

क्षेत्रीय कार्यालय, जलगांव

Regional Office, Jalgaon

RO/JAL/BSO/06/2024-25/45

Date: 15/10/2024

**DRAFT ADVERTISEMENT**

**NOTICE INVITING TENDER**

1. Sealed tender on item rate basis are invited from reputed turnkey vendors for Carpentry, furniture, False ceiling, electrical, works to be carried out for Pimpri Khurd Branch under RO Jalgaon.
2. **Submission of Tender:**
3. Due date of submission of Tenders is 15 Oct 2024 to 05 Nov 2024 before 3:00 p.m. The price bid is to be submitted in sealed envelope and clearly super scribed "Tender for furnishing, electrical work to be carried out at New Premises of Regional office Jalgaon.
4. Sealed tenders as above will be received by the office of the Central Bank of India, Business Support Department, Regional Office, Plot No 08 Payal Smruti near RTO Office Jalgaon, 425001 up to 3:00 p.m. on Nov 05, 2024 and will be opened on same day at 3.30 p.m.
5. Tenders received late on account of any reason whatsoever and telegraphic tenders will not be entertained.
6. The tender shall be valid for a period of not less than 30 days after the date of opening of Tender.
7. For any further information on the tender, Business Support department at Regional Office, Jalgaon (Ph. No.7057738173) may be contacted.
8. The Bank will not be bound to accept the lowest tender and reserves the right to accept or reject any or all tenders.
9. Details BOQ available on bank's Website.

By Order

REGIONAL HEAD

REGIONAL OFFICE, JALGAON





सेन्ट्रल बैंक ऑफ इंडिया  
Central Bank of India

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**निविदा आमंत्रण सूचना**

सेंट्रल बैंक ऑफ इंडिया अपने, शाखा:पिंपरी खुर्द, गट क्र.21, प्लॉट क्र.05, कमल नगर, पिंपरी खुर्द, तालुका-धरणगाँव, जिला-जलगाँव-425105

**कार्पेंटरी, फ़र्निचर, फ़ाल्स सीलिंग, इलैक्ट्रिकल, कार्य करने हेतु प्रतिष्ठित सेवा प्रदाताओं से निविदा आमंत्रित करता है**

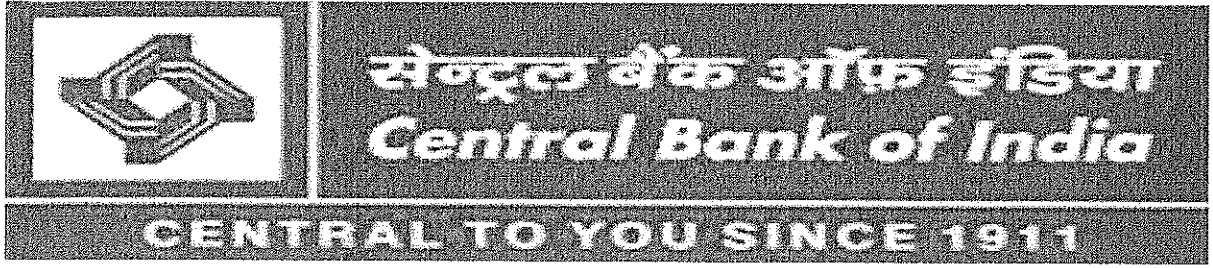
प्रस्तावित कार्यों के लिए आवेदन पत्र बैंक की वेबसाइट पर उपलब्ध है.

[www.centralbankofindia.co.in/tenders](http://www.centralbankofindia.co.in/tenders)

निविदा सादरिकरण की अंतिम दि. 05/11/2024

क्षेत्रीय प्रमुख  
क्षेत्रीय कार्यालय, जलगाँव





निविदा प्रपत्र

सेंट्रल बैंक ऑफ इंडिया अपने  
शाखा:पिंपरी खुर्द, गट क्र.21, प्लॉट क्र.05, कमल नगर, पिंपरी खुर्द, तालुका-धरणगाँव, जिला-जलगाँव-425105

कार्पेटरी, फ़र्निचर, फाल्स सीलिंग, इलैक्ट्रिकल कार्य करने हेतु  
प्रतिष्ठित सेवा प्रदाताओं से निविदा आमंत्रित करता है

निविदाकार का नाम : - \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

निविदा प्रस्तुत करने की अंतिम तिथि: 05-11-2024 -दोपहर 03:00 बजे तक

निविदा खोलने की तिथि : 05-11-2024 दोपहर 03:30 बजे

निविदा शुल्क: डिमांड ड्राफ्ट के रूप में ₹ 2,000.00 ( दो हजार मात्र (अप्रतिदेय )  
बयाना जमा राशि: डिमांड ड्राफ्ट के रूप में ₹ 10,800.00 ( दस हजार आठ सौ रूप मात्र)  
(MSME exemption shall apply)

सेंट्रल बैंक ऑफ इंडिया,  
व्यवसाय सहायता विभाग  
08, पायल स्मृति, आरटीओ कार्यालय मार्ग, आदर्श नगर, जलगाँव-425001, महाराष्ट्र



RO/JALG/JAL/06/2024-25/

Date:14.10.2024

## **NOTICE INVITING TENDER**

To,

1. Sealed tender on item rate basis are invited from reputed turnkey vendors for executing Civil, furnishing, electrical work to be carried out at B/o Pimpri Khurd Branch

### **2. Submission of Tender:**

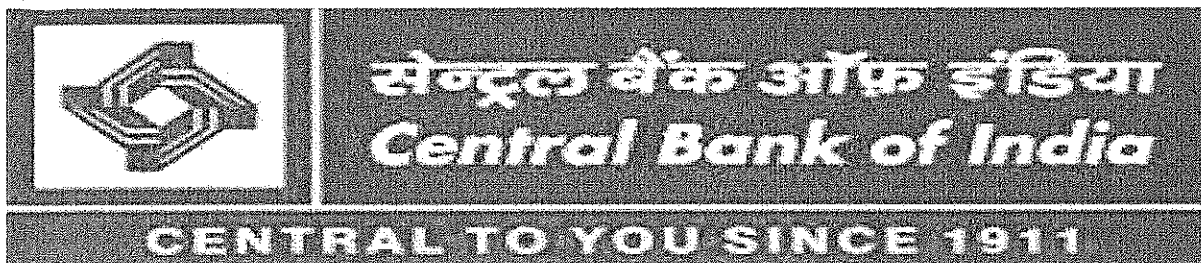
Due date of submission of Tenders is Nov 05, 2024 before 3:00 p.m. The price bid is to be submitted in sealed envelope and clearly super scribed "Tender for Civil, furnishing, electrical, data work to be carried out at B/o Pimpri Khurd, Jalgaon."

- 1.2 Sealed tenders as above will be received by the office of the Central Bank of India, Business Support Department, Regional Office, Jalgaon up to 3:00 p.m. on NOV 05, 2024 and will be opened on same day at 3.30 p.m.
- 1.3 Tenders received late on account of any reason whatsoever and telegraphic tenders will not be entertained.
- 1.4 The rates shall be valid for a period of not less than 30 days after the date of opening of Tender.
- 1.6 For any further information on the tender, Business Support department at Regional Office, Jalgaon (Ph. No.7057738173) may be contacted.
- 1.7 The Bank will not be bound to accept the lowest tender and reserves the right to accept or reject any or all tenders.

Chief Manager

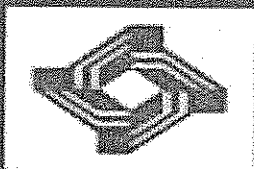
Mr. Pankaj Kumar

Business Support Department



**Eligibility criteria:**

SN	Minimum eligibility criteria	Documents required
	1. The applicant should be a well-established and reputed Civil/ Painting/ furniture contractor firm/ proprietorship firm having minimum experience of 5 years in the same field.	Firm registration certificate/ Firm/ partnership deed/ Contractor registration certificate with concerned govt. agency
	2. The applicant should have executed renovation work of Bank's Branches	at least 5 previous works
	3. The applicant should have satisfactorily completed 'similar' works of magnitude as specified below during the last 5 years ending 31/03/2024 (i) One similar completed work, costing not less than 4.40 Lakh (ii) Two similar completed works, each costing not less than 2.75 Lakh (iii) Three similar completed works, each costing not less than 2.20 lakh	Work order and completion certificate from the owner/ authorized person of the organization for whom the works has been done. In case of private project, project architect/ engineer will have to certify the execution of work. Annex the copy of the work order. Additionally, committee may, at its own discretion visit the site/s.
	4. The applicant should have average annual financial turnover of ` 20 Lacs in painting works during the last three FY ending 31/03/2024	Duly audited financial statements (balance sheet, trading, P&L accounts) and certified by a Chartered Accountant



