



**SBI INFRA MANAGEMENT SOLUTIONS PVT. LTD.(SBIIMS),  
(WHOLLY OWNED SUBSIDIARY OF SBI)  
BHOPAL CIRCLE OFFICE**

Sl. No.	Description	
(a)	Tender ID	
(b)	Tender Name	PROPOSED ELECTRICAL WORK FOR RENOVATION & MAINTENANCE OF STAFF/OFFICER'S QUARTERS 'D' TYPE AT STATE BANK OF INDIA VIJAY NAGAR-JABALPUR (M.P.)
(c)	Opening Date of Tender	26.09.2019
	Ending Date of Tender	09.10.2019 Till 03:00PM
(d)	Tender Fee Amount	Rs.1000 (Rupees one Thousand only) to be paid only through State Bank Collect(SB Collect an efficient MIS report generating tool). The steps involved in making the payment is provided at Annexure-A.



**SBI INFRA MANAGEMENT SOLUTIONS PVT. LTD., (SBIIMS), (WHOLLY OWNED  
SUBSIDIARY OF SBI)**

**BHOPAL CIRCLE OFFICE**

INVITES ON-LINE E-TENDERS ON BEHALF OF SBI

THROUGH SBI SERVICE PROVIDER

M/S e-PROCUREMENT TECHNOLOGIES PVT. LTD., AHMEDABAD

**NAME OF THE WORK :- PROPOSED ELECTRICAL WORKS FOR RENOVATION & MAINTENANCE OF  
STAFF/OFFICER'S QUARTERS 'D'-TYPE AT STATE BANK OF INDIA, VIJAY NAGAR-JABALPUR (M.P.)  
(TIME IS ESCENCE FOR THIS PROJECT AND THE WORK SHALL BE COMPLETED WITHIN THE  
STIPULATED TIME PERIOD AS STATED IN THE TENDER DOCUMENT)**

SBIIMS on behalf of SBI through its Architect **M/s.Studio Plus, Bhopal** invites "online item rate E-tender" from the SBIIMS Empanelled contractors under appropriate category for the captioned work.

**The SBIIMS Empanelled contractors who receive NIT from Architect are only entitled to quote for this tender.**

Note: **The Contractors/Vendors** should possess **valid digital signature** for participating in this E-Tendering Process.

**The Vice President & Circle Head SBI Infra Management  
Solutions Pvt. Ltd.  
Bhopal Circle Office  
Mezzanine Floor SBI, LHO Building,  
Hoshangabad Road, Bhopal-  
462011**

Tender ID: BHO201909025



Dated: 26.09.2019

**NOTICE INVITING TENDERS (NIT)**

Tender ID: BHO201909025

Dated: 26.09.2019

On behalf of State Bank Of India (hereinafter referred to as **SBI**), **SBI Infra Management Solution Pvt. Ltd.** (hereinafter referred to as **SBIIMS**) (a wholly owned subsidiary of State Bank of India), Circle Office, Bhopal invites **e-Tender** through SBI Service provider M/s e-Procurement Technologies Pvt. Ltd. Ahmedabad from the empanelled **ELECTRICAL Contractors/vendors** finalized in September, 2018 by SBI, LHO, Bhopal **enlisted in all the eligible categories of work i.e. The SBIIMS Empanelled contractors who receive NIT from Architect are only entitled to quote for this tender.**

1.	Name & location of Work	:	<b>PROPOSED ELECTRICAL WORK FOR RENOVATION &amp; MAINTENANCE OF STAFF/OFFICER'S QUARTERS 'D'-TYPE AT STATE BANK OF INDIA, VIJAY NAGAR-JABALPUR (M.P.)</b>
2.	Eligibility criteria	:	<b><u>The SBIIMS Empanelled contractors who receive NIT from Architect are only entitled to quote for this tender.</u></b>
3.	Estimated Cost	:	NA
4.	Availability of tender documents	:	Tender documents will be issued to the eligible contractors by the service provider <b>M/S e-PROCUREMENT TECHNOLOGIES PVT. LTD., AHMEDABAD</b> and also can be downloaded from the Bank's website
5.	Tender document Cost	:	<b><u>Tender Processing Fee</u></b> amounting to <b>Rs 1000.00 (Rupees one Thousand only)</b> (Non-Refundable) to be credited <b>only through State Bank Collect(SB Collect an efficient MIS report generating tool).</b> The steps involved in making the payment is provided at <b>Annexure-A</b> .The receipt generated with the Reference No. will be submitted along with the



6.	Earnest Money Deposit (Approx. 1% of the Estimated Cost)	:	<b>Rs. 8000.00(Rupees eight Thousand only) by means of Demand draft / Pay order (valid for a period of 90 Days from the last date of submission of the tender) from any scheduled nationalized Bank drawn in favour of SBI Infra Management Solution Pvt. Ltd. And payable in Bhopal.</b>
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7.	Technical Bid	<p>: The following Documents should be submitted in the Technical Bid in a sealed envelope addressed to the Circle Head, SBIIMS, Bhopal Circle, SBI Local Head Office Mezzanine Floor SBI Bhopal, LHO Building Hoshangabad Road, Bhopal-4620211 or the scanned copies of the following documents may be e-mailed to <a href="mailto:headbho.sbiims@sbi.co.in">headbho.sbiims@sbi.co.in</a> on or before 09.10.2019 up to 02:00 PM :-</p> <p>i) <u>Tender Processing Fee</u> amounting to Rs 1000.00 (Rupees one Thousand only)(Non-Refundable) to be credited <i>only through State Bank Collect(SB Collect an efficient MIS report generating tool). The steps involved in making the payment is provided at Annexure-A</i> The receipt generated with the Reference No. will be submitted along with the Technical Bid as a proof for payment.</p> <p>ii) <u>Earnest Money Deposit (EMD)</u> amounting Rs. 8000=00 (Rupees eight Thousand only).</p> <p>iii) <u>The Process Compliance Form as at Annexure-I</u> duly filled, signed and stamped by the Bidder as token of acceptance of all the terms</p>
8.	Price Bid	<p>: The Lowest Bidder will be finalized from the Price Bid submitted by the Contractors/Vendors through the service provider .The Details of the events is as under:-</p> <p>i) Submission of <b>Sealed Price Bid</b> (Total Price as well as item wise rate break-up): <b>On 9.10.2019 till 3:00 PM</b></p> <p>Only the bidders who qualified in Technical Bid (submitted Tender Processing Fee, EMD, and Process</p>



			participation in e-Tendering Process.
9.	Opening of Price Bid	:	<b>on 09.10.2019 after completion of the time period of e-</b>
10.	Validity of Tenders	:	For a period of 90 days from the date of e-Tendering.
11.	Initial security deposit	:	2% of the awarded value of work including EMD
12.	Retention money		5% (Including EMD+ISD)
13.	Commencement of the work		The date of commencement of the work will be reckoned as the date of handing over site or two days from the date of issue of Work Order of the tender
14	<b>Time allowed for completion</b>	:	<b>4 MONTHS</b> from the date of handing over site or 10 days from the date of issue of letter of acceptance of Bank
15	Deduction of Income Tax and GST	:	<p>A) Income Tax will be deducted at source as per Govt. Guidelines.</p> <p>B) Reimbursement of GST on work contract will be made only on submission of proper GST invoice as per applicable GST provision. The contractor should comply with the following;</p> <p>i. Contractor should have GST Registration Number</p> <p>ii. Invoice should specifically/separately disclose the amount of GST levied at applicable rate as per GST provision</p>
16.	<b>Terms &amp; mode of payment</b>	:	<p><b>I). No advance is payable.</b></p> <p><b>II). After successful completion of entire work 100% payments will be released against submission of GST invoice and work completion certificates after deducting security deposited &amp; statutory deductions as applicable.</b></p>





		III). Payment shall be made by way of Electronic fund transfer by the concerned SBI Branch/Office where the work has been executed. The contractor should furnish
17.	Liquidated Damages	: If the bidder is not able to complete the work within the stipulated completion period as per tender, liquidated Damages will be imposed at the rate of 0.5% of the contract value per week subject to a maximum of 5% of the contract value.
18.	Defects Liability Period	: <b>12 Months (Twelve months) from the date of completion of the work and handing over to the Bank.</b>
19.	Contact details for any clarification	: Deepak Vishwakarma, Electrical Engineer, SBIIMSPL, AO, Jabalpur. Contact:- 0761-2641231.  Further Any Enquiry  The Vice President & Circle Head , SBI Infra Management Solutions Pvt. Ltd.  Bhopal Circle Office, Mezzanine Floor, SBI Bhopal LHO Building, Hoshangabad





20.	Contact details for any e-Tender related queries	<p>: e-Procurement technologies Limited, Ahmedabad.</p> <p>1. Salina Motani:- 079-68136843, salina.motani@eptl.in</p> <p>2. Jaymeet Rathod:- 079-68136829, jaymeet.rathod@eptl.in</p> <p>3. Kanchan Kumari:- 079-68136820, kanchan.k@eptl.in</p> <p>4. Vinayak Khambe:- 079-68136835, vinayak.k@eptl.in</p> <p>5. Anshul Juneja:- 079-68136840, anshul.juneja@eptl.in</p> <p>6. Nandan Valera:- 079-68136843, nandan.v@eptl.in</p> <p>7. Hemangi Patel:- 079-68136852, hemangi@eptl.in</p> <p>8. Nadeem Mansuri:- 079-68136853, nadeem@eptl.in</p> <p>9. Deepak Narekar:- 079-68136863, deepak@eptl.in</p> <p>10. Sujith Nair:- 079-68136857, sujith@eptl.in</p> <p>11. Devang Patel:- 079-68136859, devang@eptl.in Primary</p> <p>Contact Numbers :- +91-9081000427, 9904407997</p> <p>Alternate Contact No.:- Mr. Dinesh Pamwani :- 079-68136889, 6354919567, dinesh.p@auctiontiger.net</p> <p>You are requested to contact the agency for further guidance on E tendering.</p>
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21.	Any additional Information	:	The quoted rate should be inclusive of materials, labour, wages, fixtures, transportation, installation, all taxes & charges , cost of the insurances as specified in the tender, cost towards testing of materials supplied, wastages, Octroi, machinery, temporary works such as scaffolding, cleaning,
	<b>Notes:</b>		
a)	All Tenderer are informed that, price bidding for the work will be through e-tendering method. The bill of quantity of tender i.e <b>"Price Bid"</b> is to be submitted online on e-tendering portal. <del>Orders will be placed on the basis of closing price by bidders in the "Price Bid"</del>		
b)	The Tenderers are expected to examine all instructions, forms, terms and specifications in the tender documents. Failure to furnish all information required as per the Tender Documents or <del>submission of bids not substantially responsive to the Tender Documents in every respect will be</del>		



