

**4.) If the technical bid is found okay then only will the financial bid will be opened.**

Name of the Bidder :

email address :

Telephone number office :

Fax no. :

Address 1 :

City :

Pin code :

Year of Establishment :

Status of the Firm : Proprietary/Partnership/Pvt. Ltd./Pub. Ltd.

Names of the directors/Partners/proprietor :

Name and address of the Bankers – 1 :

Registration number and date with Registrar of Companies/Firms :

PAN Card Number :

GST Number  
MSEB License no.:

Request copies of the Balance sheet :

Current solvency certificate from your Banker for not less than Rs. TEN Lacs :

Attach copy.

Empanelment with the other Companies/PSUs

Field of activities :

Main Activity :

Value of the total work done till date :

List particulars of minimum 10 successfully completed works during last THREE years amounting to Rs. Twenty lacs or more

List Number of Technical staff working in the organization :

List number of other staff working in the organization

Have you in past carried out any works for The Maharashtra State Co.op Bank ? :

Have you been ever disqualified or levied penalty by the Bank in past for non fulfillment of the contractual obligations. If yes, please provide details in brief. :

Have you been ever been put on a holiday list or banned by any Public Sector Units? If yes please provide details in brief:

**I/We confirm that to the best of our knowledge this information is authentic and accept that any deliberate concealment will amount to disqualification at any stage.**

**STAMP & SIGNATURE OF CONTRACTOR.**

**SATYAJIT RANE & ASSOCIATES**  
**ARCHITECTS, INTERIOR DESIGNERS & GOVERNMENT APPROVED VALUERS**

**1076/24 OLD CHATURSRINGI ROAD, PUNE 411 016**  
**PH NO M 98900 84268 mail satyajit.rane@gmail.com.**

DT 04/08/2018

To,

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PROJECT: INTERIOR WORK FOR THE MAHARASHTRA STATE CO.OP BANK LTD'S  
BRANCH AT KANDIVALI,  
SUBJECT: INVITATION TO BID.

Sir,

On behalf of The Maharashtra State Co.op Bank Ltd, Mumbai we are forwarding this tender documents on item rate basis.

PLEASE NOTE:

A) The EMD for the above work is 1% of the estimated by you in Demand draft on any scheduled bank, without which the tender shall be held as invalid.

B) No addition or deletion of pages is allowed in the tender. If done the tender shall be held invalid.

C) Filled in tender is to be stamped and signed on each page by the contractor along with corrections if any, by the contractor. If not so done the tender will be held invalid.

D) The tender is to be filled in neat legible hand writing. Quotations on contractor letter head are not allowed.

The filled in tender is to be returned by 10/08/2018 before **3.00 p.m** If submitted late the tender will be held invalid.

The following conditions are to be considered over and above the conditions mentioned in tender

1) Please note that the work is to be done in a New premises. Time is the essence of contract.

2) The work is envisaged to be completed in 25 Days only. No extension on any ground will be given.

3) All painting/false ceiling/carpentry/electrical etc is to be done simultaneously. No plea for delay of work due to various agencies involved will be entertained.

4) All line and level in premises is to be checked by the contractor before and adjustments in furniture to be made for the same.

5) The first and only running bill amounting to 50% of financial value of contract is to be submitted within 7 Days of the work order issued if not so done final bill only shall be considered.

6) Prior to submission of bill all wood work, false ceiling support along with gyp board fixing, first coat of paint, partition framing etc is to be completed. Bill will be not certified if these are not there on site/not done.

7) No advance is to be considered or paid for material lying at site.

8) The time period mentioned is inclusive of cleaning and fault repairing. The contractor has to vacate the premises on that day. Otherwise penalty per day shall be imposed at Rs 5000/day.

9) The Contractor shall check for availability of all items before filling the tender. Excuse of non availability of materials after acceptance of tender will be at contractor's risk.

10) Non tender/extra work if asked to be done from contractor, it is to be done only on written instructions/order. The time schedule does not change.

11) Line out of furniture shall be marked first, measured and got approved from the Architect prior to start of work. ( Maximum 5 days from the work order date).