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**GENERAL CONDITIONS**

1. Contractor is requested to inspect the site prior to submission of tender/quotation to acquaint him with the site conditions.
2. Item to be carried out are listed in the attached schedule of quantities. The Bank reserves the right to add/omit any items /partly or fully without giving any reasons. The rate for any new item introduced shall be settled by the Bank after getting necessary rate analysis from the successful bidder.
3. The extra and deviated item rates shall be settled by a rate analysis wherein a gross profit ( inclusive of overheads) of 15% of total cost of material + Labour shall be paid, Cost of material being supported by vouchers and labour estimated as per approved norms or as per actual, if norms are not available.
4. The quantities contained in the scheduled are only approximate/ notional and may vary, for which no extra compensation will be paid to the contractors. They are meant only for tendering purpose, so that a common base is available for comparison. The work actually done will be measured as per IS 1200 and paid for, as mentioned above.
5. The contractor shall at his own expenses rectify the unsatisfactory works within 7 days from the date of intimation. In case of failure to do so, Bank reserves the right to carry out the work through any other agency/agencies and such expenditure will be recovered from the Contractor in due course of time.
6. All soil filth; rubbish and other objectionable materials shall be at once carted away out of the premises as per local authority's rules in force, if any, at his own cost and expenditure. In absence of above, the Bank may do at the Contractor's risk and cost.
7. The Bank does not bind itself to accept the lowest or any tender and reserves itself the right to accept/reject any or all the tenders without assigning any reasons for doing so.
8. The rates quoted in the tender should include all charges for material, labour, transportation and taxes/ GST, if any etc. and bank shall not be responsible for any other expenses in this connection.
9. This is an Item-Rate contract, an acceptance of the contract shall mean essentially acceptance of rates for each individual items of work. The actual payment however shall be made on actual authorized quantities of the work done, based on joint measurements at accepted tender rates, and / or approved extra and deviated item-rates, for extra and deviated items.
10. The tenderers are requested to sign the tender form and the schedule of quantities on all pages otherwise the same shall be rejected.
11. No extra shall be paid for any minor alterations modification/addition made in design/specification while work is in progress and as per site requirements.

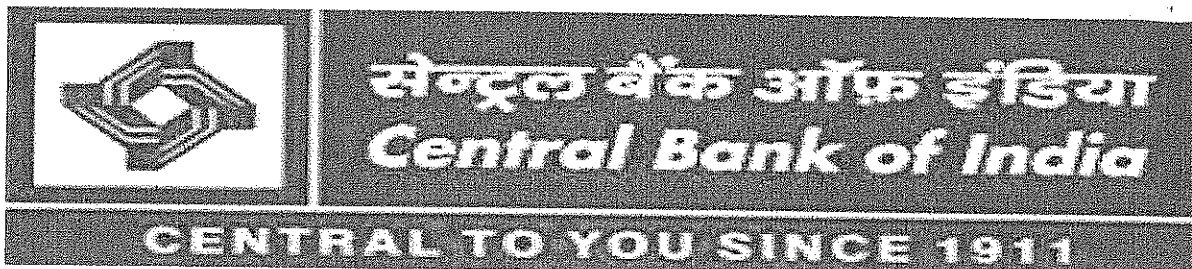




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12. Rates quoted in the tender/quotation should be valid for at least 30 days from the date of receipt of the order.
13. Contractor shall have to complete the work within 30 days from the date of receipt of the order.
14. In case, contractor fail to complete the work in the said period, liquidated damages @ 1.0% per week maximum up to 5% will be levied till the work is completed in all respects, as per bank's specifications.
15. 5% of the total billed amount shall be retained with the bank till the completion of the defects liability period of 12 month is over.
16. The successful tenderer shall extend full cooperation and coordination with other agencies that are executing other related jobs at site and ensure to complete the overall work expeditiously.
17. Best specified materials are used by the firm and to complete the job with utmost workmanship and as per bank's requirements.
18. No compromise on material and workmanship shall be allowed at any stage.
19. No Compromise about the quality of the goods and execution of the work shall be permitted.
20. Time bound program to be fixed and adhered to.
21. In case of any delay in completion of the work penalty should be levied as per tender conditions.
22. Certificate to be kept on record about the specification/material used from the contractors and the copy of the same to be forwarded to us for our records.
23. All care to be taken for satisfactory completion of the work in neat and tidy conditions.
24. It shall be responsibility to the Contractor to liaison with concerned/competent authorities i.e. Police, Local Development authority or other directly/indirectly involved in the work and ensure to obtain necessary permission / approval for smooth completion of the overall job in neat and tidy conditions and without any hindrances.
25. **TERMS OF PAYMENTS:-**
  - a) 10% Mobilization advance of work order value shall be paid to contractor against material purchased for the said work, against provision by the Contractor of an Unconditional Bank Guarantee in a form acceptable to us in amounts and currencies equal to the advance payment.
  - b) One Interim bill shall be paid during the work period subject to minimum value for interim bill as stated in APPENDIX –I, for interim certificates. The bills in proper forms must be duly accompanied by detailed measurements recorded in the approved measurement books and should be submitted. Adhoc payment for work actually executed together with other accepted claims will be made for the interest of Bank's work at absolute discretion of the Employer on specific request of the Contractor. However adhoc payment will be made, shall



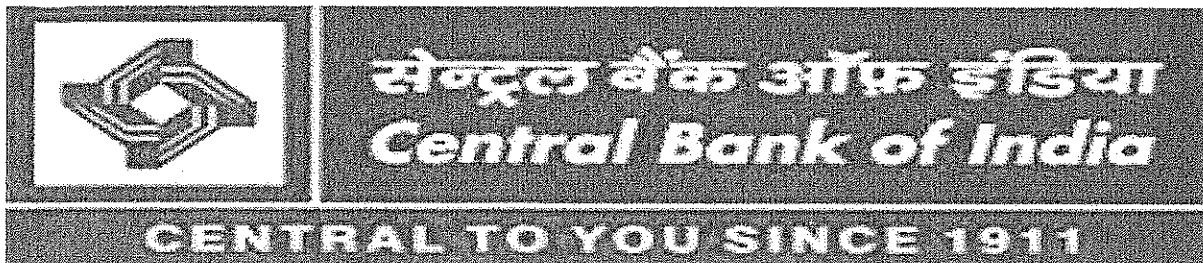
not exceed more than 75% of billed value. The Contractor will be required to submit the bill along with the records of joint measurement for claiming adhoc payment together with vouchers / bills etc.

- c) **Final bill Payment:** - The final bill shall be accompanied by a certificate of completion from the Bank Official. Payments of final bill shall be made after deduction of Retention Money as specified in APPENDIX -I (Sr.no8) of these conditions, which sum shall be refunded in the manner stated in APPENDIX -I (Sr.no9). The acceptance of payment of the final bill by the Contractor would indicate that he will have no further claim in respect of the work executed.
- d) 5% retention amount after one year on completion of Defect liability period.

I/ We hereby declare that, I/ We have read and understood the above condition and I/We agree to comply with the same.

We accept the above conditions in Toto.

SIGNATURE OF CONTRACTOR  
WITH DATE & SEAL



## APPENDIX -I

1. Name of Work Civil, furnishing, false ceiling, electrical and data work to be Carried out at B/o Pimpri Khurd Jalgaon.
2. Defect liability period 12 (Twelve) months
3. Date of commencement 7<sup>th</sup> day from issue of order or handing over site, Whichever is earlier?
4. Date / Time of completion 30 Days
5. Liquidated damages 1% of the accepted contract sum per week subject to maximum of 5% of the accepted contract value.
6. Initial security deposit 2% of the accepted contract sum to be deposited Within 7 days of Date of acceptance of tender.
8. Retention Percentage 10% of the value of work done (including 2 % ISD +8% of every bill provided)
9. Installment after completion 50% of the total retention amount (Initial SD + Retention). 50% shall be retained till completion of defect liability period  
Certificate by Bank Officer
10. Minimum value of work for Interim Certificate 250000/- (Two Lakh Fifty Thousand Rupees Only)
11. Period of Honoring Interim Certificate 3 weeks from date of receipt of Certificate
12. Period of Honoring Final Certificate 1 Months on the receipt of bill from the Contractor.

Note: - Product with ISI stamp shall have to be provided where available in case non availability of such stamping for a particular product. Architects / Employer's decision as per list of material or otherwise shall be final & binding

#### 01.00 WOOD WORK

##### 01.01 Teak Wood: -

Teak wood shall be of the best quality available in India. It should be well seasoned and free from sap, knots, warps, cracks and other defects. All woodwork shall be planed neatly and truly finished to the exact dimension. All joints shall be neat and strong, truly and accurately and glued before being fitted together.

##### 01.02 Veneers and Plywood: -

The veneers and the ply wood shall conform to the IS:303 respectively. It shall be resin bonded suitable for intended use. The Contractor shall submit approved samples at the Architect / Owner site office.

##### 01.03 Phenol Bonded Ply Wood: -

Commercial ply wood, decorative ply wood conforming to IS:303/1975 bonded with phenol formaldehyde synthetic resin of B.W.P. type as specified in IS:848/1974 of approved make should be used.