	Tender.
c)	In case the date of submission of Tender Processing Fee, EMD, Online Sealed Price Bid is declared as a holiday, the respective date will be considered on the next working day at the same time. The bidder, who is the authorized representative and participating on behalf of company/ Dealer/vendor, should have a valid digital signature certificate (DSC) for this tender.
d)	The SBIIMS reserves the right to cancel or postpone or modify the tenders at any stage without assigning any reason.
e)	Since bidder has to quote item-wise rate/amount in e-tendering process(i.e Price Bid) for the entire work, therefore they are strongly advised to visit the site before submitting their bid and work out the quantity requirement for all required material to make the work complete in all respects..
f)	<b>If the L1 bidder quotes abnormally low (below 25% of the estimated cost), he will be required to furnish a Performance Guarantee Bond on the "accepted tender amount" which will be released after virtually completion of the work and Additional Security Deposit amounting to additional 2% of the accepted tender amount in addition to EMD and ISD ,which will be released after successful completion of Defect Liability Period.</b>
g)	Corrigendum: (If any) Is to be followed as published in SBI Website <a href="https://www.sbi.co.in/">https://www.sbi.co.in/</a> under procurement news and <a href="https://etender.sbi/">https://etender.sbi/</a> portal only.
	<p><b>(For and on behalf of State Bank of India)</b></p> <p>-----SD-----</p> <p><b>The Vice President &amp; Circle Head,</b></p> <p><b>SBIIMS, Circle office, Bhopal.</b></p>



**Annexure-A**

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

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

**NOTE : Any type of vendor, whether dealing with SBI or other bank can use this SB Collect facility.**

***Even a contractor not dealing with any bank can use this portal and generate challan and deposit by cash in any SBI branch. The bank charges for cash deposit will be also borne by the vendor himself.***

**BUSINESS RULES FOR e-TENDERING****Name of work / Project:- PROPOSED ELECTRICAL RENOVATION WORK OF D TYPE BLOCK****AT SBI STAFF COLONY, VIJAY NAGAR, JABALPUR**

BUYER NAME	State Bank of India
AUCTION TO BE CONDUCTED BY	SBI Service Provider:  M/s e-Procurement Technologies Ltd. (Procure Tiger) A- 201, Wall Street - II, Opp. Orient Club, Nr. Gujarat College, Ahmedabad - 380 006. Gujarat State, India Tel.:- PH. NOS. : +91 79-40016837/ 835 / 886 / 887 / 802 / 852 / 865 / 800, Fax:- 91 - 079 - 40016876
DATES OF PRICE BID	i) Submission of <b>Online Sealed Price Bid</b> (item wise): <b>On 09.10.2019 at 3:00 PM</b>  E-Tendering Website : <a href="https://etender.sbi/">https://etender.sbi/</a>
DOCUMENTS ATTACHED	i) Notice Inviting Tenders (NIT) ii) Business rule for finalization of tender iii) Terms & conditions of E-Tendering iv) Process Compliance Statement (Annexure I) v) TERMS & CONDITIONS OF THE CONTRACT vi) SPECIAL CONDITIONS OF THE CONTRACT vii) Bid Confirmation (Annexure –II) viii) BOQ- Break-up-of Quantity (Annexure-III) ix) Technical Specifications & List of Make of Air-conditioners

Against this Enquiry for the subject item/system with detailed scope of supply as per our specification, SBI may resort to “**E-TENDERING PROCESS**” which comprises of **Technical Bid** and **Price Bid**.

1. For the proposed e-Tendering Process, already empanelled vendors for the said purpose who fulfill all terms and conditions including deposit of Tender process amount and earnest money amount only shall be eligible to participate.
2. SBIIMS will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on Internet.
3. SBIIMS will inform the vendor in writing, the details of service provider to enable them to contact and get trained.
4. Business rules like event date, time, etc. also will be communicated through service provider for

**Tender ID: BHO201909025**



**Dated: 26.09.2019**

compliance.

5. Vendors have to fax the compliance form in the prescribed format (provided by service provider) before start of e-Tendering Process. Without this the vendor will not be eligible to participate in the event.
6. E-Tendering Process will be conducted on schedule date & time.



7. At the end of E-Tendering Process, the lowest bidder value will be known on the network.
8. The lowest bidder has to fax the duly signed filled-in prescribed format as provided on case-to-case basis to SBIIMS through service provider within 24 hours of completion of E-Tendering without fail.
9. Any variation between the on-line bid value and signed document will be considered as sabotaging the tender process and will invite disqualification of vender to conduct business with SBI as per prevailing procedure.



### **SAMPLE BUISNESS RULE DOCUMENT**

ONLINE E-TENDERING FOR PROPOSED ELECTRICAL RENOVATION WORKS OF 'D' TYPE BOLCK AT SBI STAFF COLONY, VIJAY NAGAR, JABALPUR

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

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

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

SBIIMS PVT.LTD. shall finalize the Tender through e-tendering mode for which **M/s e-Procurement technologies Pvt Ltd, Ahemedabad** has been engaged by SBIIMS as an authorized service provider. Please go through the guidelines given below and submit your acceptance to the same along with your Commercial Bid.

1. E-tendering shall be conducted by SBIIMS through **M/s e-Procurement technologies Pvt Ltd, Ahemedabad**, on pre-specified date. While the Contractors shall be quoting from their own offices/ place of their choice, Internet connectivity and other paraphernalia requirements shall have to be ensured by Contractors themselves. In the event of failure of their Internet connectivity, (due to any reason whatsoever it may be) it is the bidders' responsibility. In order to ward-off such contingent situation bidders are requested to make all the necessary arrangements/ alternatives such as back-up power supply whatever required so that they are able to circumvent such situation and still be





able to participate in the E-tendering successfully. Failure of power at the premises of Contractors during the E-tendering cannot be the cause for not participating in the E-tendering. On account of this the time for the E-tendering cannot be extended and SBIIMS Pvt. Ltd. is not responsible for such eventualities.

2. **M/s e-Procurement technologies Pvt Ltd, Ahmedabad** shall arrange to train your nominated person(s), without any cost to you. They shall also explain you all the Rules related to the E-tendering. You are required to give your compliance on it before start of bid process.
3. BIDDING CURRENCY AND UNIT OF MEASUREMENT: Bidding will be conducted in Indian currency & Unit of Measurement will be displayed in Online E-tendering.
4. BID PRICE: The Bidder has to quote the rate as per the Tender Document provided by SBIIMS Pvt. Ltd. their appointed Architects.
5. VALIDITY OF BIDS: The Bid price shall be firm for a period specified in the tender document and shall not be subjected to any change whatsoever.
6. Procedure of E-tendering:
  - i. **Online E-tendering** :
    - (a) The hard copy of the Technical as well as Price Bid is available on the Bank's website during the period specified in the NIT.
    - (b) Online e-tendering is open to the empaneled bidders who receive NIT from the Architect and qualified for participating in the price bidding as provisions mentioned hereinabove through SBIIMS approved Service Provider.
    - (c) The Price-Bid shall be made available online by the Service Provider wherein the contractors will be required to fill-in their Item-wise rates for each item.
    - (d) The Contractors are advised not to wait till the last minute to submit their online item-wise quote in the price bid to avoid complications related with internet connectivity, network problems, system crash down, power failure, etc.
    - (e) It is mandatory to all the bidders participating in the price bid to quote their rates for each and every item.
    - (f) In case, contractor fails to quote their rates for any one or more tender items, their tender shall be treated as "Incomplete Tender" and shall be liable for rejection.
    - (g) Please note that (Zero) / Negative value are not considered in the item rate. In case, contractor quote their rate for any one or more tender items is (zero) / (negative), its tender not considered and shall be liable for rejection.
7. LOG IN NAME & PASSWORD: Each Bidder is assigned a Unique User Name & Password by **M/s e-Procurement technologies Pvt Ltd, Ahmedabad**. The Bidders are requested to change the Password after the receipt of initial Password from **M/s e-Procurement technologies Pvt Ltd, Ahmedabad**. All bids made from the Login ID given to the bidder will be deemed to have been made by the bidder.
8. BIDS PLACED BY BIDDER: Bids will be taken as an offer to execute the work as specified. Bids once made, cannot be cancelled / withdrawn and the Bidder shall be bound to execute the work at the quoted bid price. In case the L-1 Bidder backs out or fail to complete the work as per the rates



quoted, SBIIMS shall at liberty to take action as deemed necessary including depaneling such contractors and forfeiting their EMD..

9. At the end of the E-tendering, SBIIMS Pvt. Ltd. will decide upon the winner. SBIIMS Pvt. Ltd. decision on award of Contract shall be final and binding on all the Bidders.
10. SBIIMS shall be at liberty to cancel the E-tendering process / tender at any time, before ordering, without assigning any reason.
11. SBIIMS shall not have any liability to bidders for any interruption or delay in access to the site irrespective of the cause.
12. Other terms and conditions shall be as per your techno-commercial offers and other correspondences till date.
13. OTHER TERMS & CONDITIONS:
  - The Bidder shall not involve himself or any of his representatives in Price manipulation of any kind directly or indirectly by communicating with other suppliers / bidders.
  - The Bidder shall not divulge either his Bids or any other exclusive details of SBIIMS Pvt. Ltd. to any other party.
  - SBIIMS Pvt. Ltd. decision on award of Contract shall be final and binding on all the Bidders.
  - SBIIMS Pvt. Ltd. reserve their rights to extend, reschedule or cancel any E-tendering within its sole discretion.
  - SBIIMS or its authorized service provider **M/s e-Procurement technologies Pvt Ltd, Ahmedabad** shall not have any liability to Bidders for any interruption or delay in access to the site irrespective of the cause.
  - SBIIMS or its authorized service provider **M/s e-Procurement technologies Pvt Ltd, Ahmedabad** is not responsible for any damages, including damages that result from, but are not limited to negligence.
  - SBIIMS or its authorized service **M/s e-Procurement technologies Pvt Ltd, Ahmedabad** will not be held responsible for consequential damages, including but not limited to systems problems, inability to use the system, loss of electronic information etc.

N.B.