SATYAJIT RANE  
ARCHITECT  
CA/91/13659

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**SATYAJIT RANE & ASSOCIATES**  
**ARCHITECTS, INTERIOR DESIGNERS & GOVERNMENT APPROVED VALUERS**

**1076/24 OLD CHATURSRINGI ROAD, PUNE 411 016**  
**PH NO M 98900 84268** *mail satyaji.rane@gmail.com*

**T E N D E R**

**PROJECT: TENDER FOR INTERIOR WORK OF THE MAHARASHTRA STATE CO.OP BANK LTD'S BRANCH AT KANDIVILI MUMBAI .**

GENERAL CONDITIONS

1. Sealed Tenders should be addressed to , The Maharashtra State Co.op Bank Ltd, Mumbai. And super scribed name of work KANDIVILI BRANCH, MUMBAI and should reach the Bank before **3.00 P.M.** 10/08/2018
2. No tender will be received after **3.00 PM** on 10<sup>th</sup> Aug 2018 and tenders will be opened on 13<sup>th</sup> Aug 2018 at H.O. unless otherwise informed.
3. The tenders will remain valid for a period of 2 months from the date of opening of tenders. Bank reserves the right to accept or reject any or all the tenders without assigning any reasons to do so.
4. **At the time of submission every tender must be accompanied by a Demand Draft amounting to One percent of the amount quoted by Contractor in this tender in favor of THE MAHARASHTRA STATE CO.OP BANK LTD as earnest money. No interest will be paid on earnest money. Any tender which is not accompanied by earnest money will be summarily rejected.**
5. The tenders should quote rates in figures as well as in words.
6. All erasures and alterations made initials of tenderers must be attested filling the tender. Overwriting of figures is not permitted.
7. The earnest money deposit of unsuccessful tenderers will be returned within 30 days from the date of opening of tenders.
8. The earnest money of the successful tender shall be adjusted in the security deposit.
9. The bank reserves the right to reject any or all the tenderers, accept part of any tender or entrust the entire work to any contractor or divide the work to more than one contractor (item wise) without assigning any reason or giving explanation. The rate quoted by the contractor will hold good for this bifurcation and no compensation will be paid on this account.
10. Joint tenders shall not be considered.
11. On receipt of intimation from the bank of the acceptance of his tender, the tenderer within 2 days should submit his acceptance of the work. If the successful tenderer fails to undertake the work, the earnest money will be forfeited and acceptance of his tender may be withdrawn.
12. The rates quoted in the tenderer shall include all charges of scaffolding, lift, any tools and plants, railway, freight, labor conditions and fluctuations in the rates excise duty, sales tax, LBT and any other taxes or expenditure for carrying out the work.

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13. The contractor will arrange his water and electricity for completing the work. In case water and electricity are already available at the site, The same will be provided by the bank and **Rs 10,000/-** will be deducted from the bill.
14. No escalation in rates will be allowed under any circumstances.
15. The successful tenderer is bound to carry out entire work within the period stipulated in the appendix. The tenderer will have to pay liquidated damages for non- completion of job within stipulated period at the rate of Rs 5000/- per day after expiry of period of completion subject to maximum of 10% of the contract value.
16. The liquidated damages as mentioned above may not be enforced if the contractor applies for extension of time mentioning the reasons for extension. Extension of time in days will be granted by the bank if it is proved that the contractor is not at fault for extending the work beyond stipulated date of completion.
17. The successful tenderer is bound to carry out items of work necessary for completion of job even though the same are not included in the schedule of quantity. Rates of extra items will be derived from the tender. In case the rates do not exist in the tender and extra item is not similar to the tender item, then the rates will be worked out on actual cost of material and labor, any other expenditure for completing that work plus 15% towards contractor's profit and overheads.
18. The contractor must co-operate with other contractors appointed by the Bank so the entire work shall proceed smoothly with least possible delay and to satisfaction of the Bank.
19. The contractor shall remove all malba etc. Wash and clean the floors walls doors windows furniture etc. and handover the site in proper manner on the completion of work. The debris from the site is to dumped to appropriate municipal dumping ground at no extra cost.
20. The contractor shall acquaint himself with the site conditions making his own arrangement for storing of material at site lift cartage etc.
21. Ten percent of the value of work done shall be deducted as security deposit from running bill of the contractor, half of which i.e. 5% of the total value of work shall be retained for defects liability period ( as mentioned in appendix) and shall be released after defects liability period provided no defects are noticed during the period. The security deposit includes earnest money deposited by the contractor with the tender.
22. The contractor will attend to all defects noticed during defects liability period. If the contractor fails to attend the defects these defects will be rectified by the bank and the expenditure incurred on this account will be recovered from the security deposit.
23. The contractor shall make adequate for watch and ward of material and shall ensure the safety, breakage and any theft of material fixed or unfixed by him or other sub contractors.
24. The work executed should be got approved by the bank and the contractor shall rectify any bad workmanship pointed out at any stage and remove from site all the rejected materials immediately.
25. The contractor shall be responsible for application of labor laws, compensation for injury and accident to person, whether employed by him or by his subcontractor. No responsibility shall be of the bank.
26. The contractor will take necessary precautions for carrying out the work avoiding any damage to structure/decorative parts of the property. The contractor will rectify any damages done at his cost.
27. The contractor shall ensure that the workmen employed by him for the execution of work are suitable covered against Workmen Compensation Act and that all liabilities arising out