##### 01.04. Phenol Bonded Block Board: -

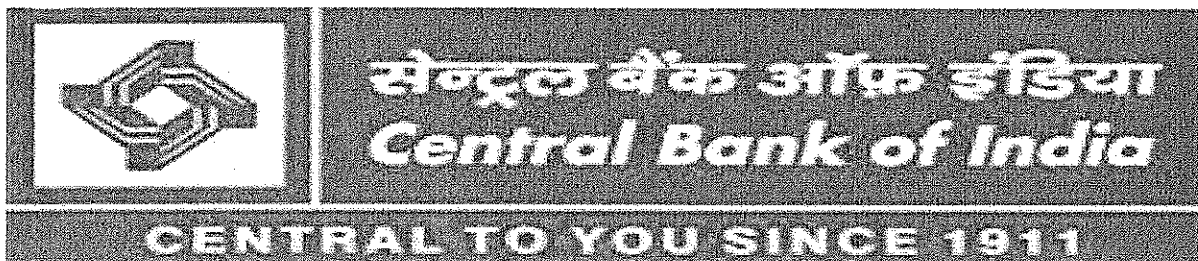
Commercial block board conforming of IS:1659/1979 bonded with phenol formaldehyde synthetic resin of IS:840/1974 of approved make should be used.

##### 01.05 Phenol Bonded Teak Particle Board: -

Commercial Particle Board conforming to IS:3097-1980 exterior grade bonded with BWP type phenol formaldehyde synthetic resin. All edges of the Particle Board to be painted with one coat of chlorinated paint of approved shade, make and quality. The Particle Board should be of approved make.

##### 01.06 Phenol Bonded Pre-laminated Particle Board: -

Pre-laminated Particle Board should be 3 layered melamine faced conforming to IS:12823 of latest edition. This should also conform to DIN:68765 NEMA LD-3 and BIS License IS-3087 for plain Particle Board. All edges of the board to be painted with one coat of chlorinated paint of approved shade, make and quality. The pre-laminated Particle Board should be approved make with ISI mark.



1.07. Decorative Laminates: -

Laminate sheets shall be 1.00mm thick or 1.5mm thick (as per design requirements) or as specified in the respective items) with  $\pm 0.127$ mm tolerance and obtained from any of the following approved Contractors i.e. Formica, Decolam, Merino and Greenlam & samples should have approval of the Architects / Employer.

01.08 Wooden Flush Shutters: -

(Solid Core Type): - Solid core flush shutters shall be commercial or teak veneered type as specified in the item of approved Contractor registered with ISI and shutter shall bear ISI mark. An approved sample shall be deposited in the office of the Owner / Architects at site for reference. The shutter will be provided with lipping. Finished thickness of the shutter shall be as mentioned in the item. Shutter should be not pressed and phenol formaldehyde should be used as glue.

01.09 Hardware Fittings: -

All hardware fittings for doors shall be oxidized iron, brass, and anodized aluminum as specified in the schedule of quantities. These hardware fittings shall be obtained from approved Contractors and shall bear ISI mark, wherever available. The samples for the fittings shall be submitted to the Owner / Architects for their approval. Hardware fittings for door shutters shall be paid in door shutter item or separately as given in schedule of quantities. No separate payment shall be made for hardware fittings shall include for supplying, fitting and fixing the fittings with necessary cadmium plated screws, washers, bolts, nuts etc. as required. All locks shall be provided with keys in duplicate and rate shall include for the same.

Approved samples of hardware fittings shall be deposited with Owner / Architects for reference.

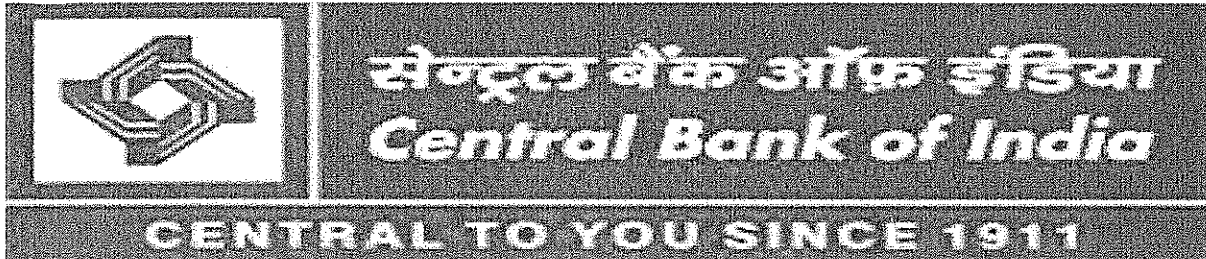
1.10 WORKMANSHIP: -

1.10a The workmanship shall be first class and to the approval of the Owner / Architects. Scantlings and board shall be accurately sawn and shall be of required width and thickness. All carpenter's work shall be wrought except where otherwise described. The workmanship and joinery shall be accurately set out in strict conformity according to the drawings and shall be framed together and securely fixed in approved manner and with property made joints. All work is to be properly tenoned shouldered, wedged, pinned, braced etc. and property glued with approved quality glue to the satisfaction of the Owner / Architect.

1.10b Screws: - Unless otherwise specified all screws to be used in woodwork and joinery shall be of cadmium plated and of approved quality. The size (diameter and length) should confirm to those specified in hardware schedule.



- 1.10c Tolerance: -15mm (1/16") will be allowed for each wrought face of sizes specified except where described as finished in which case they shall hold to the full dimensions.
- 1.10d Protection: - All edges of timber frames etc. shall be protected from being damaged during construction by providing rough timber casing securely fixed and other adequate protective measures.
- 1.10e If it is decided by the Owner to provide anti-termite treatment, the building Contractor shall co-ordinate his work suitably as directed by the Owner / Architects.
- 1.10f Door / Window frames shall have cut rebate. Planted rebates shall not be permitted.
- 1.10g Where door frames are fixed flush with plaster to wall, teak wood cover mould 40 X 12mm as per drawings shall be provided all round and shall be painted or polish finished to match with finished shutters. This will be paid as a separate item as described in Schedule Of Quantities.
- 1.11 Rates to Include: -  
Apart from other factors mentioned elsewhere in this contract the rate for item of wood work and joinery shall include for the following: -
- 1.11A Items Of Scantling: -
- a. All labour, materials and equipments for fixing framework as per drawing excluding the cost of holdfasts. Rawl plugs or other fasteners etc.
- 1.11B Items Of Shutters: -
- a. All labour, materials, hardware fittings and equipments for carrying out the work as per drawing.
- b. Labour for fixing the shutters in position (excluding cost of fittings) as per drawing.
- 1.12. Mode Of Measurement: -  
All measurements shall be as per relevant section of I.S. 1200 of latest edition.
- a. Scantling shall be measured in cum. The sectional area shall be the area of the least square, or rectangles from which the scantling may be cut. The length shall be actual length of timber required for the purpose including the extra portion required for jointing.



- b. Shuttering shall be measured in square meter for closed door shutters area i.e. rebate to rebate without extra measurement for rebates and/or splayed meeting styles of door.

02.00 Acrylic emulsion Paint: -

02.01 Material: -

The emulsion paint and primers in general shall be of approved quality color and shade of approved Contractors.

02.02 Scaffolding: -

This shall be double or single as required and directed. If ladders are used, places of gunny bags or cloth bags shall be tied on their tops to avoid damage or scratches to the plastered surfaces etc. proper stage scaffolding shall be erected when painting the ceiling.

02.03 Preparation Of The Surface: -

The surface to be painted shall be cleaned and all cracks, holes and surface defects shall be repaired with plaster of paris for spot filling and with filler prepared with whiting, water and a little quantity paint for filling and leveling the wider areas.

02.04 Priming Coat: -

The priming coat of the cement primer of approved quality; make shall be applied over the completely dry surface in the manner as recommended by the paint Contractors.

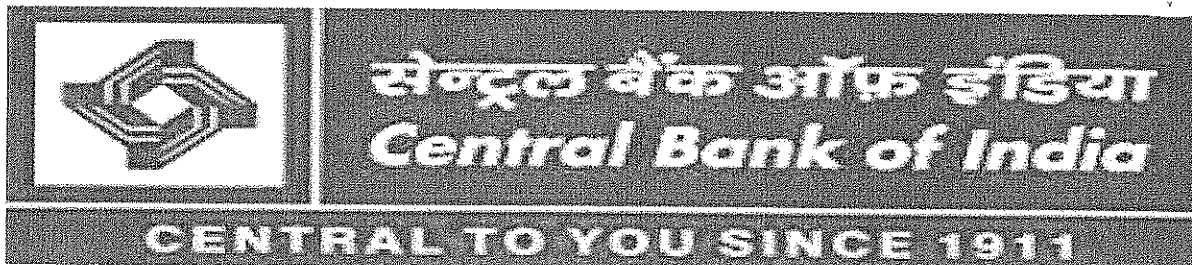
02.05 Application Of Emulsion Paint: -

The recommendation of approved paint Contractor, whose products used, shall be followed regarding the preparation of the surface and the application of the priming and finishing coats.

The Contractor shall arrange for technical assistance and supervision from the paint Contractor, during the execution of the painting work. After the priming coat has been applied and perfectly dried, all holes, scratches, if any, shall be repaired as mentioned in 'Preparation Of Surface' and then the second coat of approved shade and Contractor shall be evenly applied and allowed to dry.