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



**PROCESS COMPLIANCE STATEMENT (ANNEXURE II)**

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

To,  
M/s. e-Procurement Technologies Pvt Limited,  
B-704, Wall Street-II, Opp. Orient Club, Near Gujrat College Road,  
Ellise Bridge, Ahemedabad-380006  
Mobile no. 7940016800  
Email: aman.v@procuretiger.com

**AGREEMENT TO THE PROCESS RELATED TERMS AND CONDITIONS FOR THE ONLINE E-TENDERING FOR PROPOSED ELECTRICAL RENOVATION OF 'D' TYPE BLOCK AT SBI STAFF COLONY, VIJAY NAGAR, JABALPUR**

Dear Sir,

This has reference to the Terms & Conditions for the E-tendering mentioned in the Tender document  
This letter is to confirm that:

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

With regards,

Date:

Signature with company seal

Name:

**Tender ID: BHO201909025**



**Dated: 26.09.2019**

Company / Organization:

Designation within Company / Organization:

Address of Company / Organization:

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



**Process Compliance Form      Annexure- I**

(The bidders are required to print this on their company letter head and sign, stamp and send the scanned copy to service provider and hard copy / scanned copy to SBIIMS, Bhopal Circle)

To  
**e-Procurement Technologies Ltd.**  
**(Procure Tiger) A-201-208, Wall Street-II,**  
**Opp. Orient Club,**  
**Nr. Gujarat College, Ahmedabad-380**  
**006, Gujarat, India.**  
**Tel: (079) 40016837 / 835**  
**Fax: (079) 40016876**

Date:

**Sub: Agreement to the Process related Terms and Conditions for the e-Tender**

Dear Sir,

This has reference to the Terms & Conditions for “ e-Tendering for **PROPOSED ELECTRICAL WORKS FOR RENOVATION & MAINTENANCE OF STAFF/OFFICER'S QUATERS 'D'-TYPE AT STATE BANK OF INDIA, VIJAY NAGER-JABALPUR (M.P.)**”

This letter is to confirm that:

1. The undersigned is authorized representative of the company.
2. We have studied the all the terms & conditions specified in the tender, Commercial Terms and the Business rules governing the e-Tendering Process and the RFP as mentioned in your letter and confirm our agreement to them.
3. We also confirm that we have taken the training on the E-Tendering tool and have understood the functionality of the same thoroughly.
4. We confirm that SBIIMS and ETL shall not be liable & responsible in any manner whatsoever for my/our failure to access & bid on the e-Tendering platform due to loss of internet connectivity, electricity failure, virus attack, problems with the PC, any other unforeseen circumstances etc. before or during the E-Tendering event.
5. We understand that in the event we are not able to access the e-Tendering site, we may authorize ETL to bid on our behalf by sending a fax containing our offer price before the e-Tendering close time and no claim can be made by us on either SBIIMS or ETL regarding any loss etc. suffered by us due to acting upon our authenticated fax instructions.
6. I/we do understand that ETL may bid on behalf of other bidders as well in case of above mentioned exigencies.
7. We also confirm that we have a valid digital certificate issued by a valid Certifying Authority.
8. We also confirm that we will fax the price confirmation of our quoted price as per Annexure II and the format as requested by SBIIMS/ ETL.
9. We, hereby confirm that we will honour the Bids placed by us during the e-Tendering process.
10. **I/We have inspected the site of works and have made me/us fully acquainted with the local conditions in and around the sites of works. I/We hereby declare that I/We have gone through the conditions laid down in the Notice Inviting Tender, General Conditions of Contract, Special Conditions of Contract, Technical Specifications and understood the same and on the basis of the same I/We will quote our rates in the indicative price bid and subsequent E-Tendering.**

**With regards**

Tender ID: BHO201909025



Dated: 26.09.2019

**Signature with company**

**seal Date:**

**Name:**

**Company / Organization:**

**Designation within Company /**

**Organization: Address of Company /**

**Organization:**

Scan it and sent this document on [headbho.sbiims@sbi.co.in](mailto:headbho.sbiims@sbi.co.in)



## TERMS & CONDITIONS OF THE CONTRACT

### GENERAL INSTRUCTIONS TO THE TENDERERS

#### 1.1 Scope of Work

Tenders are invited by SBIIMS on behalf of State Bank of India for “for **PROPOSED ELECTRICAL WORKS FOR RENOVATION & MAINTENANCE OF STAFF/OFFICER'S QUATERS 'D'-TYPE AT STATE BANK OF INDIA, VIJAY NAGER-JABALPUR (M.P.)**”

**1.2 Site and Its Location:** The proposed work is to be carried out at S.B.I, STAFF COLONY, VIJAY NAGAR, JABALPUR

#### 2.0 Tender Documents

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

- a) Instructions to tenderers
- b) General Conditions of Contract
- c) Special Conditions of Contract
- d) Technical Specifications
- e) Drawings
- f) Priced Bid

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

- a) Price Bid
- b) Drawings
- c) Technical Specifications
- d) Special Conditions of Contract
- e) General Conditions of Contract
- f) Instructions to Tenderer

2.3 The tender documents are not transferable.

#### 3.0 Site Visit

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

#### 4.0 Earnest Money Deposit (EMD) :-



4.1 The tenderer are requested to submit the Earnest Money of **Rs. 8000=00 (Rupees eight Thousand Only)** in the form of Demand draft or Banker cheque drawn in favour of SBIIMS Pvt. Ltd. On any scheduled Bank. No tender shall be considered unless the EMD is so deposited in the required form. No interest shall be paid on this EMD. The EMD of the unsuccessful tenderer shall be refunded soon after the decision to award the contract is taken without interest. The EMD shall stand absolutely forfeited if the tenderer revokes his tender at any time the period when he is required to keep his tender open acceptance by the SBIIMS Pvt. Ltd. Or after it is accepted by the SBIIMS Pvt. Ltd. The contractor fails to enter in to a formal agreement or fails to pay the initial security deposit as stipulated or fails to commence the work within the stipulated time.

4.2 No interest will be paid on the EMD.

4.3 EMD of unsuccessful tenderers will be refunded within 30 days of award of Contract.

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

4.5 The EMD shall stand absolutely forfeited if the tenderer revokes his tender at any time during the period when he is required to keep his tender open acceptance by the SBIIMS or after it is accepted by the SBIIMS, the contractor fails to enter into a formal agreement or fails to pay the initial security deposit as stipulated or fails to commence the work within the stipulated time.

### **5.0 Initial Security Deposit(ISD) :-**

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

### **6.0 Security Deposit :-**

6.1 Total security deposit shall be 5% of contract value. Out of this 2% of contract value is in the form of initial security deposit, which includes the EMD. Balance 3% shall be deducted from the running account bill of the work at the rate of 10% of the respective running account bill i.e. deduction from each running bill account will be 10% till total 3% of contract value is reached. 50% of the total security shall be paid to the contractors without interest on the basis of certifying the virtual completion. The balance 50% would be paid to the contractors without interest within 15 days after the end of the defect liability period provided the contractor has satisfactorily attended to all defects in accordance with the conditions of contract including site clearance.

6.2 No interest shall be paid to the amount retained by SBI as Security Deposit.

### **7.0 Signing of Contract Documents**

The successful tenderer shall be bound to implement the contract by signing an agreement and conditions of contract (draft agreement attached herewith) within 7 days from the receipt of intimation of acceptance of his tender by SBIIMS. However, the written acceptance of the tender by the Bank will constitute a binding agreement between SBI and successful tenderer whether such formal agreement is subsequently entered into or not.



**8.0 Completion Period**

Time is essence of the contract. The work should be completed in all respects in accordance with the terms of contract within a period of **04 MONTHS** from the date of handing over site or 10 days from the date of issue of letter of acceptance of Bank whichever is later.

**9.0 Validity of Tender**

Tenders shall remain valid and open for acceptance for a period of three months from the date of e-Tendering. If the tenderer withdraws his/her offer during the validity period or makes modifications in his/her original offer which are not acceptable to the Bank without prejudice to any other right or remedy the Bank shall be at liberty to forfeit the EMD.

**10.0 Liquidated Damages**

The liquidated damages shall be 0.5% of the accepted tendered cost per week subject to a maximum of 5% of contract value.

**11.1 Rates and Prices**

**11.2 The tenderers shall quote their rates for individual items through online submission in the Price Bid as per the attached BOQ of this tender. The rate quoted shall be firm and shall include all costs of labour, material, allowances, taxes if any (other than GST) as may be applicable. No extra claims/PVA by any means due to increase rates etc. will be entertained. Bank will only pay GST in addition to quoted rates**

**11.3 Rates as bid in the "Price Bid" will be the basis of final order placement.**



**Form of Tender**

To  
The Vice President & Circle Head,  
SBI Infra Management Solutions Pvt. Ltd.  
Bhopal Circle Office  
Mezzanine Floor SBI Bhopal LHO Building,  
Hoshangabad Road,  
Bhopal-462011.

Dear  
Sir,

**PROPOSED ELECTRICAL WORKS FOR RENOVATION & MAINTENANCE OF STAFF/OFFICER'S  
QUATERS 'D'-TYPE AT STATE BANK OF INDIA, VIJAY NAGAR-JABALPUR (M.P)**

1. I/We refer to the tender notice issued by the Bank for above work at SBI, **LHO Building, Hoshangabad Road, Bhopal.**

in connection with the above.

2. I/We do hereby offer to perform, provide, execute, complete and maintain the works in conformity with the drawings, conditions of contract, specifications, and bill of quantities at the respective rates quoted in the bill of quantities.

3. I/We have satisfied myself/ourselves as to the site conditions, examined the drawings and all aspects of the tender conditions. Subject to above, I/We do hereby agree, should this tender be accepted in whole or in part, to:

a) Abide by and fulfil all the terms and provisions of the said conditions annexed hereto.

b) Complete the works within 6 months as stipulated in two or three shifts if considered necessary by the Bank/Consultant at no extra cost to the Bank.

4. I/We have deposited the Tender Processing Fee(non-refundable), Earnest money deposit in the specified A/Cs and also submitted Process Compliance form confirming our acceptance of all the tender terms & conditions stipulated in the tender. I/We note, the Earnest Money Deposit will not bear any interest and is liable for forfeiture:

i) If our offer is withdrawn within the validity period of acceptance.

Or

ii) If the Contract is not executed within 10 days from the date of receipt of the letter of acceptance.

Or

iii) If the work is not commenced within 10 days after issue of work order or handing over of site whichever is later.

5. I/We understand that you are not bound to accept the lowest or any tender you receive.

6. Name of Partners/Directors of our Firm :

SBIIMS/BPL

Tender ID: BHO201909025



Dated: 26.09.2019

i)  
ii  
)  
iii  
)

Yours faithfully

Name of Partner/Director of the firm authorized to  
Sign or Name of person having power of  
attorney to sign the contract (Certified true  
copy of Power of  
Attorney should be attached)  
Signature and address of witness

Signature:  
Designation:

a) Signature:  
Name:  
Address  
s:  
b) Signature:  
Name:  
Address:



### Draft of ARTICLES OF AGREEMENT

(to be executed between SBI and the Contractor)

ARTICLES OF AGREEMENT made this \_\_\_\_\_ day of \_\_\_\_\_ Two thousand ..... between State Bank of India, a statutory body established under Incorporated under the State Bank of India Act, 1955, mezzanine floor, State Bank of India, Local head office Arera Hills, Hoshangabad Road, Bhopal represented by its authorized officer of SBI (hereinafter referred to as "the BANK") which expression shall include its successor or successors and assigns) of the ONE PART through the authorized officer Shri \_\_\_\_\_ (designation).

AND

M/s. \_\_\_\_\_ having its registered office at \_\_\_\_\_ (thereinafter referred to as the 'CONTRACTOR') of the OTHER PART.

WHEREAS the Owner is desirous of \_\_\_\_\_ work executing at \_\_\_\_\_ (hereinafter called the „works“)

AND WHEREAS for the purpose of executing the above said „works, SBI Infra Management Solutions Pvt. Ltd., Bhopal Circle Office, Bhopal, M.P. a wholly owned subsidiary of SBI (hereinafter called „SBIIMS“), had called E-Tender ( through service provider M/s e-Procurement Technologies Pvt. Ltd. Ahmedabad)) on behalf of THE Owner vide Notice Inviting Tender No dated \_\_\_\_\_

AND WHEREAS SBIIMS has caused the plans, drawings and specifications, price schedule of quantities of the work to be executed at the SBI as per conditions of the contract and special conditions prepared subject to which the offer of the Contractor shall be accepted.