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of Workmen's Compensation Act, ESIS and other legislative enactment applicable to such works and workmen shall be to the contractor's account

28. Civil, Electrical, and Sanitary works will be carried out as per Bank's standard drawings/specifications and to the entire satisfaction of the Bank.
29. The contractor shall inform the bank to check measurements of any work which is likely to be hidden before covering.
30. The contractor will submit running bills for the value of work done not less than interim payment ( as mentioned inn the appendix) mentioning full nomenclatures of items, rates, amount, measurement sheets, reasons for part rates claimed, if any.
31. In case of non completion or delay in completion of work or removal defects in time the bank shall be free to appoint another agency to get the job done at contractor's risk and cost.
32. For fixed as well as loose furniture, rates quoted by the contractor shall be inclusive of all taxes including sales tax, LBT, transportation etc. And no extra amount will be paid on this account.
33. Income tax at the prevailing rate will be deducted at source contractor bill and will be deposited with the I.T.O as per rules.
34. The bank may delay the progress of work without in any way vitiating the contract and grant extension of time for the commencement/completion of contract as it may think proper and sufficient in consequence of such delay and the contractor shall not make claim compensation or damage in relation thereof.
35. The contractor will not execute any extra item without Bank's permission in writing.
36. The quantities mentioned in the schedule of quantities are approximate. Payment will be made on the actual work done by the contractor. However the contractor should not deviate the quantity without Bank's permission.
37. Conditional tenders quoted by Contractor is liable to be rejected.
38. The Bank has a right to alter the nature of work and to add or omit any items of work or to have the option of the same carried out departmentally or otherwise and such alternations or variations shall be carried out without prejudices to the contract.
39. The Bank has right to terminate the contract if the Contractor abandons the work or fails to commence and complete the work in time, or fails to abide by the contract conditions.

#### APPENDIX

1.	Defects liability period	TWELEVE MONTHS
2.	Date of Commencement	3 Days from the date of issue of letter awarding the job.
3.	Date of Completion	25 Days total
4.	Minimum value of work done for interim payment	50% of quoted amount.
5.	Security deposit till completion of work.	10% ( including earnest money)
6.	Security Deposit for defects liability Period	5 % of the total value of work
7.	Liquidated damages for non compl- etion of work within stipulated time	Rs 5000/- per day subject to max. Of 10 % of total cost done.

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**LIST OF MATERIALS OF APPROVED BRAND / MANUFACTURER**

(First Quality to be used)

**Unless otherwise approved the following brands shall be used for these works**

NO.	ITEM	PRODUCT NAME / MANUFACTURER
01.	Paint	: ICI/Asian paint/Berger.
02.	Wood Preservative	: Bison by British Paint/ Termiseal by PCI
03.	Plywood	: KITPLY VISTA/ARCHID SILVI
04.	False ceiling	: Armstrong 16MM THK RH99/ Indian Gypsum
05.	Laminate	: Merino/Greenlam/Sunmica/Formica/Century
06.	Screws	: G.K.W /Nettle fold
07.	Adhesive	: Fevicol SH.
08.	Locks	: Godrej
09.	Night Latch	: Godrej
10.	Aluminum Door Frame	: Jindal
11.	Glass :	Modi/Asahi/St. Gobain.
13.	Aluminum Cladding	: Eurobond/Altobond/Alukbond
14.	Keyboard Drawer	: INNOFIT
15.	Telescopic CPU stand	: INNOFIT
16.	Cable Organiser (Wire Manager)	: INNOFIT
17.	Vitrified Tiles	: EURO/RAK
18.	VITFIRIFED TILES	: 600X600MM NITCO/KAJARIA/JOHNSON