The third coat shall be carefully applied to achieve smooth and even surface after the previous coat has dried up. Minimum 3 coats of paint shall be applied inclusive of primer coat. If a proper and even surface is not obtained to the satisfaction of the Owner / Architects in 3 coats, Contractor shall carry out additional coats of painting





to approval at Contractor's expenses. Care shall be taken that dust or other foreign materials do not settle or disfigure the various coats.

**02.06 Rates To Include: -**

Apart from other factors mentioned elsewhere in this contract, the rates for the item of plastic emulsion paint shall include for the following: -

- 02.06a All labour, materials & equipment necessary to carry out the work.
- 02.06b Supplying the approved emulsion paint for priming & finishing coats.
- 02.06c Preparing the surface for receiving the primer & finishing coats.
- 02.06d Scaffolding including its erections & dismantling.
- 02.06e Application of the primer coat and minimum two coats of finishing. If a proper and even surface is not obtained to the satisfaction of Owner / Architects in 3 coats mentioned above, the Contractor shall carry out additional coats of painting to approval at Contractor's expense.
- 02.06f Protection to painted surface till dried and handed over.
- 02.06g Expense, if any, for supervision and technical assistance supplied by the approved paint Contractors.

**02.07 Mode Of Measurement: -**

The measurement shall be in square meter. The mode of measurement shall be as per relevant section of I.S.:1200 of latest edition.

**03.00 Painting & French Polishing: -**

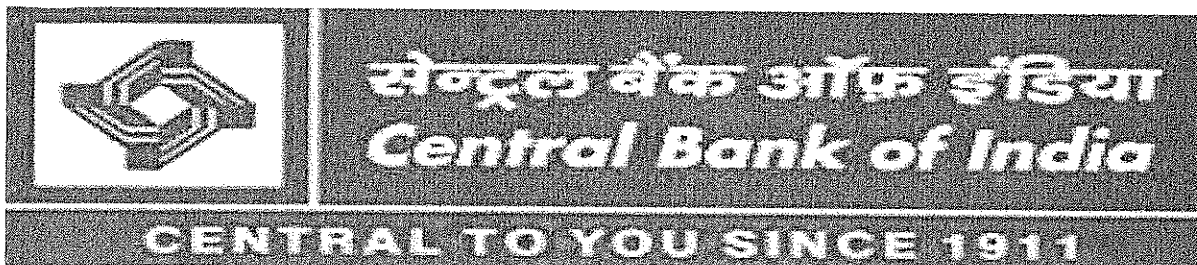
**03.01 Painting: -**

03.01a Material: - Ready mixed oil paints and primer, in general, shall be of approved quality, color and of approved Contractor. These materials shall be in sealed tin and shall be opened in the presence of the Owner / Architects.

**03.01b Preparation Of Surface: -**

- a. Iron & Steel Works: - Surface to be painted shall be thoroughly cleaned; sand papered and/or rubbed with emery cloth, if necessary to remove grease, mortar or





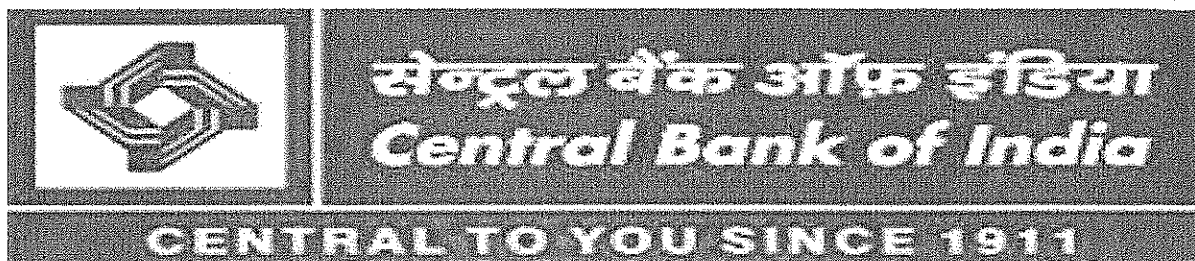
any other foreign materials. In case of rusted surface, it shall be first cleaned with wire brushes till the corroded rust is removed. The prepared surface shall be shiny and free from brush marks, patches, blisters and other irregularities. The surface thus finished shall be got approved for painting.

- b. Wood Work: - All surface to be painted shall be thoroughly cleaned, sand papered & removed of all foreign materials. In case of surfaces having knot and nail holes, this shall be filled with knotting and stopping materials. The knotting materials shall consist of pure shellac dissolved in mentholated spirit. Stopping materials shall consist of putty. The surface thus treated shall be allowed to dry and then sand papered smooth.
- c. Application: - After preparing the surface, a primer coat shall be applied. The primer coat shall be ready mix of approved make and Contractor. After the primer coat is applied and perfectly dried, all holes, cracks etc., which shall remain, shall be filled in with putty and the surface sand papered smooth. Then a second coat of paint of approved shade and Contractors shall be evenly applied & allowed to dry.

The third coat shall be carefully applied to achieve smooth and even surface after the previous coat has dried up. Minimum 3 coats of paint shall be applied inclusive of a primer coat. If a proper and even surface is not obtained to the satisfaction of the Owner / Architects in 3 coats, Contractor shall carry out additional coats of painting to approval, at Contractor's expenses. Care shall be taken that dust or other foreign materials do not settle or otherwise disfigure the various coats.

- d. Rates To Include: - Apart from other factors mentioned elsewhere in this contract, the rate for the item of painting shall include for the following: -
- d-1 All labour, materials equipment necessary to carry out the work.
  - d-2 Supplying the approved paint for priming & finishing coats.
  - d-3 Preparing the surface including knotting & stopping for receiving the priming and finishing coats.
  - d-4 Scaffolding including its erection and dismantling.
  - d-5 Application of atleast one primer coat and two coats of finishing for wood work and at least two finishing coats for steel work unless otherwise specified. If a proper and even surface is not obtained to the satisfaction of Owner / Architects, Contractor shall carry out additional coat of painting to approval at Contractor's expense.
  - d-6 Protection to painted surface till dried and handed over.

Mode Of Measurement: - Painting to woodwork and steel shall be measured separately as per I.S. 1200 (Part XV) of latest edition.



03.02 French Polishing: -

French polish to be used shall comply with I.S. 348 of latest edition in the requirements of quality.

Before French polish is applied, the surface of woodwork shall be prepared in the same manner as for painting. The wood to be polished should be first painted with a filler composed of 1 part of whiting mixed with 0.53 part of mentholated spirit. After drying, it should be finely sand papered.

On the woodwork thus treated, a thin coat of French polish shall be applied and allowed to dry. After drying, the surface shall be lightly rubbed with a fine sand paper prior to the second and third coat. The surface shall show an even polished surface and be approved by the Owner / Architects.

- i. Rates to include: - Similar to that of painting.
- ii. Mode of measurement: - Similar to that of painting

04.00 Melamine Coating: -

The materials shall be of approved brand for wood finish. The application has to be made using sprayer and as per Contractor's specification.

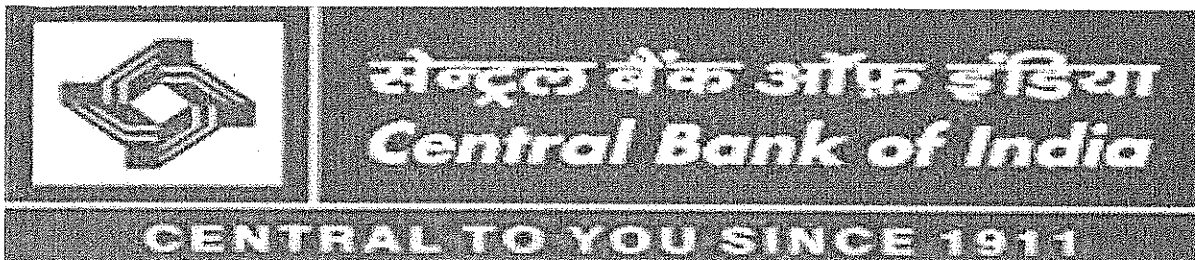
The surface to be used shall be sand papered using Emery Paper No. 180 or any suitable grade along the grains. After brushing the surface free of loose dust, wood filler shall be applied. Excess filler shall be removed immediately. Allow a gap of 1 hour, if second coat is required. On drying of the filler, after 3 hours, the surface is to be sand papered again with Emery Paper No. 180/220 and the surface is brushed free of loose dust sealer coat as per Contractors specification is then applied in two coats & then sand papered with Emery Paper No. 240 & finally with Emery Paper No. 400 & clean thoroughly. Final finish coat is then applied on the finished surface after mixing the base and hardener in a container and allowing the mix to stand for 30 minutes flittered and then applied.

Rates To Include

- i. Similar to that of painting including cost of applying by spray machine.

05.00 N.C. Lacquer: -

N.C. lacquer should be of approved brand & quality / approval of Architects is obligatory.



Before application of N.C. lacquer, the surface is to be polished using white lac only. The surface should be highly polished as per desired shade. Fillers used during polish should be N.C. putty only. N.C. lacquer shall be applied under spraying machines using 1:1 (N.C. lacquer to N.C. thinner) on dust free surface and shall be allowed to dry for minimum 12 hours in fair weather condition. The drying time may have to be increased in moist atmospheric condition. After drying, the lacquered surface should be rubbed with muslin cloth. No other treatment on the lacquered surface should be made once it is completed.