AND WHEREAS the tender of the Contractor for said work has been approved by BANK.

AND WHEREAS the Contractor has deposited with the owner Rupees \_\_\_\_\_ as security deposit for the due performance of the agreement

AND WHEREAS SBIIMS issued work order therefore to the contractor vide letter No \_\_\_\_\_ dated \_\_\_\_\_

AND WHEREAS said drawings \_\_\_\_\_ inclusive of the specifications, priced schedule of quantities, condition of contract and special conditions (hereinafter collectively referred to as the said condition) have been signed by the parties hereto and the contractor has agreed to execute the works upon and subject to the said conditions.

Agreed to execute upon and subject to the conditions set forth herein and Schedule of Items and quantities general conditions of contract, Specification and all correspondences exchanged by or between the parties from the submission of tender till the award of work, both letter inclusive, (all of which are collectively hereinafter referred to as “the said condition”) the work shown upon the said



drawings and/ or described in the said specification and included in the schedule of items and quantities at the respective rates therein at of such other sum as shall become payable there under (Hereinafter referred to as "the said contract amount").

NOW IT IS HEREBY AGREED AS FOLLOWS:

1. In consideration of the payment to be made to the contractor as hereinafter provided the contractor shall upon and subject to the said conditions executed the completed the works shown upon the said drawings etc. and such further detailed drawings as may be furnished to the contractor by the said owner through SBIIMS as described in the said specifications and the said priced schedule of quantities.
2. The owner will pay to the contractor the sum of Rs \_\_\_\_\_ (Rupees \_\_\_\_\_), hereinafter call the contract sum or such other sum as shall become payable hereunder at the times and in the manner specified in the said condition. However, the actual sum will be paid on the actual value of work done, irrespective of the contract sum.
3. The plans, agreement and documents above mentioned shall form the basis of this contract and all disputes to be decided in the manner prescribed in the conditions attached hereto.
4. The said contract comprises \_\_\_\_\_ as above mentioned, and shall subsidiary works connected therewith within the same site as may be ordered to be done from time to time by SBIIMS even through said works may not be shown on the drawings or described in the said specifications or the priced schedule of quantities.
5. Notwithstanding what are stated in the special condition, conditions, of contract and hereinafter stated the owner through SBIIMS reserves to himself the right to alter the drawings and nature of the work and of adding to or omitting any items of works from or of having portions of the same carried out departmentally or otherwise and such alternations or variations shall be carried out without prejudice to this contact.
6. The said condition shall be read and be treated as forming part of this Agreement, and the parties hereto will respectively be bound thereby and to abide by and submit themselves to the conditions and perform the same on their part to be respectively observed and preferred.
7. Any dispute arising under this Agreement shall be referred to the arbitration of a sole arbitrator appointed with consent of the Owner and the contractor as indicated in the Article of the general conditions. The award of the arbitrator shall be final and binding on both parties.

IN WITNESS WHEREOF, the parties hereto have executed these presents the day and year first hereinabove written

WITNESS

EXECUTANTS

1.

1. OWNER

2.

2. CONTRACTOR



**Common Seal**

In case of the company, the common seal be affixed pursuant to resolution of Board of Directors in accordance with Articles of Association of the Company the director etc. as the case may be affixing common seal may be initial in token thereof and also by putting their names.

Tender ID: BHO201909025



Dated: 26.09.2019



## GENERAL CONDITIONS OF CONTRACT

### 1.0 Definitions

“Contract” means the documents forming the tender and the acceptance thereof and the formal agreement executed between State Bank of India (Client) and the contractor, together with the documents referred therein including these conditions, the specifications, designs, drawings and instructions issued from time to time by the Bank and all these documents taken together shall be deemed to form one contract and shall be complementary to one another.

- 1.1 In the contract the following expressions shall, unless the context otherwise requires, have the meaning hereby respectively assigned to them.
- 1.2 “Employer” shall mean State Bank of India (client) having its **SBI, LHO BUILDING HOSHANGABAD ROAD, BHOPAL-462011** and includes the client as representatives, successors and assigns.
- 1.3 „The Contractor“ shall mean the name of the contractor undertaking the works and shall include legal personal representative of such individual or the composing the firm or company and the permitted assignees of such individual or firms of company.
- 1.4 The expression „works or „works shall mean the permanent or temporary work described in the „Scope of Work“ and/or to be executed in accordance with the contract and includes materials, apparatus, equipment, temporary supports, fittings and things of all kinds to be provided, the obligations of the contractor hereunder and work to be done by the contractor under the contract.
- 1.5 „Engineer shall mean the representative of the SBI.
- 1.6 „Drawings“ shall mean the drawings prepared by the employer and issued by the Engineer and referred to in the specifications and any modifications of such drawings as may be issued by the Engineer from time to time „
- 1.7 „Contract value“ shall mean the value of the entire work as stipulated in the letter of acceptance of tender subject to such additions thereto or deductions there from as may be made under the provision herein after contained.
- 1.8 „Specifications“ shall mean the specifications referred to in the tender and any modifications thereof as may time to time be furnished or approved by the employer.
- 1.9 “Month” means calendar month.
- 1.10 “Week” means seven consecutive days.
- 1.11 “Day” means a calendar day beginning and ending at 00 Hrs and 24 hrs respectively.

### 2.0 Language

The language in which the contract documents shall be drawn shall be in English. All communications by employer & Contractor will be in English

### 3.1 Errors, Omissions and Discrepancies





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

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

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

The contractor shall carry out, complete and maintain the said work in every respect strictly in accordance with this contract and with the directions of and to the satisfaction of the Employer

#### **5.1 Letter of Acceptance**



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

**5.2 Contract Agreement:** On receipt of intimation of the acceptance of tender from the Employer the successful tenderer shall be bound to implement the contract and within seven days thereof he shall sign an agreement in a non judicial stamp paper of appropriate value.

**6.1 Ownership of drawings:**

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

**6.2 Detailed drawings and instructions:** The SBIIMS through its Architects/ Consultants shall furnish with responsible promptness additional instructions by means of drawings or otherwise necessary for the proper execution of the work. All such drawings and instructions shall be consistent with the contract documents, true developments thereof and reasonably inferable there from.

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

**7.0 Copies of Agreement**

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

**8.0 Liquidated Damages**

If the contractor fails to complete the work and clear the site including vacating their office on or before the contracted or extended date or completion without justification in support of the cause of delay, he may be called upon without prejudice to any other right of remedy available under the law to the SBI on account of such breach to pay a liquidated damages at the rate of 0.5% of the contract value per week subject to a maximum of 5% of the contract value.

**9.0 Materials, Appliances and Employees**

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

**10.0 Permits, Laws and Regulations**

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

**11.0 Setting out Work**

The contractor shall set out the work and shall be responsible for the true and perfect setting out of the same and for the correctness of the positions, levels, dimensions, and alignment of all parts thereof and get it approved by the bank before proceeding with the work. If at any time any error in this respect shall appear during the progress of the works, irrespective of the fact that the layout had been approved by the bank the contractor shall be responsible for the same and shall at his own expenses rectify such error, if so, required to satisfaction of the SBI.

**12.0 Protection of works and property**

The contractor shall continuously maintain adequate protection. Of all his work from damage and shall protect the SBI's properties from injury or loss arising in connection with contract. He shall make good any such damage, injury, loss, except due to causes beyond his control and due to his fault or negligence.

He shall take adequate care and steps for protection of the adjacent properties. The contractor shall take all precautions for safety and protections of his employees on the work and shall comply with all applicable provisions of



Govt. and local bodies safety laws and building codes to prevent accidents, or injuries to persons or property on, about or adjacent to his place of work. The contractor shall take insurance covers as per clause 25.0 at his own cost. The policy may be taken in joint names of the contractor and the SBI and the original policy may be lodged with the SBI.

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

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

### **14.0 Assignment and subletting**

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

### **15.0 Quality of Materials, Workmanship & Test**

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

**i) Samples:** All samples of adequate number, size, shades & pattern as per specifications shall be supplied by the contractor without any extra charges. If certain items proposed to be used are of such nature the samples cannot be presented or prepared at the site detailed literature/ test certificate of the same shall be provided to the satisfaction of the Architect/consultant. Before submitting the sample/literature the contractor shall satisfy himself that the material/ equipment for which he is submitting the sample/ literature meet with the requirement of tender satisfaction. Only when the samples are approved in writing by the Architect/consultant the contractor shall proceed with the procurement and installation of the particular material/equipment. The approved samples shall be sign by the Architect/ consultant for identification and shall be kept on record at site office until the completion of the work for inspection/ comparison at any time. The Architect/consultant shall take reasonable time to approve the sample. Any delay that might occur in approving the samples for reasons of its not meeting the specifications or other discrepancies inadequacy in furnishing samples of best qualities from various manufacturers and such other aspects causing delay on the approval of the materials/ equipment etc. shall be to the account of the contractor.



ii) **Cost of tests:** Test provided for in the specifications or BOQ :

- a) The cost of making any test shall be borne by the contractor
- b) Test not provided for in the Specifications of BOQ :If any test is ordered by the Architect/ consultant /SBIIMS which is either to be carried out by an independent person at any place other than the site or the place of manufacture or fabrication of the materials tested or any Government/ approved laboratory, then the cost of such test shall be borne by the contractor.

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

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

**17.0 Contractor's superintendence**

The contractor shall give necessary personal superintendence during the execution of the works and as long, thereafter, as the Employer may consider necessary until the expiry of the defects liability period, stated hereto.

**18.0 Quantities**



i) The bill of quantities (BOQ) unless or otherwise stated shall be deemed to have been prepared in accordance with the Indian Standard Method of Measurements and quantities. The rate quoted shall remain valid for variation of quantity against individual item to any extent subject to maximum variation of the contract value by 25%. The entire amount paid under Clause 20 hereof as well as amounts of prime cost and provisional sums, if any, shall be excluded.

ii) Variation exceeding 25%: The items of work executed in relation to variation exceeding 25% shall be paid on the basis of provisions of clause 21(e) hereof.

### **19.0 Works to be measured**

The Employer may from time to time intimate to the contractor that he required the work to be measured and the contractor shall forthwith attend or send a qualified representative to assist the Employer in taking such measurements and calculation and to furnish all particulars or to give all assistance required by any of them. The representative of the Employer shall take joint measurements with the contractors representative and the measurements shall be entered in the measurement book. The contractor or his authorized representative shall sign all the pages of the measurement book in which the measurements have been recorded in token of his acceptance. All authorized extra work, omissions and all variations made shall be included in such measurements.