**ELECTRICAL WORK TECHNICAL SPECIFICATIONS**

1. The entire installation shall be carried out in accordance with Indian Electricity code and relevant IS standards up to date. The work shall also comply with all statutory regulations of supply agencies, state inspection authorities and fire regulations.
2. Contractor shall be responsible all necessary statutory approvals, clearances, sanctions, drawing approvals and getting actual connections.
3. Definition of terms pertaining to all technical requirements as per IEE/ IS shall apply.
4. Contractor shall submit all necessary drawings for scrutiny and approval by Engineer/ Consultant prior to taking up of works. Contractor shall immediately bring out the difficulties faces in execution of works to the notices of Engineer/ Owner/ Consultant.
5. All material, equipment, fittings used in the installation shall be of approved quality confirming of relevant IS specifications.
6. On completion of works contractor shall carry out all necessary tests such as insulation resistance test, continuity of conductors and earth resistance and functional tests along with commissioning checks to the satisfaction of Consultant/ Engineer.
7. Contractor shall furnish necessary test certificates as required by authorities and Consultant.
8. List of IS standards is attached separately.

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### **LIST OF STANDARD**

01. IS 4648 Code of practice for Electrical layout in Residential Buildings.
02. IS 7320 Electrical wiring Installations (System Voltage not exceeding 650 V)
03. IS 2274 Electrical wiring Installations (System Voltage not exceeding 650 V)
04. IS 3043 Code of practice for earthing.
05. IS 2809 Code of practice for lightning protection.
06. IS 1913 General and safety requirements for electrical lighting fixtures.
07. IS 5319 Guide for safety procedures and practices for electrical work.
08. IS 2268 Electrical call bells and buzzers.
09. IS 3412 Electrical water boilers.
10. IS 2882 Storage type Automatic water Heaters.
11. IS 1646 Protection for Fire safety of building Electrical installation.
12. IS 5908 Electrical Installation in Building Method of measurement.
13. IS 694 Specification for PVC insulated cables for working Voltages up to and including 1100 V.
14. IS 1554 Specification for PVC insulated cables for working Voltages up to and including 1100 V.
15. IS 3961 Recommended current ratings for cables PVC insulated and sheathed.
16. IS 2147 Degree of protection.
17. IS 4237 General requirement for Switchgear and control gear for Voltages not exceeding 1000 VAC and 1200 V.D.C.
18. IS 10118 Code of practice for selection, installation and maintenance of swgr and control gear.
19. IS 8623 Specification of factory built assemblies of switchgear and control gear for voltages up to and including 1000 V AC & 1200 V AC.
20. IS 3106 Code of practice for selection, installation and maintenance of fuses (Voltages not exceeding 600 Volts.)
21. IS 2551 Danger Notice Board.
22. IS 1886 Code of practice for installation and maintenance of transformers.
23. IS 1160 Distribution Transformers.

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- 24. IS 2026 Power Transformers.
- 25. IS 3639 Fittings and Accessories for Transformers.
- 26. IS 6600 Transformer Oil.
- 27. IS 335 Bushing 100 AC.
- 28. IS 3637 Buchholz's Relay.
- 29. IS 7421 Bushing 100 V AC.
- 30. IS 1271 Electrical Insulation for Thermal Rating.

**M.V.PANELS AND DISTRIBUTION BOARDS**

**1. CONSTRUCTION :**

- 9. The panels shall be free standing, floor mounting compartmentalized cubicle type panels with framed structure and bottom channel frame of suitable section. The frame structure shall be rolled/ folded sheet section of 2.0 MM thick sheet. Partitions shall be 1.6 MM thick. The panel shall be dust and vermin proof with neoprene gasketing. Following minimum clearances shall be adhered to while such designs.
- 10.
  - A. Between phases : 35 MM
  - B. Between Phases & Neutral : 25 MM
  - C. Between Phases & Earth : 25 MM
  - D. Between Neutral & Earth : 25 MM

All installation materials used for supports shall be non-hygroscopic duly treated to withstand high humidity, tropical conditions and stresses due to temperature variations. The panels shall be so designed to provide sufficient space for cable alleys for incoming cables. Removable gland plates shall be provided. Shrouding with Hylum sheet shall be provided for all compartments and live parts such that no live part is exposed directly on opening any door.