- i. Rates to include: - Similar to that of painting.
- ii. Mode of measurement: - Similar to that of painting

06.00 Glass: -

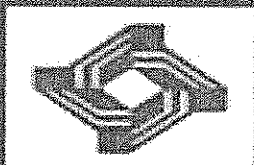
Glass used shall be clean and/or tinted float or toughened as mentioned in the Schedule of Quantities and of the best quality approved by Architect / Employer without any scratches, bubbles specks, waviness, undulations or any other defects, unless otherwise specified, all glass shall be as shown on the drawings. The glass used shall be toughened glass with beveled edges etchings etc. as per requirement and indicated in the drawings and BOQ and is to be got approved by Architect / Employer. Glass shall be well protected from any damage during transportation, storage and progress of work. Any glass which in the opinion of Architect / Employer is not suitable for work shall be rejected and the Contractor shall replace the glass with an approved one.

07.00 Loose Furniture: -

The Contractor shall make one sample of each furniture item as per drawing and specification provided by the Architect for the final approval of the Architects / Employer. The bulk production can be taken in hand as soon as the sample is approved and finalized. No extra charges shall be payable for any alteration / modification done in the sample furniture item and also for rejected samples. All upholstery work is to be done in the best workmanship manner to the entire satisfaction of the Employer / Architects. The decision taken by the Architects for the approval of the sample shall be final and binding on the Contractor.

08.00. Timber: -

- A. Only seasoned and chemically treated BTC/CPTW to be used, if specified.
- B. Use of Rose wood whenever specified only.
- C. All the woods 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



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- D. The moisture content shall not exceed 12%
- E. All internal frame work shall be treated with approved wood preservative.
- F. All wood brought to site should be clean shall not have any preservative or other coating / covering.
- G. All rejected decayed, bad quality wood shall be immediately removed from site.
- H. All wood brought to site must be stacked-stored properly as per instructions.

09.00. Plywood: -

- A. Plywood of IS 303 as specified shall only be used.
- B. Only teak wood particle board shall be used. Particle board shall be phenol formaldehyde bonded and generally conform to I.S.3087-1965
- C. Only 3mm to 4mm thick straight grained group matching approved veneers shall be used. Only veneers laminated from species like teak, rose wood, walnut, laurel, white cedar and mahogany, shall be considered for approval and use.

10.00 False Ceiling: -

10.01 G.R.G. Ceiling: -

10.01.01 Composition: - The GRG ranges of ceiling tiles are manufactured from glass reinforced gypsum and comprise non-combustible gypsum casting plaster reinforced with a glass fiber membranes resulting in a light weight, strong and prestressed panel.

10.01.02 Surface Finish: - The plaster should have silky smooth or textured moulded finish.

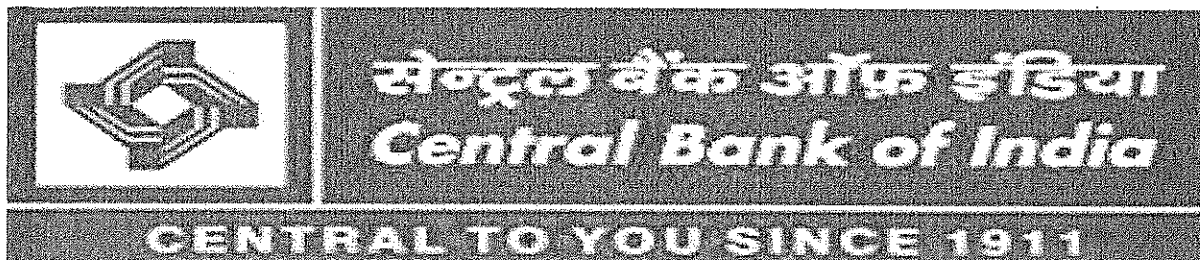
10.01.03 Dimensions: - All designer tiles are to be designed for installation on a standard 600 X 600mm moulded 24mm table exposed metal grid and are precision made to within plus or minus 0.25mm.

10.01.04 Fire Performance: -

Non-Combustibility: - GRG tiles are rated non-combustible as defined in BS 476: Part 4:1970.

Surface Spread Of Flame: - GRG tiles are rated Class / for surface spread of flame to BS 476:Part-7:1987.

Fire Propagation: - Test results to BS 476:part 6:1989 indicate a Class 0 surface.



Smoke & toxic fume emission: - The tiles are zero rated for smoke emission. No toxic fumes are given off.

10.01.05 Humidity Resistance: -

The tiles have excellent moisture resistance and can be used in areas of high humidity including covered external areas, kitchens and bathrooms. Tested in an atmosphere of 95% R.H. at 21 Degree C for 14 days, the tiles did not sag or distort and showed only a minimal increase in weight.

Unlike most other ceiling materials, this important attribute can often be used to speed up the building program by installing the ceiling before the building is fully weather tight.

10.01.06 Biological: -

GRG tiles will not support the growth of bacteria or other micro-organisms.

10.01.07 Lifespan: -

Under normal conditions GRG tiles will not deteriorate and can be expected to last the lifetime of the building.

10.01.08 Suspension system is standard 24mm table exposed metal grid. GRG exposed metal grid systems are designed for maximum strength. The grid features main runners and cross runners performed from galvanized steel to RS 7989 7-18 zinc coating min tensile strength 270 Mpa. Grid systems are designed to satisfy ASTM C635 loading and deflection criteria. The main and cross runners are provided with bayonet couplings top brick runners are provided with bayonet couplings for brick installation. The runners are pre-slotted to variety of layouts. Main and cross runners are provided with a coil coated steel capping on the exposed table in off-white color. Capping in other colors are available on request.

Grid system features main and cross runners 38mm high. The grid is suspended from the roof with GI wire rods of quick adjustment suspension hangers at maximum 1200mm along the main runners.

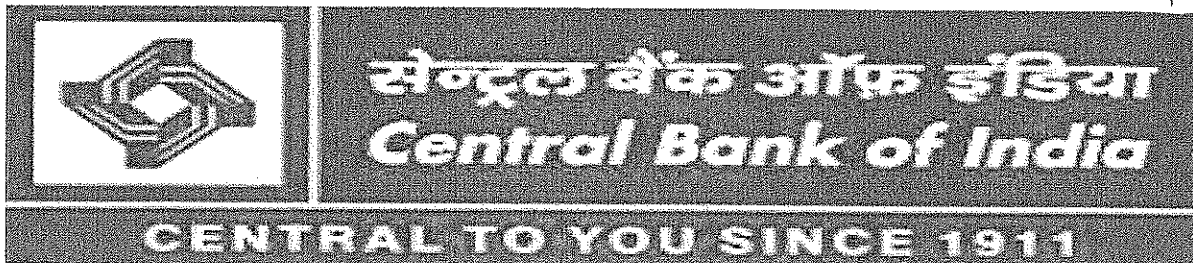
GRG tiles are designed for lay-in mounting from below into standard grid.

Tiles grid suspension systems are made in association with Chicago Metallic, Belgium.

10.01.09 Site Work: -

10.01.09a Transport, Handling & Storage: -

GRG tiles are supplied packed in cardboard carton; cartons should be transported and stacked in the vertical position only, never flat. The stack



should be a maximum of three cartons high. Similarly, tiles should be stacked vertically when awaiting fixing.

10.01.09b Installation: -

Main tees should normally be fixed at 1200mm centers with hangers every 1200mm along the length of the tee. The tees would be in filled with 1200mm and 600mm cross tees. The grid Contractor's recommendations should be followed at all times. Hangers to be fixed to roof by expansion fasteners.

For light fittings, grills diffusers and cutouts etc. have to be provided additional members of frame works as per direction of Architect / Employer.

10.01.10 Mode Of Measurements: -

The measurement shall be square meters for the finished exposed area.

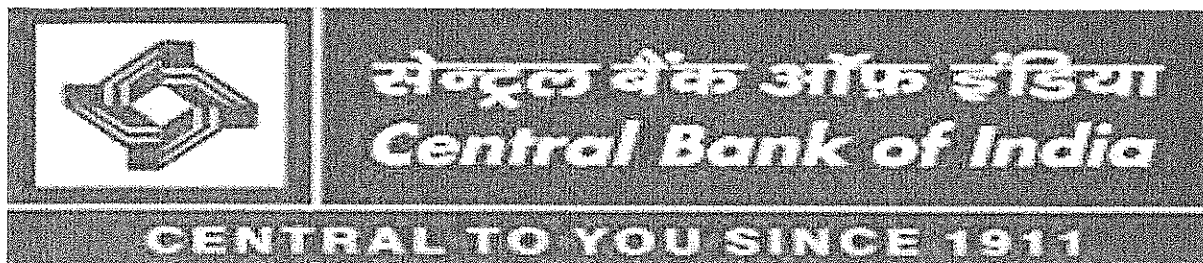
Rate to include: - Apart from other factors mentioned elsewhere in this contract, the rates for items of false ceiling work shall include for the following: -

10.01.10a All labour, materials, equipments, scaffolding, hardware fittings etc. for carrying out the works as per drawing.