### **20.0 Variations**

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

#### **21.1 Valuation of Variations**

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

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



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

## **22.0 Final Measurement**

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

**23.1 Virtual Completion Certificate (VCC)**

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

- a) Clear the site of all scaffolding, wiring, pipes, surplus materials, contractors labour, equipment and machinery.
- b) Demolish, dismantle and remove the contractors site office, temporary works, structures including labor sheds/camps and constructions and other items and things whatsoever brought upon or erected at the site or any land allotted to the contractor by the SBI and not incorporated in the permanent works.
- c) Remove all rubbish, debris etc from the site and the land allotted to the contractor by the Employer and shall clear, level and dress, compact the site as required by the Employer.
- d) Shall put the Employer in undisputed custody and possession of the site and all land allotted by the Employer.
- e) Shall hand over the work in a peaceful manner to the Employer.
- f) All defects/imperfections have been attended and rectified as pointed out by the Employer to the full satisfaction of Employer.

**23.2** Upon the satisfactory fulfilment by the contractor as stated above, the contractor shall be entitled to apply to the Employer for the certificate. If the Employer is satisfied of the completion of the work, relative to which the completion certificate has been sought, the Employer shall within fourteen (14) days of the receipt of the application for virtual completion certificate, issue a VCC in respect of the work for which the VCC has been applied.

**23.3** This issuance of a VCC shall be without prejudice to the SBI's rights and contractors liabilities under the contract including the contractors liability for defects liability period nor shall the issuance of VCC in respect of the works or work at any site be construed as a waiver of any right or claim of the SBI against the contractor in respect of works or work at the site and in respect of which the VCC has been issued.

**24.0 Work by other agencies**

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

**25.1 Insurance of Works**

Contractor will have to obtain the following insurance covers for the full tenure of the work to cover risks detailed in the following pares/clauses:

- i) Contractors All Risk Policy including third party compensation as detailed below.





ii) Workmen Compensation Policy.

**25.2** Without limiting his obligations and responsibilities under the contract the contractor shall insure in the joint names of the Employer and the contractor against all loss or damages from whatever cause arising other than the excepted risks, for which he is responsible under the terms of contract and in such a manner that the Employer and contractor are covered for the period stipulated in clause 28 of GCC and are also covered during the period of maintenance for loss or damage arising from a cause, occurring prior to the commencement of the period of maintenance and for any loss or damage occasioned by the contractor in the course of any operations carried out by him for the purpose of complying with his obligations under clause.

- a) The works for the time being executed to the estimated current Contract value thereof, or such additional sum as may be specified together with the materials for incorporation in the works at their replacement value.
- b) The constructional plant and other things brought on to the site by the contractor to the replacement value of such constructional plant and other things.



- c) Such insurance shall be effected with an insurer and in terms approved by the Employer which approval shall not be unreasonably withheld and the contractor shall whenever required produce to the Employer the policy of insurance and the receipts for payment of the current premiums

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

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

**25.4 Contractor to indemnify Employer:** The contractor shall indemnify the Employer against all claims, proceedings, damages, costs, charges and expenses in respect of the matters referred to in the provision sub-clause of this clause.

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

## **25.6 Third Party Insurance**

- 25.6.1** Before commencing the execution of the work the contractor but without limiting his obligations and responsibilities under clause 26.0 of GCC shall insure against his liability for any material or physical damage, loss, or injury which may occur to any property including that of SBI, or to any person, including any employee of the SBI, by or arising out of the execution



of the works or in the carrying out of the contract, otherwise than due to the matters referred to in the provision to clause 26.0 thereof.

#### **25.6.2 Minimum Amount of Third Party Insurance**

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

**25.6.3** The minimum insurance cover for physical property, injury, and death is Rs.5.0 lacs per occurrence with the number of occurrences limited to four. After each occurrence contractor will pay additional premium necessary to make insurance valid for four occurrences always.

#### **25.7 Accident or Injury to Workmen**

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



**25.7.2. Insurance against accidents etc to workmen:** The contractor shall insure against such liability with an insurer approved by the Employer during the whole of the time any person employed by him on the works and shall, when required, produce to the Employer such policy of insurance and receipt for payment of the current premium. Provided always that, in respect of any persons employed by any sub-contractor the contractors obligation to insure as aforesaid under this sub-clause shall be satisfied if the sub contractor shall have insured against the liability in respect of such persons in such manner that Employer is indemnified under the policy but the contractor shall require such sub-contractor to produce to the Employer when required such policy of insurance and the receipt for the payment of the current premium.

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

**25.7.4.** Without prejudice to the other rights of the Employer against contractors, in respect of such default, the employer shall be entitled to deduct from any sums payable to the contractor the amount of any damages costs, charges, and other expenses paid by the Employer and which are payable by the contractors under this clause. The contractor shall upon settlement by the insurer of any claim made against the insurer pursuant to a policy taken under this clause, proceed with due diligence to rebuild or repair the works destroyed or damaged. In this event all the monies received from the insurer in respect of such damage shall be paid to the contractor and the contractor shall not be entitled to any further payment in respect of the expenditure incurred for rebuilding or repairing of the materials or goods destroyed or damaged.

## **26.0 Commencement of Works**

The date of commencement of the work will be reckoned as the recorded date of handing over site or 10 days from the date of issue of letter of acceptance of the tender by the Employer whichever is later.

## **27.0 Time for completion**

Time is the essence of the contract and shall be strictly observed by the contractor. The entire work shall be completed within a period of **04- MONTHS** from the date of commencement. If required in the contract or as directed by the Employer, the contractor shall complete certain portions of work before completion of the entire work. However the completion date shall be reckoned as the date by which the whole work is completed as per the terms of the contract.

## **28.0 Extension of Time**

If, in the opinion of the Employer, the work be delayed for reasons beyond the control of the contractor, Bank to grant a fair and reasonable extension of time for completion of work as per the terms of contract. If the contractor needs an extension of time for the completion of work or if the completion of work is likely to be delayed for any reasons beyond the due date of completion as stipulated in the contract, the contractor shall apply to the Employer in writing immediately and while applying for extension of time he shall furnish the reasons in detail and his justification if any, for the delays. While granting extension of time the contractor shall be informed the period extended time which will qualify



for levy of liquidated damages. For the balance period in excess of original stipulated period and duly sanctioned extension of time by the Employer the provision of liquidated damages as stated under clause 8 of GCC shall become applicable.

**29.0 Rate of progress**

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

**30.0 Work during night and holidays**

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



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

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

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

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

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

### **32.0 Suspension of work**

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

- a) On account any default on the part of the contractor, or
- b) For proper execution of the works or part thereof for reasons other than the default of the contractor, or
- c) For safety of the works or part thereof.

The contractor shall, during such suspension, properly protect and secure the works to the extent necessary and carry out the instructions given in that behalf by the Consultant.

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

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

### **33.1 Action when the whole security deposit is forfeited**

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



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



Employer under the contract or otherwise, or from his security deposit or the proceeds of sale thereof, or sufficient part thereof.

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

#### **34.1 Bank's/SBIIMS's Right to Terminate the Contract**

If the contractor being an individual or a firm commit any „Act of Insolvency“ or shall be adjusted an insolvent or being an incorporated company shall have an order for compulsory winding up voluntarily or subject to the supervision of Govt and of the Official Assignee of the liquidator in such acts of insolvency or winding up shall be unable within seven days after notice to him to do so, to show to the reasonable satisfaction of the Employer that he is able to carry out and fulfill the contract, and to give security therefore if so required by the Employer.

Or if the contractor (whether an individual firm or incorporated Company) shall suffer execution to be issued or shall suffer any payment under this contract to be attached by or on behalf of any of the creditors of the contractor.

Or shall assign or sublet this contract without the consent in writing of the Employer through the Consultant or shall charge or encumber this contract or any payment due to which may become due to the contractor there under.

- a) Has abandoned the contract; or
- b) Has failed to commence the works, or has without any lawful excuse under these conditions suspended the progress of the works for 14 days after receiving from the Employer written notice to proceed, or
- c) Has failed to proceed with the works with such diligence and failed to make such due progress as would enable the works to be completed within the time agreed upon, or has failed to remove the materials from the site or to pull down and replace work within seven days after written notice from the Employer that the said materials were condemned and rejected by the Employer under these conditions; or has neglected or failed persistently to observe and perform all or any of the acts, matters or things by this contract to be observed and performed by the contractor for seven days after written notice shall have been given to the contractor to observe or perform the same or has to the detriment of good workmanship or in defiance of the Employer instructions to the contrary subject any part of the contract. Then and in any of said cases the Employer may notwithstanding any previous waiver, after giving seven days notice in writing to the contractor, determine the contract, but without thereby affecting the powers of the Employer or the obligation and liabilities of the contractor the whole of which shall continue in force as fully as if the contract had not been so determined and as if the works subsequently had been executed by or on behalf of the contractor. And, further





the Employer, their agents or employees may enter upon and take possession of the work and all plants, tools, scaffoldings, materials, sheds, machineries lying upon the premises or on the adjoining lands or roads, use the same by means of their own employees or workmen in carrying on and completing the work or by engaging any other contractors or persons to complete the work and the contractor shall not in any way interrupt or do any act, matter or thing to prevent or hinder such other contractor or other persons employed for completing and finishing or using the materials and plant for the works.

When the works shall be completed or as soon thereafter as convenient the Employer shall give a notice in writing to the contractor to remove his surplus materials and plants and should the contractor fail to do so within 14 days after receipt thereof by him the Employer sell the same by public auction after due publication and shall adjust the amount realized by such auction. The contractor shall have no right to question any of the act of the Employer incidental to the sale of the materials etc.

### **35.1 Settlement of Disputes and Arbitration**

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

- a) If the contractor considers that he is entitled to any extra payment or compensation in respect of the works over and above the amounts admitted as payable by the Architect or in case the contractor wants to dispute



the validity of any deductions or recoveries made or proposed to be made from the contract or raise any dispute, the Contractor shall forthwith give notice in writing of his claim, or dispute to the Circle Head, SBIIMS, Circle Office, Bhopal and endorse a copy of the same to the Architect, within 30 days from the date of disallowance thereof or the date of deduction or recovery. The said notice shall give full particulars of the claim, grounds on which it is based and detailed calculations of the amount claimed and the contractor shall not be entitled to raise any claim nor shall the Bank be in any way liable in respect of any claim by the contractor unless notice of such claim shall have been given by the contractor to the Circle Head, SBIIMS, Circle Office, Bhopal in the manner and within the time as aforesaid. The contractor shall be deemed to have waived and extinguished all his rights in respect of any claim not notified to the Circle Head, SBIIMS, Circle Office, Bhopal in writing in the manner and within the time aforesaid.