**CLEANING AND PAINTING:**

The fabricated sections shall be thoroughly cleaned by 7 tank process which include alkaline degreasing, cold water rinsing, acid pickling, water rinsing, phosphating and passivation. Panels shall then be painted with 2 coats of corrosion resistant primer and oven dried under controlled conditions.

Then 2 coats of stoving enamel paint of approved shades shall be given.

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## 2. BUSBARS :

The bus bar unless otherwise specified shall be of high conductivity aluminum alloy of grade E9 per IS 5082. The bus bar shall be provided with suitable SMC bus bar support suitable for withstanding fault level up to 50 KA. The bus bar shall also withstand above fault level without permanent deterioration. The connections shall be securely done with adequate size of plated hardware plate and spring washer sets. The inter connections shall be made with solid bus bars as far as possible. Bus bars shall be provided with colour coded PVC sleeves.

## 3. SWITCHGEAR :

The switchgear used in panels shall be pertaining to relevant IS standards and shall be from the approval list. The terminals shall be suitable for accepting bus bars and cables of relevant sizes suiting the switchgear rating. The metal parts other than live contacts shall be treated against corrosion. All switches shall be with door interlocked provision.

## 4. MEASURING INSTRUMENTS AND INSTRUMENT TRANSFORMER :

Direct reading instruments shall be in confirmation with IS 1248 and of accuracy class 1.0. All meters shall be flused mounting type with minimum 96 X 96 MM size and in dust proof enclosures. The meters shall have white dials with black scales. All meters shall have sealing arrangement and zero adjustment secure from outside.

Voltmeters and ammeters shall be moving iron type with suitable selector switches and protective fuses for potential circuits.

The current transformers shall be single pole wire wound resin cast accuracy class 1.0 for metering and 5p for protection. Separate CT's shall be provided for metering and protection. The polarities shall be prominently marked CT circuits shall be wired with 2.5 Sqm. multistrand copper wires. CT's shall not be kept open and terminal-shortening arrangement shall be provided.

## 5. INDICATION AND CONTROL :

The control switches shall be rotary type with suitable isolation transformer provided for control supply. Control supply bus shall be provided wherever necessary. Indicating lamps shall be

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translucent lamp covers and with arrangement to replace bulbs from front. Push buttons shall be momentary contact. Type with suitable color cod and shall be fitted with integral marker plate.

The control wiring shall be with 1.5 Sqm. multistrand 1100 V gr copper wire except CT Circuit, which shall be with 2.5 Sqm. wires. Identification ferules and color coding shall be used for all wire control fuses shall be provided wherever required. The control wires shall be bunched and traced properly and shall not be left hanging.

#### 6. DISTRIBUTION BOARDS :

The distribution boards shall generally be as per panel specification above. All DB's shall be MCB type suitable for concealed/ surface installation. DB's shall be factory made vertical type with hinged secured front covers, knob protection cover, top and bottom knock outs, earthing studs circuit marking provisions.

The DB shall be completed pre wired with necessary bus bars interconnecting terminals, neutral bus.

The MCB's shall confirm to IS 8828 and shall have 9 KA breaking capacity.

#### 7. INSPECTION AND TESTING :

Inspection and testing for all panels as per IS Standard shall be offered to consultant/ owner's representatives.

### CABLES AND CABLE LAYING

#### A) H. T. CABLES :

- i) The H.T. cables shall be XLPE insulated of appropriate voltage class sheathed, armored multistrand aluminum conductor manufactured in accordance with S 7098 part IS II
- ii) The cables shall be supplied with non-returnable wooden drums in appropriate lengths and shall be free from twists and surface damages.
- iii) The ends of the cables shall be properly sealed and secured so as to avoid water seepage during transit and storage.
- iv) The cables shall be laid at a depth of 1000 MM minimum and shall have 75 MM sand cushion brick box and top RCC protective tile marked "H.T. cables" of size 600 X 225 MM.
- v) Cables shall be laid with the help of jacks and rollers to avoid dragging and twisting. Sufficient loops shall be provided at intervals and in center.
- vi) Cables shall be supported with protective pipes and clamps on vertical runs and shall be laid through appropriate pipes for road and gutter crossings.
- vii) Heat shrinkable/ push on jointing kits of reputed makes shall be used for indoor/ outdoor end terminations. Heat shrinkable boots shall be provided for bushing connections.