11.00 Standard Specifications: -

Unless otherwise specified elsewhere in this contract, all work under this contract shall be carried out in accordance with the technical specification and the latest issue of the Indian Standard Specification applicable to the particular class of work. If Indian Standards are not formulated for any particular material of work, the relevant British Standard Specification shall apply. Relevant issue of I.S. specifications applicable to the particular work have been described along with the specification for the respective works. In case of any confusion or dispute regarding the meaning and interpretation of any specification for the respective works, the decision of the Owner / Architects shall be final and binding on the Contractor.

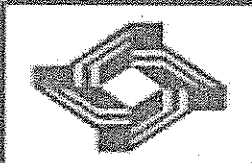
The brand /make mentioned in the following list should be used by the Contractor and rate quoted should be based on the same. In case of the brand / make is not available, materials of equivalent other makes should be used with prior approval of Architect and Bank. The rates will be revised, based on the difference in basic rates of the make brand / name mentioned below: -



### Approved List of Materials (Brands / Make)

Sr. no.	Item	Recommended
1	False Ceiling- Gypsum Board	Gypsum India Ltd ,saint gobain, Laffarge
2	False Ceiling Tiles	Armstrong, AMF, Gypsum India Ltd
3	Aluminum Sections-Partition	Ajit India, Jindal, Indal, Hindalco
4	Aluminum Sections-Door	Ajit India, Jindal, Indal, Hindalco
5	Aluminum Grill	Jindal, Nalco, Hindalco
6	MDF, Particle Board	Greenlam, Archid, Century, Novapan,
7	Plywood, Block Board (BWP,BWR)	Anchor, Archid, Century, Green
8	Block Board	Anchor, Archid, Century, Green
9	Laminates	Formica, Greenlam, Eurolam
10	Wood	Well-seasoned teak-wood / steam beach as per approval
11	Moulding & Lipping	Well-seasoned teak-wood / steam beach as per approval
12	Wood Preservative	Asian, Nerolac, Wood guard, British
13	Adhesive	Fevicol, Araldite, Mowicol, Mahacol
14	Glass	Modi, Saint gobain, Ashai, Hindustan Palington
15	Lock, Night Latches	Godrej, 4-C ACME, Ultra, Dorset
16	Hydraulic Door closer	Yale, Garnish, Everite, Hyper
17	Floor Spring (Double action 100 kg. - 150 kg)	Hemco, Geze, Everite, Ozone
18	Drawer Channel, Slider (Telescopic)	Earl Bihari, Ebco, Hettich, Solo, Godrej
19	Key Board Drawer, Tray	Earl Bihari, Ebco, Hettich, Solo, Godrej
20	Hard ware	All the necessary hardware shall be of ISI marked with best quality/ and as per Bank's approval.
21	Teak wood	Beading and Moulding to be of first quality teak wood.
22	Paint	Asian,Berger,ICI,Nerolac
23	Flooring (Vitrified/Ceramic)	Nitco,Jhonson,Navin,Kajaria
24	Roller ,Venetian Blinds	Vista,MAC,Univesal
25	Cement	ACC,Ambuja,Birla,Binani





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**MODE OF MEASUREMENT FOR PAYMENT**

1.	Partitions	Length X Height up to the soffit of false ceiling including door frames and doors.
2.	Paneling with Laminate	Length X Height up to the soffit of false ceiling.
3.	Paneling with T.W. Moulding	-do- (including cost of T.W. moulding).
4.	Door Main entrance – Glass – Shutter	Length X Height.
5.	Galvanized False Ceiling	Galvanized bottom surface Length X Breadth
6.	Plaster of Paris False Ceiling/ grid false ceiling	Exposed bottom surface – including moulding and vertical drop (No additional payment will be made for molding & vertical drop).
7.	Vertical Blinds	Actual size of vertical blinds
8.	Paintings	a) Wall surface – Actual length X Height. b) M.S. Grill / Mesh / Without frame c) M.S. Collapsible gate of one side. d) Cornice – Plain surface of P.O.P. False Ceiling. e) Fully paneled Door / Windows with frame: - 2.5 times area of one side. f) Partly Paneled / Partly glazed doors, windows, partitions with frame and shutters: - 2 times area of one side. g) Fully glazed Window / Partition with frame and shutters: - 1 time area of one side.
9.	Flooring	Finished Length X Breadth
10.	Working table	Running length





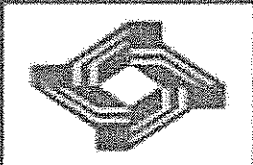
## TECHNICAL SPECIFICATIONS FOR ELECTRICAL WORKS

### CODES AND STANDARD

The following codes and standards shall be applicable for continuous performance of all electrical equipment to be supplied delivered at site, erected, tested and commissioned. The electrical Equipment offered shall comply with the relevant Indian Standard Specifications, Fire Insurance Regulations Tariff Advisory Committee's Regulations and to Indian Electricity Rules in all respects with all its latest amendments up-to-date.

For guidelines to the Bidder few of the Indian Standards are indicated below :-

IS 3043	-	Code of practice for Earthing
IS 10118	-	Code of practice for Installation of Switchgear.
IS 3106	-	Code of practice for selection installation and maintenance of fuse (upto 650 Volts)
IS 3427	-	Metal Enclosed Switchgear and control gear.
IS 4064	-	Switch fuse units for Industries etc.
IS 4237	-	General requirement for Switchgears not exceeding 1000 volts.
IS 4615	-	Switch Socket Outlets.
IS 5133	-	(Part I) Sheet Steel Boxes.
IS 5216	-	Guide for safety procedures and practice in electric work.
IS 5578	-	Guide for making of insulated conductors.
IS 5908	-	Method of measurements of electrical installation in building.
IS 162	-	Electric power switch gear for indoor and outdoor Installations.
IS 374	-	Ceiling Fans
IS 415	-	Tungsten Filament Lamps.
IS 694	-	PVC insulated cable and cords for Power/Lighting.
IS 732	-	Electrical wiring installation (up to 650 V)
IS 1087	-	Single Pole Tumbler Switch 5 Amps.
IS 1293	-	3 Pin Plugs and Socket outlets.
IS 1554	-	PVC insulated Cables - heavy duty.
IS 1567	-	Metal clad switches up to 100 Amps.
IS 1771	-	Industrial Light fittings with accessories.
IS 6381	-	Specification for constructions and testing of Electrical Apparatus.
IS 2268	-	Call Bells / Buzzers.
IS 2274	-	Code of practice for wiring installations (exceeding 650 Volts).
IS 3854	-	Switches for Domestic and similar Purpose.
IS 2312	-	Exhaust Fans.
IS 2509	-	PVC Electrical conduits.



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IS 2675	-	Enclosed Distribution Fuse Boards and cutouts for voltage up to 1000 Volts.
IS 2834	-	L.T. Capacitors.
IS 3043	-	Code of Practice for Earthing.
IS 1646	-	Code of Practice for Fire Safety in Electrical Installation.

The entire electrical installation work shall be strictly complied with the codes and Standards. Rules and Regulations framed under the Indian Electricity Act 1910 and Indian Electricity Rules 1956. Further it shall be carried out as per the Regulations and Rules setout by "Tariff Advisory Committee and or / Fire Insurance Regulations.

**(1) CABLES:**

**1. GENERAL:**

MV Cables shall be supplied, inspected, laid, tested and commissioned in accordance with drawing specification, cable manufacturer instructions & as indicated at site by the Architect.

**2. MATERIAL:**

The MV Cables shall be PVC insulated aluminum / copper conductor armored cable conforming to IS 1554 of 1972 (part -1) laid in trenches, ducts or in cable trays as shown on drawings.

**3. INSPECTION:**

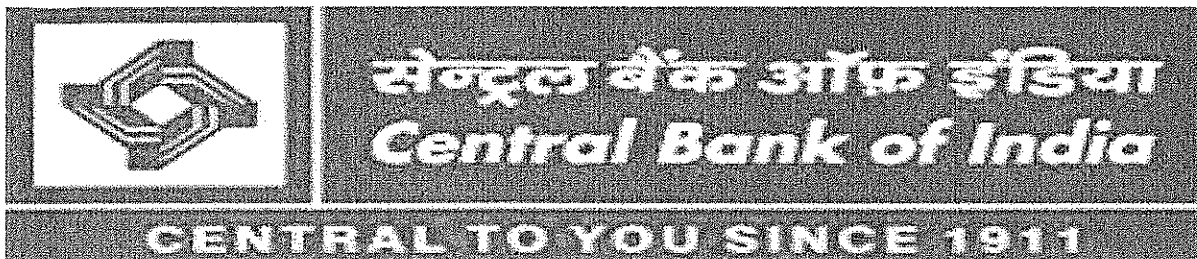
All cable shall be inspected upon receipt at site and checked for any damage during transit.

**4. JOINTS IN CABLES:**

The Contractor shall take care to see that all the cables received at site are apportioned to various locations in such a manner as to ensure maximum utilization and joints in the cable will not be acceptable.