- b) Circle Head, SBIIMS, Circle Office, Bhopal shall give his decision in writing on the claims notified by the contractor. The contractor may within 30 days of the receipt of the decision of the Circle Head, SBIIMS, Circle Office, Bhopal submit his claims to the conciliating authority namely the Circle Development Officer for conciliation along with all details and copies of correspondence exchanged between him and the Circle Head, SBIIMS, Circle Office, Bhopal
- c) If the conciliation proceedings are terminated without settlement of the disputes, the contractor shall, within a period of 30 days of termination thereof shall give a notice to the concerned Chief General Manager of SBI, LHO, Bhopal for appointment of an arbitrator to adjudicate the notified claims failing which the claims of the contractor shall be deemed to have been considered absolutely barred and waived.
- d) Except where the decision has become final, binding and conclusive in terms of the contract, all disputes or differences arising out of the notified claims of the contractor as aforesaid and all claims of the Bank shall be referred for adjudication through arbitration by the Sole Arbitrator appointed by the Chief General Manager.
- e) Also, there will be no objection to any such appointment that the Arbitrator so appointed is a Bank Officer and that he had to deal with the matters to which the Contract relates in the course of his duties as Bank Officer. If the arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacates his office due to any reason whatsoever another sole arbitrator shall be appointed in the manner aforesaid by the said Chief General Manager. Such person shall be entitled to proceed with the reference from the stage at which it was left by his predecessor.
- f) It is a term of this contract that the party invoking arbitration shall give a list of disputes with amounts claimed in respect of each dispute along with the notice for appointment of arbitrator.
- g) It is a term of this contract that the party invoking arbitration shall give a list of disputes with amounts claimed in respect of each dispute along with the notice for appointment of arbitrator.
- h) It is also a term of this contract that no person other than a person appointed by such Chief General Manager aforesaid should act as arbitrator. The conciliation and arbitration shall be conducted in accordance with the provisions of the Arbitration & Conciliation Act 1996 or any statutory modification or re-enactment thereof and the rules made there under.



- i) It is also a term of the contract that if any fees are payable to the arbitrator these shall be paid equally by both the parties. However, no fees will be payable to the arbitrator if he is a Bank Officer.
- j) It is also a term of the contract that the arbitrator shall be deemed to have entered on the reference on the date he issues notice to both the parties calling them to submit their statement of claims and counter statement of claims. The venue of the arbitration shall be such place as may be fixed by the arbitrator in his sole discretion. The fees if any, of the arbitrator shall, if required to be paid before the award is made and published, be paid half and half by each of the parties. The cost of the reference and of the award (including the fees, if any of the arbitrator) shall be in the discretion of the arbitrator who may direct to any by whom and in what manner, such costs or any part thereof shall be paid and fix or settle the amount of costs to be so paid.

### **36.0 Certificate of Payment**

The contractor shall be entitled under the certificates to be issued by the Architect/ Consultant/SBIIMS to the contractor within 10 working days from the date of certificate to the payment from SBI from time to time. The SBI shall recover the statutory recoveries and other dues including the retention amount from the certificate of payment. Provided always that the issue of any certificate by the Architect/Consultant during the progress of works or completion shall not have effect as certificate of satisfaction or relieve the contractor from his liability under clause. The Architect/Consultant shall have power to withhold the certificate if the work or any part thereof is not carried out to their satisfaction. The Architect/Consultant may by any certificate make any corrections required in previous certificate. The SBIIMS shall modify the certificate of payment as issued by the Architect/Consultant from time to time while making the payment. The contractor shall submit interim bills only after taking actual measurements and properly recorded in the



Measurement book (M.B). The contractor shall not submit interim bills when the approximate value of work done by him is less than ..... and the minimum interval between two such bills shall be one month. The final bill may be submitted by contractor within a period of one month from the date of virtual completion and Architect/Consultant shall issue the certificate of payment within a period of two months. The SBI shall pay the amount within a period of three months from the date of issue of certificate provided there is no dispute in respect of rates and quantities.

### **37.0 Water Supply**

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

- i) That the water used by the contractor shall be fit for construction purpose to satisfaction of the Architect/consultant.
- ii) The contractor shall make alternative arrangements for the supply of water if the arrangement made by the contractor for procurement of water in the opinion of the Architect/ consultant is unsatisfactory.
- iii) The contractor shall construct temporary well /tube in SBI land for taking water for construction purpose only after obtaining permission in writing from the SBI. The contractor has to make his own arrangements for drawing and distributing the water at his own cost. He has to make necessary arrangements. To avoid any accidents or damages caused due to construction and subsequent maintenance of the wells. He has to obtain necessary approvals from local authorities, if required, at his own cost. He shall restore the ground to his original condition after well are dismantled on the completion of work or hand over the well to the SBI without any compensation as directed by the Architect /consultant.

### **38.0 Power Supply**

The contractor shall make his own arrangements for power and supply/ distribution system for driving plant or machinery for the work and for lighting purpose at his own cost. The cost of running and maintenance of the plants are too included in his tender prices. He shall pay all fees and charges required for the power supply and include the same in his tendered rates and hold the owner free from all such costs. He has to obtain necessary approval from the appropriate authorities, if required.

### **39.0 Treasure trove etc.**

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

### **40.0 Method of Measurement**

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

### **41.1 Maintenance of registers**

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



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

#### **42.0 Price Variation**

No price variation shall be applicable in this contract.

#### **43.1 Force Majeure**

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

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



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

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

#### **44.1 Local Laws, Acts, Regulations**

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

- i) Minimum Wages Act, 1948 (Amended)
- ii) Payment of Wages Act 1936 (Amended)
- iii) Workmen"s Compensation Act 1923 (Amended)
- iv) Contract Labour Regulation and Abolition Act 1970 and Central Rules 1971 (Amended)
- v) Apprentice Act 1961 (Amended)
- vi) Industrial Employment (Standing Order) Act 1946 (Amended)
- vii) Personal Injuries (Compensation Insurance) Act 1963 and any other modifications
- viii) Employees" Provident Fund and Miscellaneous Provisions Act 1952 and amendment thereof
- ix) Shop and Establishment Act
- x) Any other Act or enactment relating thereto and rules framed there under from time to time.
- xi) Indian Electricity Act
- xii) Tariff Advisory Committee Manual

#### **45.0 Accidents**

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



### **SPECIAL CONDITIONS OF CONTRACT**

#### **1.0 Notice of operation**

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

#### **2.0 Temporary works**

Before any temporary works are commenced the contractor shall submit at least 2 days in advance to the architect/ consultant for approval complete drawings of all temporary works he may require for the executions of the works. The contractor shall carry out the modifications relating to strength, if required by the architect / consultant in accordance with the conditions of the contract at his own cost. The contractor shall be solely responsible for the stability and safety of all temporary works and unfinished works and for quality of the permanent works resulting from the arrangement eventually adopted for their execution.

#### **3.1 Office Accommodation**

- a) The contractor shall provide and maintain all necessary offices, workshops, stores, shelters, sanitary facilities, canteens and other temporary structures for themselves in connection with the work at the site at their own cost after getting the approval from the Architect/ consultant.
- b) A site office for the use of SBIIMS/ architect/ consultant shall be provided by the contractor at his own expenses.
- c) All temporary buildings and facilities as mentioned above shall be removed on completion of the work or at any other earlier date as directed by the architect/ consultant.
- d) All the expenses for obtaining statutory approvals and maintenance of the above facilities as well as running expenses shall be borne by the contractor at no extra cost. It is also the responsibility of the contractor to obtain statutory approvals for providing the above facilities.

#### **4.0 Facilities for contractor's employees**

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



### 5.0 Lighting of works

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

### 6.1 Fire fighting arrangements

- a) The contractor shall provide suitable arrangement for firefighting at his own cost. For this purpose he shall provide requisite number of fire extinguisher and adequate number of buckets. Some of which are to be always kept filled with sand and some water. These equipments shall be provided at suitable prominent and easily accessible places and shall be properly maintained.
- b) Any deficiency in the fire safety or conditions shall be corrected by the contractor at his own cost and to the approval of the relevant authorities. The contractor shall make the following arrangements at his own cost but not limited to the following:
  - i) Proper handing, storage and disposal of combustible materials and waste.
  - ii) Work operations which can create fire hazards.
  - iii) Access for firefighting equipments.
  - iv) Type, number and location of containers for the removal of surplus materials and rubbish
  - v) Type, size, number and location of fire extinguishers or firefighting equipment
  - vi) General housekeeping.

### 7.0 Site order book

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

### 8.0 Site Meetings

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

### 9.0 Disposal of refuse

The contractor shall cart away all debris, refuse etc. arising from the work from the site and deposit the same as directed by the construction site or any other off-site activities borrow pits has been properly





disposed off.

#### **10.0 Contractor to verify site measurement**

The contractor shall check and verify all site measurements whenever requested by other specialists contractors or other sub contractors to enable them to prepare their own shop drawings and pass on the information with sufficient promptness as will not in any way delay the works.

#### **11.0 Displaying the name of the work**

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

#### **12.1 As built drawings:**

- a. For the drawings issued to the contractor by the Architect/ consultant/SBIIMS. The architect consultant will issue two sets of drawings to the Contractor for the items for which some changes have been made. From the approved drawings as instructed by the SBIIMS/ Architect/ consultant. The contractor will make the changes made on these copies and return these copies to the architect/ consultant for their approval. In case any revision is required or the corrections are not properly marked the architect/ consultant will point out the discrepancies to the contractor. The contractor will have to incorporate these corrections and /or attend to discrepancies either on the copies as directed by the architect/ consultant and resubmit to him for approval. The architect/ consultant/SBIIMS will return one copy duly approved by him.
- b. For the drawings prepared by the contractor. The contractor will modify the drawing prepared by him wherever the changes are made by the SBIIMS/ Architect/ consultant. And submit two copies of such modified drawings to the architect/ consultant/SBIIMS for approval. The architect/ consultant will return one of the approved drawings to the contractor.

#### **13.0 Approved make**

The contractor shall provide all materials from the list of approved makes. The architect/ consultant may approve any make /agency within the approved list as given in the tender.

#### **14.0 Procurement of materials**

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

#### **15.1 Tendered Rates / Amount**

- a) **Price Bid : The Bidder has to submit online item wise rates and Total Amount as per BOQ at Annexure-III of this tender inclusive of all overhead, contractor's profit, the cost of materials/labours including all other costs, taxes, charges etc. and exclusive of GST only on work contract. GST on work contract will be paid extra as applicable. Item wise rates bid in " Online Sealed Price Bid" will be the basis of final order placement.**

#### **16.0 Acceptance of tender:**

The SBIIMS shall have the right to reject any or all tenders without assigning any reason. They are not



bound to accept the lowest or any tender and the tenderer or tenderers shall have no right to question the acts of the SBIIMS. However adequate transparency would be maintained by the SBIIMS.

#### **17.0 Government and Local Rules:**

The Contractor shall conform to the provisions of all local byelaws and Acts relating to the work and to the Regulations etc. of the Government and Local Authorities and of any company with whose system the structure is proposed to be connected. The contractor shall give all notices required by the said Act, Rules, Regulations and byelaws etc. and pay fees payable to such authority/ authorities for execution of the work involved. The cost, if any, shall be deemed to have been included in his quoted rates, taking encroachment and restorations etc. and shall indemnify the Employer against such liabilities and shall defend all action arising from such claims of liabilities.

#### **18.0 Possession Prior to Completion**

The Owner shall have the right to take possession of or use any complete or partially completed part of the work. Such possession or use shall not be an acceptance of any work not completed in accordance with the contract Agreement.