#### B) L. T. CABLES. :

All power and distribution cables shall be 1100 V grade, PVC insulated and sheathed armored, multistrand aluminum conductor cables unless otherwise specified.

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All control cables shall be 1100 V grade PVC insulated and sheathed armored – multistrand copper conductor cables unless otherwise stated.

The cables shall conform to IS 1554-1976 with up to date amendments. Type test certificates of the cables from manufactures for the particular drums shall be provided.

**LAYING :**

The cables shall be thoroughly inspected for transit damage and irregularity in sheath etc.

- i) Sufficient manpower with necessary equipment like jacks, rollers shall be provided for unwinding and laying the cables and dragging and twisting shall be avoided. Proper unwinding methods shall be used to avoid twists.
- ii) Cables shall be laid at a depth of at least 750 MM foreground level with 50 MM sand bedding, brick box with cushion for protection. Bending radius provision of atleast 8 D shall be kept while laying. The trenches shall be filled and reinstated layer by layer leaving crown on top.
- iii) H.T. & L.T. cables shall be laid in same trench. When more than one cable are laid in same trench a gap of atleast 150 mm shall be kept between the cables.
- iv) Cables laid on walls, trenches shall be supported at every 600 MM for vertical run and every 450 MM for horizontal run. Suitable clamps shall be provided for fixing and support. Vertical runs near ground level shall be protected by GI Pipes of suitable size up to atleast 1200 MM.

**JOINTING :**

Jointing or end termination of cables shall be done by skilled person only. Straight through joints

shall be avoided as far as possible. The length of the cables are approximate and actual site

measurements shall be taken by contractor prior to cutting any cable. Heavy duty compression

type brass shall be used for outdoor connections. Crimping type lugs with suitable brass hardware

shall be provided for connections.

**TESTING :**

Cables shall be meggered as soon as they are brought to site. Insulation resistance shall also be tested.

- i) After cutting.
- ii) After laying and preparing the joint.  
Following test shall be taken after completing the installation
  - a) Cable continuity.
  - b) Earth continuity.
  - c) Insulation resistance.  
1000 V megger shall be used for testing 3-phase 415-volt system.

<b>POINT WIRING</b>
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**1. CONDUITS : ACCESSORIES AND JOINTS :**

All conduits shall be HG MS conduits 165 WG up to 25 MM dia and 145 WG above size. All conduit

accessories shall be screwed type and conduits shall be joined by means of threaded coupling only.

Checknuts shall be provided at all joints for tightening and sealing. Ends of conduits shall be

coated with plastic adhesive.

All conduits and accessories shall be painted with 2 coats of Red Oxide before installation and accessible parts of conducting after installation shall be painted with enamel paint to match the wall paint. Capacity of conduits is separately given. In case of rigid PVC conduits, the conduits shall be made using special adhesives used for pressure pipe joints.

**2. SURFACE CONDUITING :**

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The surface conduits shall be fixed with help of 20 SWG saddles on spacers at every 600 MM for vertical run and every 450 MM for horizontal run. The runs shall be straight with suitable sleeves for structural member crossing at the time of casting.

In case of false ceiling the conduits shall run on walls/ trusses above false ceiling level as far as possible. The connections between such runs and fixtures shall be made with flexible conduits.

### 3. CONCEALED CONDUITING :

the concealed conduit work shall be carried out along with construction of walls prior to plaster. The work covers chasing walls if necessary fixing the conduits, boxes, accessories, redoing the damaged surface. The conduits shall be laid such that they are little below the brick level to avoid cracks. Elbow shall not be used and bends shall be avoided as far as possible using offsets. Pull boxes shall be provided at suitable locations. Deep junction boxes only shall be used in slabs. The pull and junction boxes shall not be clustered at one place and shall be so arranged that they should not be easily seen from heavy movement areas. All cases shall be taken to secure joints and boxes in place. All vertical runs shall be sealed at top.

### 4. SWITCH BOARDS :

The switchboards unless specified in item shall be MS fabricated from 16 SWG sheet steel with all sides except top. Top plate fixing arrangement shall be provided at all corners with tapped holes. At least 1 No. earth stud shall be provided. Switchboard shall be atleast 60 MM. Deep. Switch board shall be painted with 2 coats of Red Oxide primer from inside and outside. In case of surface mounted boards 2 coats of enamel paint of suitable shed shall be given to accessible sides.