**5. LAYING CABLES:**

Cable should be laid in necessary ladder cable trays provided. While erecting the cables on wall, M.S. spacers are to be erected on wall by means of phil plug / wood screw/cement screw, and then cable is dressed properly and GI saddles to be fixed on spacers by machine screw. GI saddles shall be having minimum 20 G. The fixing of cable shall be minimum 400 apart for horizontal runs and 800 mm apart for vertical



runs. Any civil work like breaking, digging and making good is deemed to be included the rate. Identification tags shall be provided at every 20 m. Cable shall be bent to a radius not less than 12 times the overall diameter of the cable, or in accordance with the manufacturer's recommendations whichever is higher

**6. CABLE TERMINATIONS OF MV CABLES AND JOINTS:**

Cables terminations shall be done with suitable brass cable gland and tinned copper cables lugs only. The cable lugs shall generally fixed to the cable cores by crimping processes. Irrespective of the cable and method of termination the core shall be cleaned and immediately be covered with an oxide inhibiting / corrosion inhibiting compound before terminating. The tail end wires shall be finished in an appropriate color by using PVC insulating tapes.

**(2) LIGHTING FIXTURES:**

**(A) SCOPE:**

Manufacturer test supply and delivery at site the specified light fittings.

**(B) STANDARDS:**

Lighting fittings covered against these specifications shall comply with the relevant latest Indian Standards and Codes.

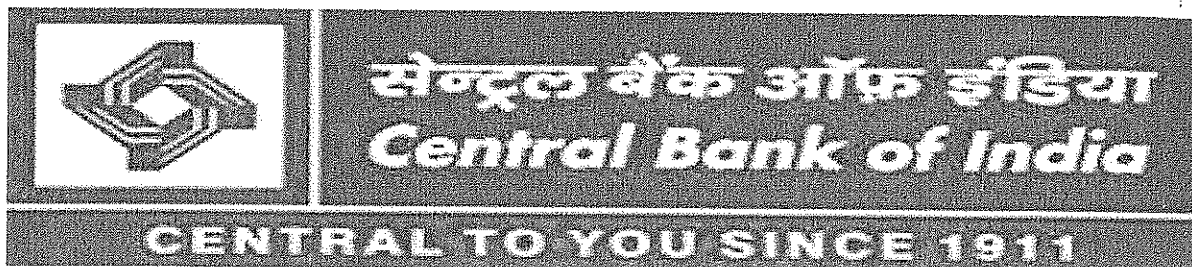
**(C) CONSTRUCTION:**

- (a) The fitting shall be suitable for 240 volts single phase AC supply +/- 5% and frequency 50 Hz. +/- 3%.
- (b) Industrial and decorative fittings shall comprise of mounting rails and other accessories. The decorative fitting shall be provided with louvers as specified. The decorative fittings should be suitable for recessed mounting in the false ceiling fully wired up to terminal block.

**(3) LIGHTING FITTING COMPONENTS / ACCESSORIES:**

**(a) BALLASTS/CHOKES:**

These shall be compact in design, copper wound, low power loss, good heat dissipation with no humming sound and filled with polyester.



(b) **STARTERS:**

The starters shall have hermetically sealed glow switch and radio suppression capacitors suitably designed to withstand striking voltage of tube and to ensure long lamp life. Starter holder shall molded type either made up of phenol-formaldehyde.

(c) **CAPACITORS:**

These shall be low loss types to improve power factor upto 0.91 to 0.95 lag. Capacitor housing made up of corrosion resistant material and shall be hermetically sealed type.

(d) **LAMP HOLDERS:**

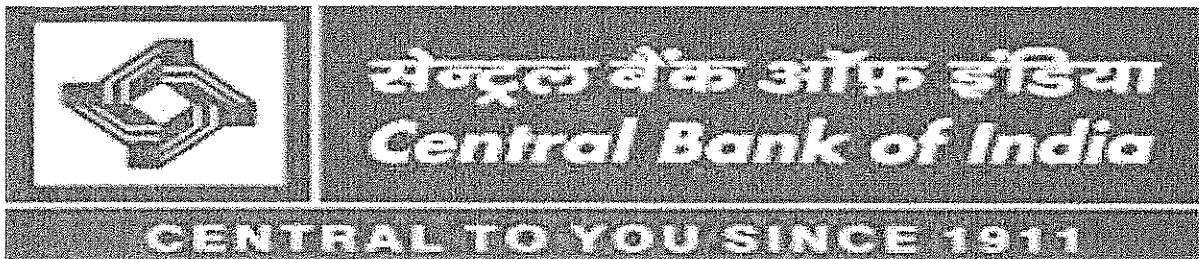
These shall be rotary spring-loaded resilient type.

(e) **LAMP FLUORESCENT:**

These shall be cool day light as per the stated wattage of 36W.

(f) **LIGHTING AND POWER PANEL:**

Power and lighting panel shall be made out of 14-gauge sheet steel, vermin and dust proof, compartmentalized vermin and dust proof construction to provide general-purpose indoor/outdoor type of enclosures as per IP-42/IP52 respectively. These shall be suitable for surface or flush mounting as specified. Outdoor lighting panel shall be weather protected and shall also has necessary canopy. Panels shall be equipped with phase and neutral bus bars of adequate capacity and miniature circuit breakers of 10 kA capacities for the incoming and outgoing circuits as specified in panel schedule. Miniature circuit breakers shall be mounted in such a way that operating levers project outside the top Bakelite cover plates. A hinged lockable door to cover the operating knobs shall be provided. In addition panels shall be provided with grounding studs and an engraved name plates etc as per the panel schedule. An earth bus shall be provided. Each circuit phase neutral shall be given ferrule numbers. Complete wiring inside the panel shall be neatly bunched with PVC tape and button. For the outgoing circuits of these panels cable glands, plates, knock outs or conduit entry shall be provided as specified on panel schedule. All metal surfaces shall be cleaned free of rust and given two coats of approved paints by powder coat. Panels shall be walls mounting type having arrangement of mounting frame.



(g) **SWITCHES:**

Switches, manufactured in accordance with IS; 3854 shall be used. Switches in are as where concealed wiring has been adopted shall be flush mounting piano plate type unless otherwise specified.

(h) **CEILING ROSE & LAMP HOLDERS:**

All ceiling Rose and holders shall be ISI marked. Ceiling Rose shall be plate type and lamp holders shall be suitable for BC

(i) **RECEPTACLES:**

Only three-pin type receptacles manufactured in accordance with IS : 1293 shall be used with the third terminal connected to the earth. All receptacles shall be provided with a switch mounted on the same enclosure but shall be a separate unit to facilitate replacement by part. Flush mounting type receptacles adopted and surface type shall be used in other areas.

(j) **OUTLET BOXES:**

Outlet boxes for sockets, switches, fixtures and fan regulators etc. shall be for minimum 16 gauges. M.S. sheet 3" deep with necessary modular plate for mounting switch, sockets etc.

(k) **WIRES:**

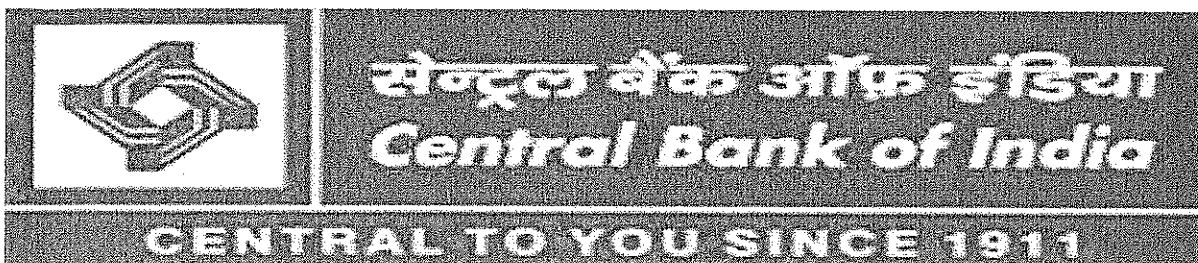
Wires shall be PVC insulated 660/1100 Volts grade as per IS : 1554 Conductor shall be of stranded copper and size shall be (min. 1.5 mm<sup>2</sup>) for lighting and (min 2.5 mm<sup>2</sup>) for power socket circuits. Red/Yellow/Blue wires for Phases, Black wire for Neutral and Green wire for Earth shall be used. Wiring in conduits without color coding is not acceptable. The lighting layouts furnished by Architect shall indicate approx. locations of lighting fixtures. The Electrical Contractor shall determine, with approval of the Architect or his authorized representative, the exact locations of each fixture in order to avoid interference with mechanical equipment & also with a view to obtain as uniform illumination as practicable and to avoid objectionable shadows. Conduit run shown on drawing is only indicative. These shall be laid out by the Contractor to suit field conditions. The cost for cable clamps, metal spacers, anchor bolts etc. shall be deemed to have been included in the installation.

**(I) SURFACE CONDUIT SYSTEM:**

Surface conduit 25mm 16SWG ms conduit / 25mm medium thickness PVC conduit system of wiring shall be adopted, wherever specified in the drawings, Suitable pull boxes or inspection type fittings will be used to facilitate drawing wires.