#### **19.1 Tools, Storage of Materials, protective Works and Site Office Requirements**

- a) The contractor shall provide, fix up and maintain in an approved position proper office accommodation for the Contractor's representative and staff which office shall be open at all reasonable hours to receive instruction notices or communications and clear away on completion of the work and make good all work disturbed.
- b) All drawings maintained on the site are to be carefully mounted on boards of appropriate size and covered with a coat of approved varnish. They are to be protected from ravages of termites, ants, and other insects and made available to the Owner /architects for inspection or such other purposes they may require.
- c) The contractor shall provide at his own cost all artificial light required to complete the work within the specified time.
- d) The contractor shall provide a suitable temporary hut for the watchmen and clear away the same when no longer required and to provide all necessary attendance, lights etc. required.
- e) The contractor shall arrange for temporary latrines for the use of workers and field staff and keep the same in a clean and sanitary condition to the satisfaction of the public Health Authorities and shall cause such latrines and soil to be cleared away whenever necessary and shall make good all the work disturbed by the conveniences.
- f) Every precaution shall be taken by the Contractor to prevent the breeding of mosquitoes on the work during the construction and all receptacles, cisterns, water tank etc. used for storage of water must be suitably protected against breeding of mosquitoes. The contractor shall indemnify the owner against any breach of rules in respect of anti-malarial measures.
- g) The contractor shall not fix or place any placards or advertisement of any description or permit the same to be fixed or placed in or upon any boarding gantry, building structure other than those approved by the SBI.

#### **20.0 Protective Measures**

The contractor from the time of being placed at the site must make suitable arrangements for



watching lighting and protecting the work, the site and surrounding property by day, by night, on Sundays and other holidays.

The contractor shall indemnify the SBI against any possible damage to the building, roads, or member of the public in course of execution of the work.

The contractor shall provide necessary temporary enclosures etc. for the protection of the work and materials and for altering and adopting the same as may be required and removing on completion of the work and making good all work disturbed.

#### **21.0 Storage of Materials:**

The contractor shall provide and maintain proper sheds for the proper storage and adequate protection of the materials etc. and other work that may be executed on the site including the tools and materials of nominated sub-contractors and remove same on completion.

#### **22.0 Tools**

All measuring tapes shall be of steel and suitable scaffolding and ladders that may be required for taking measurement shall be supplied by the Contractor.

The Mistries and the supervisor on the work shall carry with them always a one meter or two meter steel tapes and a measuring tape of 30 meters, a spirit level, a plumb bob and a square check the work to see that the work is being done according to the drawing and specifications. The site engineer will use any or all measuring instruments or tools belonging to the contractors as he chooses for checking the work executed or being executed on the contract.

The contractor should cover in his rates for making provisions for all reasonable facilities for the use of his scaffolding, tools and plant etc. by nominated sub-contractors for their work.

#### **23.0 Removal of Improper Work**

The SBIIMS/ Consultant shall during the progress of the work have power to order in writing from time to time the removal from the work within such reasonable time or times as may be specified in the order of any materials which in the opinion of the SBIIMS/ Consultant are not in accordance with specifications or instructions, the substitution or proper re-executed with materials or workmanships not in accordance with the drawings and specifications or instructions. In case the Contractor refuses to comply with the order the SBIIMS/ consultant shall have the power to employ and pay other agencies to carry out the work and all expenses consequent thereon or incidental thereto as certified by the SBIIMS/ consultant shall be borne by the Contractor or may be deducted from any money to or that may become due to the contractor. No certificate which may be given by the consultant shall relieve the contractor from his liability in respect of unsound work or bad materials.

#### **24.0 Dismissal of Workmen**

The Contractor shall on the request of the SBIIMS/ Consultant immediately dismiss from work any person employed thereon by him, who may in the opinion of the SBIIMS/ Consultant be unsuitable or incompetent or who may misconduct himself. Such discharge shall not be the basis of any claim for compensation or damages against the SBIIMS/ Consultant or any of their officer or employee.

#### **25.0 Concealed Work**

The Contractor shall give not less than 5 days notice of the SBIIMS/ Architects whenever any work is to be buried in the earth, concrete or in the bodies of walls or otherwise becoming inaccessible later on



in order that the work may be inspected and correct dimensions taken before such burial. In default whereof the same shall at opinion of the SBIIMS/ Architect be either opened up for measurement at the Contractors expense or no payment may be made for such materials. Should any dispute or difference arise after the execution of any work as to measurements etc or other matters which cannot be conveniently tested or checked, the notes of the SBIIMS/ Architects shall be accepted as correct and binding on the contractor.

#### **26.0 Substitution**

Should the contractor desire to substitute any materials and workmanship, he/they must obtain the approval of the SBIIMS/Architects in writing for any such substitution well in advance. For materials designed in this specifications by such term as "Equal" or "other approved" etc. specific approval of the SBIIMS/ Architects has to be obtained in writing.

#### **27.0 Preparation of Building Works for Occupation and Use of Completion**

The whole of the work will be thoroughly inspected by the contractor and deficiencies and defects put right. On completion of such inspection, he shall inform the SBI that he has completed the work and it is ready for inspection.

On completion, the contractor shall clean all windows and doors including cleaning and oiling, if necessary, of all hardware, inside and outside, all floors, staircases every part of the building. He will leave the entire building neat and clean and ready for immediate occupation and to the satisfaction of the SBIIMS.

#### **28.0 Defects after Completion**

The Contractor shall make good at his own cost and to the satisfaction of the SBIIMS all defects and other faults which may appear within 12 months after completion of the work. In default the SBIIMS may employ other persons to amend and make good such damages, defects etc. Expenses consequent thereon or incidental thereto shall be recoverable from the contractor by the SBIIMS from any money due to the contractor. In the event of the amount being insufficient the SBIIMS may recover the balance from the contractor, from the amount retained under Clause No. 1 (total security deposit) of General Conditions of Contract together with any expenses the SBIIMS may have incurred in connection therewith.

#### **29.0 Idle Labour**

Whatever the reasons may be, no claim for the labour, additional establishment cost of hire and labour charges of tools and plants would be entertained under any circumstances.

#### **30.0 Guarantee for the Specialized Works**

Wherever provision for submission of a guarantee has been advised, the same shall be submitted from the specialized agency along with a counter guarantee by the main contractor engaged for the work. The guarantee shall be furnished on a non-judicial stamp paper of appropriate value. If the contractor is required to submit guarantee/ guarantees for any items for a period of more than 12 months, the guarantee/ guarantees in case of those items shall remain valid even expiry of the defects liability period of 12 months as stipulated in the contract.

#### **31.1 Safety Measures at Site**

All personnel at site should be provided with Helmets and Safety Boots with some Identification Mark. Visitors also should be provided with Helmets. It should be ensured that these are used properly.



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1. First Aid Box should be kept at site with all requisite materials.
2. No one should be allowed to inspect / work at a height without Safety Belt.
3. Suitable scaffolds should be provided for workmen for all Works that cannot safely be done from the ground, or from solid construction except such short period Work as can be done safely from ladders. When a ladder is used an extra Mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying materials as well as suitable footholds and handholds shall be provided on the ladder and the ladder shall be given an inclination not steeper than  $\frac{1}{4}$  to 1 ( $\frac{1}{4}$  horizontal and 1 vertical).
4. Scaffolding or staging more than 3.5 meters above the ground or floors, swung or suspended from an overhead support or erected with stationary support shall have a guard rail properly attached, bolted, braced and otherwise secured at least 1 Meter high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such openings as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.
5. Working platforms, Gangways, and Stairways should be so constructed that they do not sag unduly or unequally, and if the height of the platform or the Gangway or the Stairway is more than 3-5 Meters above ground level or floor level they should be closely boarded, should have adequate width and should be suitably fenced, as described.
6. Every opening in the floor of a building or in a working platform be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be 1 Meter.
7. Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9 Meters in length while the width between side rails in rung ladder shall in no case be less than 30cms for ladder upto and including Meters in length. For longer ladders this width should be increased at least 6mm for each additional 30 cms. Uniform step spacing shall not exceed 30cms.
8. Adequate precautions shall be taken to prevent danger from electrical equipments. For electrical on line works gloves, rubber mats, and rubber shoes shall be used.
9. All trenches 1.2 Meters or more in depth shall at all times be supplied with at least one ladder for each 30 Meters length or fraction thereof. Ladder shall be extended from bottom of the trench to at least 1 Meter above the surface of the ground. The sides of the trenches, which are 1.5 Meters or more in depth shall be stepped back to give suitable slope, or securely held by timber bracing, so as to avoid the danger of sides collapsing. The excavated materials shall not be placed within 1.5 Meters of the edge of the trench or half of the depth of the trench whichever is more cuttings shall be done from top to bottom. Under no circumstances undermining or under cutting shall be done.
10. Before any demolition work is commenced and also during the process of the work :
  - a) All roads and open areas adjacent to the Work Site shall either be closed or suitably protected;
  - b) No electrical cable or apparatus which is liable to be a source of danger over a cable or apparatus used by the operator shall remain electrically charged.
  - c) All practical steps shall be taken to prevent danger to persons employed from risk or fire or explosion or flooding. No floor, roof or other part of the building shall be so over-loaded with debris or materials as to render it unsafe.
  - d) All necessary personal safety equipment as considered adequate by the Site Engineer should be kept available for the use of the persons employed on the Site and maintained in a condition suitable for immediate use; and the Contractor should take adequate steps to ensure proper use of equipment by those concerned.
  - e) Workers employed on mixing Asphaltic materials, cement and lime mortars shall be



- provided with protective footwear and protective goggles.
- f) f) Those engaged in white washing and mixing or stacking of cement bags or any materials which are injurious to the eyes shall be provided with protective goggles.
  - g) Those engaged in welding works shall be provided with Welders protective eye-shields.
  - h) Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.
  - i) When workers are employed in sewers and manholes, which are in use, the Contractor shall ensure that the manhole covers are opened and are ventilated at least for an hour before the workers are allowed to get into the manholes and the manholes so opened shall be cordoned off with suitable railing and provided with warning signals and boards to prevent accident to the Public.
11. Use of hoisting machines and tackle including their attachments, anchorage and support shall conform to the following standard or conditions:-
- a) These shall be of good mechanical construction, sound material and adequate strength and free from patent defect and shall be kept in good repairs and in good working order.
  - b) Every rope used in hoisting or lowering materials or as a means of suspension shall be of durable quality and adequate strength, and free from patent defects.
  - c) Every crane driver or hoisting appliance operator shall be properly qualified and no person under the age of 21 years should be in-charge of any hoisting machine including any scaffold, winch or give signals to the operator.
  - d) In case of every hoisting machine and of every chain ring hook, shackle swivel and pulley block used in hoisting or lowering or as means of suspension the safe working load shall be ascertained by adequate means.
  - e) Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load. In case of hoisting machine having a variable safe working load, each safe working load of the conditions under which it is applicable shall be clearly indicated. No part of any machine or of any gear referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.
  - f) Motor, Gearing, Transmission, Electric wiring and other dangerous parts of hoisting appliances should be provided with efficient safeguards, hoisting appliances should be provided with such means as will reduce to the minimum the risk of accidental descent of the load, adequate precautions should be taken to reduce to the minimum the risk of any part of a suspended load becoming accidentally displaced.
  - g) When workers are employed on electrical installation, which are already energized, insulating mats, wearing apparel such as gloves, sleeves, and boots as may be necessary should be provided. The workers should not wear any rings, watches and carry keys or other materials, which are good conductors of electricity.
12. All scaffolds, ladders and other safety devices, mentioned or described herein shall be maintained in safe condition and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities shall be provided at or near places of work.