The switch plate shall be 2 MM thick while phenol bonded sheet unless specified and shall be fixed with cromplated screws with cap washers.

### 5. SWITCH & SOCKETS :

All 5/15 a switches shall be piano type 240 V grade of approved color and of same shed throughout. 5A Sockets shall be 3 pin and 15 SMP sockets shall be 5 pin (Universal). All switches shall be provided one phase wires only. For power points more than 10 AMP capacity 30 AMP flush type DP switches shall be provided.

### 6. WIRES AND WIRING INSTALLATION:

All wiring shall be carried out with PVC insulated, 1100 V grade multisrand copper conductor wires of specifies sizes.

The conduits shall be ventilated and drained before drawing the wires.

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The circuit wires shall be laid in looped formation with suitable termination arrangement in junction boxes. T joints shall be used. No joints shall be allowed in drawn lengths. Crimping type lugs shall be used for switch interconnections. Color codes shall be followed :

Separate earth wire of same class and suitable size shall be drawn along with other wires. Mains and sub mains shall be drawn in separate conduit of adequate capacities with separate earth wires. All circuit wires shall be meggered for continuity and insulation resistance.

#### 7. WIRING CLASSIFICATION :

- i) Lighting Sub Mains : 2\*2.5 + 1\*1.5 Sqm. wires.
- ii) Light/ Fan/ 5A/ Ex Fan Pts. : 2\*1.5 + 1\*1.5 Sqm. wires.  
Call Bell
- iii) 15 A Point : 2\*2.5 + 1\*1.5 Sqm. wires.
- iv) As above but looped : 2\*4.0 + 1\*2.5 Sqm. up to 1st point.  
2\*2.5 + 1\*1.5 Sqm. for Looped point.
- v) 1 Tone window A/A & 20A : 2\*4.0 + 1\*2.5 Sqm wires.  
Power Point.
- vi) Window A/C 1.5 Tone : 2\*6.0 + 1 \*2.5 Sqm. wires.  
Geyser & 30 AMP Pts.

#### 8. CONDUIT CAPACITIES :

WIRE SIZE	1.5	2.5	4.0	6.0	10.0
CONDUIT SIZE					
19/20 MM	4	3	--	--	--
25 MM	5	4	3	2	--
32 MM	8	6	4	4	3
40 MM	12	8	6	5	4

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9. MOUNTING HEIGHTS (ABOVE FFL) :/ or as shown on drawing

- i) Light Points on Walls : 2250 MM.
- ii) Switch boards DB's : 1200 MM
- iii) Socket outlets : 1200 MM/ 300 MM
- iv) Telephone Sockets : 130 MM
- v) Geyser outlets : 1500 MM.
- vi) Exhaust Fan outlet : Switch at 1200 MM Socket near Ex. Fan.
- vii) A/C Point : Bellow window sill / Near A/C Equipment.

APPROVED LIST OF MATERIALS.

- 1. R M U / OSF : ANDRW YULE / ME 1.
- 2. Lightening Arrestors : ELPRO.
- 3. XLPC Cable joints : M-Seal / Xicon/ Rechem.
- 4. ACBs : L&T / C&S/ Siemens.
- 5. Fuse switch & switch fuse : L&T /C&S /Siemens.
- 6. Change over switches : ELCON/ Havalls.
- 7. Contractors : Siemens / L&T/ Telemeq/ABB.
- 8. Meters : Rishabh (L&T) / AE.
- 9. CTS : AE/ Kappa/UE.
- 10. KWH Meters : OEC / Jaipur/ Gyro.
- 11. Tracecor Meters : SIMCO/ L&G.
- 12. Indicating Lamps : L&T/ .
- 13. Rush Buttons : L&T/ .
- 14. Relays (Protections) : EE/Telemechanique (Micro Processes based)
- 15. MCCB : L&T.
- 16. MCB : MDS/ L&T/.
- 17. RCCB : / MDS/ EE.
- 18. MCBDB : MDS/ Indo Kopp.
- 19. Cables : Finolex/ Polycab/
- 20. Glands : Dowels/ EMI.
- 21. Telephone Rag Blocks : ITI.
- 22. Telephone Sockets. : CPL/
- 23. Telephone Cables : Finolex/ Delton.
- 24. PVC Conduits : Precision/ Circle Arc/ Asian.