**(4) CONCEALED CONDUITING & WIRING:**

- a) Concealed conduiting shall be carried out by medium thick min 25 mm diameter rigid PVC conduit embedded in RCC/brick work with normal accessories like junction boxes, shall also be of same material that of conduit. Only deep junction boxes shall be used for concealed conduit installation. All junction boxes shall be of ample size to permit the wires to be drawn in and out.
- b) Concealed conduits shall be securely fixed to prevent movement during building operation viz. casting of concrete fixing shall be by means of clips or other approved manner so as to ensure that there will no damage or deformation to conduits.
- c) Conduits installed in chases of wall shall be firmly secured by 'U' nails and such fixing shall be adequate to hold the pipes by themselves with chicken mesh covering.
- d) Recessed conduits buried in plaster shall permit a full 6 mm depth of cover over its entire length.
- e) To prevent water dirt or rubbish entering the conduit system during erection plugs shall be utilized.
- f) All bends shall be made utilizing bending spring with the help of heater. The bends shall be long bends to avoid deformation of conduits with necessary couplers where conduits cross expansion joints of the building structure special expansion couplings shall be used or other approved methods adopted.
- g) Wiring shall be carried out with stranded copper conductor PVC insulated color coded wires conforming to IS: 694.
- h) No joints shall be permitted and wires shall be looped from point to point. Wiring shall maintain color code for phases neutral (R, Y, B and black) and green for earthing. The earth wire also shall be drawn inside the conduit and shall be continuous.



- i) At all terminations of wires, the insulation shall be neatly stripped without damaging the conductor. In no case shall bare conductors are allowed to project beyond any insulated shrouding or molding of live terminals.
- j) Installation of terminal blocks will be permitted only where wires can't be terminated directly on terminals in appliances. Connectors should be properly fixed inside box. Unfixed connectors will not be permitted.

The preferred conduit size and capacity of wires shall be as detailed below:

Size of Conduit	SIZE OF WIRE		
	1.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>	4 mm <sup>2</sup>
25 mm	10	7	6
32 mm	15	12	8
38 mm	17	15	10

- k) The size of wires for different circuits will be as per BOQ, but generally as follows:

Lighting points and 5A sockets - 1.5 mm<sup>2</sup>  
 Circuit wiring/primary point/two or three 5A sockets - 2.5 mm<sup>2</sup>  
 AC / Geyser - 4 mm<sup>2</sup>  
 Earthing wire shall be min 1.5 mm<sup>2</sup> or half of the size of phase wire.

#### (5) **SWITCH SOCKET BOXES:**

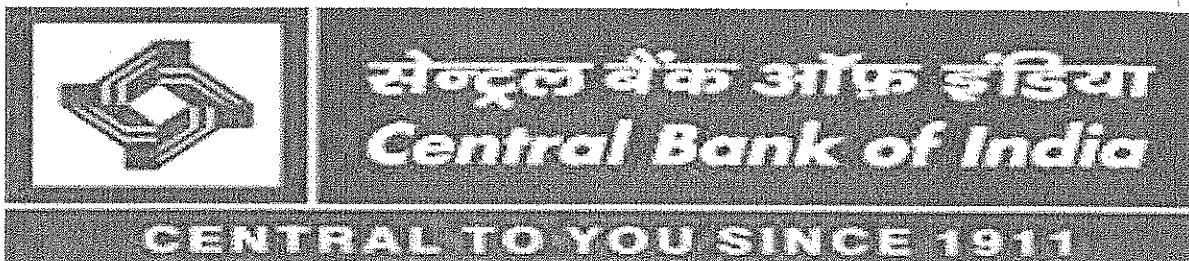
The switch socket boxes shall be of sheet steel. The min thickness of the sheet shall be 2 mm. The box shall be thoroughly cleaned of grease and rust. The paintings shall be two coats of primer followed by two coats of enamel paint. All boxes shall be provided with earthing terminal. The boxes shall be provided adequate knock out for connection conduits. Proper grouting in the wall / partition will be carried out as directed by Architect. All boxes shall be provided with accessories like plates, mounting arrangements.

#### (6) **SWITCHES AND SOCKETS:**

Local switches shall be provided for controlling lighting equipment connected to sockets. All sockets shall be 2-pin and earth type unless otherwise stated. Sockets for AC unit geysers shall be metal clad types unless other wise stated.

In case of false ceiling employing minimum tee grid system, fixtures shall be supported from true ceiling. Exact locations of fixtures shall be finalized in consultation with Air-conditioning Contractors and as indicated on architectural





drawings. Wiring above false ceilings shall be left loose in flexible pipe and shall be supported along structures/ceiling. Wiring above false ceiling shall be on surface and below false ceiling it shall be concealed. To facilitate easy maintenance looping back system of wiring shall be followed throughout. Accordingly supply tapings and other interconnections are made only at fixture connector blocks or at switchboards. Intermediate junction boxes shall be used for wire pulling as inspection boxes. All wires in conduit shall be color as specified. Each circuit shall have independent phase neutral and earth wire. Unless otherwise specified, insulated conductors of A.C. supply and D.C. supply shall be bunched in separate conduits.

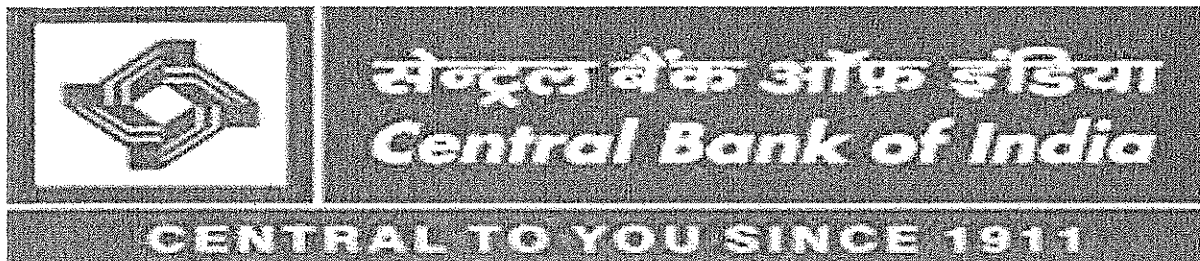
**(7) TELEPHONE SYSTEM:**

EPABX for the entire area is located in the Central Wing. Main Junction Box with Krone type Tag-block shall be installed as specified and as shown in the drawing. From EPABX system, Multi pair telephone wire PVC insulated and overall PVC sheathed unarmored cable having tinned copper conductor of 0.51 mm dia. shall be laid through PVC conduit, clamped on the wall or through raceway or through compartments. Due care will be taken while providing the cable through conduit. Suitable Junction Box having no. of tag-blocks shall be provided as indicated. From these tag-blocks 3 pair telephone cable shall be laid. Necessary pool boxes shall be provided at suitable location for pooling the telephone cable. Termination of telephone cable shall be done by trained telephone technicians only. Number ferrules / tags shall be provided for each cable.

**(8) EARTHING:**

- a) The earthing installation shall be done in accordance with the earthing drawings, Specifications and the standard drawings of reference attached with this document. The entire earthing system shall fully comply with the Indian Electricity Act and Rules framed thereunder. The Contractor shall carryout any changes desired by the electrical Inspector or the owner, in order to make the installation conform to the Indian Electricity Rules at no extra cost. The exact location of earth conductors, earth electrodes and earthing points on the equipment shall be determined at site in consultation with the Architect or his authorized representative. Any changes in the methods, routing, size of conductor etc shall be subject to approval of the Architects.
- b) The earth loop impedance to any point in the electrical system shall have a value, which will ensure satisfactory operation of protective devices.





**(9) CONNECTION:**

All electrical equipment is to be doubly earthen by connecting two points on equipment to earthing several earth electrodes. The earth grid formed shall be a closed loop as shown in the drawing with earth electrodes connected to the grid with double strip connection. Panels, D.B.s, Conduit trays/steel structured, in which cable has been installed, shall be effectively bonded and earthen. Cable armors shall be earthen at both ends.

**(10) TESTING:**

- a) Measure the insulation resistance of each circuit without the lamps (load) being in place and it should be more than one M-ohms to earth. The insulation resistance measured as above shall not be less than 50 divided by the number of points on the circuit provided that the whole installation shall not be required to have insulation greater than one mega ohms.
- b) Check the earth continuity for all socket outlets. A fixed relative position of the phase and neutral connections inside the socket shall be established for all sockets.
- c) The insulation resistance between the case of framework of housing and power appliances and all live parts of each appliance shall not be less than that specified in the relevant Indian Standard Specifications.
- d) On completion of cable laying work the Insulation Resistance (Sectional and overall), Continuity Resistance test, Sheathing continuity test, Earth Test., shall be conducted.

**(11) COMMISSIONING:**

- a) The Contractor shall obtain the written permission and sanction of commissioning the equipment from Electrical Inspector of I. E. & L. Department of State Government and Supply authority. If required under the specific rules of the Government.
- b) Current and voltage of all the phases shall be measured at the lighting panel busbars with all the circuits switched on with lamps, if required load shall be balance on the three phases.