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- |     |                              |                            |
|-----|------------------------------|----------------------------|
| 25. | Casing Capping               | : Modi / Precision.        |
| 26. | Wires.                       | : Finolex/ Polycab.        |
| 27. | Switch sockets.              | : Anchor Roma              |
| 28. | Ceiling Rose, Holders        | : Anchor Roma              |
| 29. | Lighting Fixtures            | : HAVELLS/ Philips/ Wipro. |
| 30. | Ceiling fans                 | : Crompton/ Orient.        |
| 31. | Dimers/ Electronic Regulator | : Crompton.                |
| 32. | Exhaust Fans                 | : GEC/Crompton.            |
| 33. | Industrial Socket            | : Crompton/ Northwest.     |
| 35. | APFCR                        | : Syntron/ Ridrashakti.    |

#### SAFETY CODE

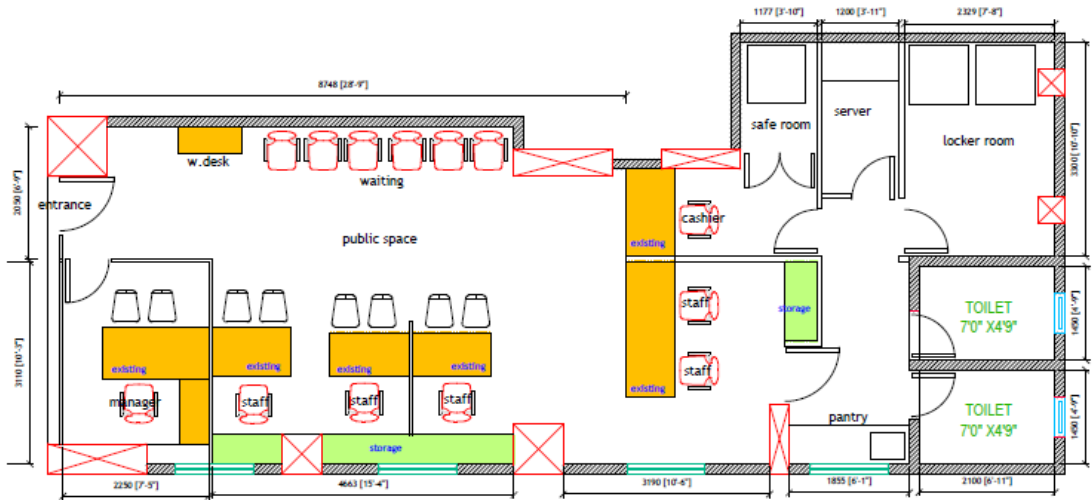
1. The first aid appliance adequate supply of sterilized dressings and cotton wool shall be maintained in a readily accessible place.
2. An injured person shall be taken to public hospital without loss of time, in case where the injury necessitates hospitalization.
3. Suitable and strong scaffolds should be provided for workmen for all works that cannot safely be done from ground.
4. No portable single ladder shall be over 8 meter in length. The width between the side rails shall not be less than 30 cm (clear) and distance between two adjacent range shall not be more than 30 cm. When the ladder is used on an extra mazdoor shall be engaged for holding the ladder.
5. Every opening in the floor of the building as in a working platform be provided with suitable means to prevent fall of persons or materials be providing suitable fencing or railing where minimum height shall be one meter.  
+No floor, roof or other part of structure shall be overloaded with debris or materials as to render it unsafe.

#### Paint :

- i) No paints containing lead or lead products shall be used in the form of paste or ready-made paint.
- ii) Suitable facemask should be supplied for use by the workers when the paint is applied in the form of spray or surface having lead paint rubber and scraped.
6. Overall shall be supplied by the contractor to the painters and adequate facilities shall be provided to enable the working painters to wash during the period of cessation of work.
7. Hoisting machines and tackle used in works, including their attachments, anchorage and supports shall be in perfect condition.
8. The ropes used in hoisting or lowering materials or as a suspension shall be of durable and adequate strength and free from defects.

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drawing shows  
 Layout of premises.  
 project  
 M.S.C. Bank, Kandivali Branch, Mumbai.

area = @877 sft



architects  
 SATYAJIT RANE & ASSOCIATES  
 ARCHITECTS & DESIGNERS  
 1076/24 OLD CHATURSINGHA ROAD PUNE 411016

drg no  
 01

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