### 32.1 Fire Safety Measure

Cutting / drilling machine and other electrically operated equipment used at site shall be plugged into correctly rated electrical outlets.



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1. Only ISI marked 3 pin plug and other appliances and equipment shall be used.
2. Electrical power cables/wires used shall not have any joints and shall be properly rated.
3. All electrical appliances i.e. welding, drilling, cutting machine etc. shall be safely and securely earthed to prevent leakage current while in operation.
4. Before commencing the welding work, fire section shall be informed and required precautions should be taken.
5. Two buckets of water, sand and a fire cloth of suitable size shall be kept in an easily accessible area on the site.
6. Fire extinguishers recommended by fire officers shall be kept on the site.
7. Used paint drums shall be stored in specified store only after closing them properly.
8. Personal protective equipment such as safety shoes, hand gloves, welders mask, ear plug etc. depending upon the requirement of the work shall be provided by the contractor to the workmen to prevent occupational health hazards.
9. The safety belt shall be provided by the contractor and used by the workmen while working from height for more than 10 Mtr. from Ground level.
10. None of the passages near lift lobby and staircases shall be used for stacking / dumping any kind of materials/waste.
11. Any debris/ waste generated from the work shall be collected on daily basis, removed from site and stored at the designated place in proper manner.
12. Battery operated emergency light/torches shall be provided by the contractor to the workmen while working beyond office hours.



**34. FORMAT OF RUNNING A/C**  
**(in M.S. Excel Format)**

- 1) Name of contractor/Agency :
- 2) Name of work :
- 3) Sr. No. of this bill :
- 4) No. and date of previous bill :
- 5) Reference to Agreement No. :
- 6) Date of written order to commence :
- 7) Date of completion as per agreement :

Sl. No.	Item Description	Unit	Rate(Rs)	As per tender	
				Qty	Amount(Rs)

Up to previous R/A Bill		Up to Date (Gross)		Present Bill		Remark
Qty	Amount(Rs.)	Qty	Amount(Rs.)	Qty	Amount(Rs.)	

Note:

1. If part rate is allowed for any item, it should be indicated with reasons for allowing such a rate.
2. If adhoc payment is made, it should be mentioned Specially .....Net value since Previous bill.



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### III. CERTIFICATE

The measurements on the basis of which the above entries for the running Bill No..... made  
have been taken jointly on ..... and are recorded at pages .....to  
..... Of measurement book no./Sheets  
.....

Signature and date of

Contractor

Signature and date of

Architect's representative

Signature and date of

Engineer of SBIIMS

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

Architect

Site Engineer/Bank's Engineer



## IV – MEMORANDUM FOR PAYMENT

R. BILL NO .....

1. Total amount due since previous bill (D) (A+B) Rs.....
2. PVA on account of escalation in price of steel  
cement and other materials and labour as detailed  
in separate statement enclose Rs.....
3. Deductions:
  - a. Secured Advance paid in the previous R.A. Rs.. .....
  - b. Retention money on value of works as  
per accepted tenders: up to date  
amount  
Less: Already recovered (-) Rs.....  
Balance to be recovered Rs.....
  - c. Mobilization advance, if any
    - i. Outstanding amount (Principal + Interest)  
as on date Rs.....
    - ii. To be recovered in this bill Rs.....
    - iii. Any other departmental material cost  
to be recovered as per contract, if any Rs.....
    - iv. Any other departmental service charges to be  
recovered if any, as per contract (Water, power etc.)  
Enclose statement Rs.....
4. Total deduction as per contractor Rs.....
5. Net amount payable as per Contract (E-F) Rs.....

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Dated: 26.09.2019

(Rupees.....) in words.

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Dated: 26.09.2019

This bill amounting to .....(both figures and words) has been scrutinized by me after due test check of the measurement of works as required and as recommended for payment.

Dated Signature of Bank's Engineer

In charge of the project

STATUTORY DEDUCTIONS:

- |                             |         |
|-----------------------------|---------|
| 1. Total amount due (E)     | Rs..... |
| 2. Less: Income Tax Payable | Rs..... |
| 3. Net Payable              | Rs..... |

The figure in the Memorandum for Payment has been verified and the bill passed for payment Rs.....(Words and figures)

Date:

Signature of Premises officer

**PROFORMA OF CERTIFICATE OF PAYMENT BY ARCHITECTS (if engaged)**

Certificate No. Interim/	Date	
Client:	Project	Lift Supply &
	no:	installation work
Contractor:	Contract/Letter No.	Dated:
	Contracts bill no	Dated:
<p>This is to certify that the amount given below (*) is due to the Contractors for the work done by them and /or against materials delivered at site and/ or for advance towards contract on the above referred project.</p> <p>Advance against contract Rs.</p> <p>Less: Advance adjusted to date</p> <p style="text-align: right;">Rs</p> <p>. Balance Advance Rs.</p> <p>Advance against materials delivered at site</p> <p style="text-align: right;">Rs</p> <p>. Amount of work done to-date Rs.</p> <p>Total Rs.</p> <p>Less: Retention on work done Rs.</p> <p>Less: Previously certify up to Rs.</p> <p>PRESENT CERTIFICATE (*) Rs.</p> <p>Rupees .....</p>		
Remark, if any:		
The details of Insurance policy are given in the next page		
<p>Encloses : Bill Clients Copy</p> <p style="text-align: right;">Signature of Architects</p>		

**36 . DETAILS OF INSURANCE POLICIES**

Type of Polices	Name of Insurance	Amount (Rs.)	Policy No.	Validity
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Workmen Compensation

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Remarks:

1. This only an „on –account payment and is not be interpreted either as approval of work, materials brought or affixed at site or for that matter approval of any sort.
2. The quantum of work done and materials delivered at site have been certified by .....
3. Should you wish to audit such work, kindly contract the undersigned and oblige.

**37. PROFORMA OF HINDRANCE REGISTER**

Name of Work : Date of state of

work: Name of Contractor : Period of

completion: Agreement No. : Date of completion:

Sr. no.	Nature of hindrance	Date of occurrence of hindrance	Date of which hindrance was removed	period of hindrance	Signature SE/PE	Remarks
1	2	3	4	5	6	7

SE = Site Engineer

PE = Project Engineer



### 38. MAINTENANCE OF RECORDS

A) Registers at the site office of the Banks Engineer:

1. Measurement Books
2. Drawing register
3. Materials and site register
4. Hindrance Register
5. Site visit & instructions Register.





**PROFORMA FOR APPLICATION BY CONTRACTOR FOR EXTENSION OF TIME**

1. Name of Contractor:
2. Name of the work as given in the Agreement
3. Agreement WO
4. Tender amount
5. Date of commencement of work
6. Period allowed for completion as per agreement
7. Date of completion as per agreement
8. Period for which extension of time has been given

Date

Month

Year

- a) 1<sup>st</sup> extension vide Banks letter no.
- b) 2<sup>nd</sup> extension vide Banks letter no.
- c) 3<sup>rd</sup> extension vide Banks letter no.
9. Reasons for which extension have been previously given (copies of the previous applications should be attached)
10. Period for which extension is applied for and the reasons thereof including hindrances, time for extra work assigned if any etc.

Signature of Contractor



APPROVED MAKE OF MATERIAL FOR ELECTRICAL WORK		
S.No	Description of Items	Make of Material
1	Modular type 6/16/32 amp switch, socket, step electronic fan regulator 250 Volt, cover plate, box, bulb holder, 3 pin ceiling rose, TV/Telephone socket with all accessories	Legrand/ Anchor(Roma)/MK/Crabtree
2	MCCB( 25 KA) breaking capacity	Legrand/Hagger/Siemens/Schneider
3	MCCB/ELCB (10 KA) breaking capacity	Legrand/Hagger/Siemens/Schneider
4	MS steel/PVC Conduit with accessories	AKG/BEC/NIC/Precision
5	DBs ( IP 43)	Legrand/Hagger/Siemens/Schneider
6	PVC insulated copper wire(FR) 650V/1100Volt grade	Finolex/Havells/RR cable
8	PVC/XLPE insulated Al./Cu. Armoured cable 1100 Volt Grade	Finolex/Havells/RR cable/ C.C.I( Cable Corp Of India)
9	Telephone wire/cable	Finolex/Delton
10	Data cable, Cat-6 cable, Switch, Jack Panel, Rack, Patch cords, Computer I/Os and other accessories	D-link, Legrand
11	Switch Fuse Unit(SFU)	L&T/ Siemens/Schneider
12	Contactors	L&T/ Siemens/Schneider
13	Meters	L&T/Conserve/Elmeasure
14	Cable Termination	Dowells/Comet
15	Cable Tray	Profab/Metalemmms/Asian Ancillary Corporation
16	Light Fixture	Philips/Wipro/Crompton Greaves/Havells
17	Ceiling Fan/Wall Fan	Orient/Usha/Crompton Greave/Havells
18	Exhaust Fan	Crompton Greave/Almonard/Alstom/Usha/Havells
19	Amplifier/Speakers	Bosch/Ahuja



20	Sensors(Occupancy)	Honeywell(MK)/ Siemens/Johnson control
21	Panel	As per IS standard/ CPRI Tested
<b>APPROVED MAKE OF AIR CONDITIONING WORKS</b>		
	Air Conditioners	Daikin/ Hitachi/ Voltas/Bluestar/ Carrier
	Drain Pipe	Kasta/ Supreme/Astral/Finolex
	Voltage Stabilizer	Microteck, V-Gard
	Timer	Legrad/L&T other eq. ISI make
<p>Note:- All the material to be ISI marked. The material shall be only of the approved make only as specified as above. The Contractor shall submit samples of all the makes as specified in above specified makes and the Bank shall have the power to select any of them. The Bank's decision in this regard shall be binding on the contractor. In case any material is not available for any one or all of the above approved make the Bank's shall select and approve alternative makes. The contractor is binding to arrange that material. The LT panel as per IS standard/CPRI Tested.</p>		

Seal & Signature of the contractor

NB. 1) The contractor should obtain prior approval from Employer / Consultants before placing order for any specific materials. Employer may / delete any of the makes or brands out of the above list. The materials shall be only of the approved makes as specified in this. The Contractor shall submit samples of all the makes as specified in this list and The SBIIMS Engineer in Charge / Owner shall have the power to select any of them. The SBIIMS Engineer in Charge / Owner decision in this regard shall be binding on the Contractor.

In case any material is not available for any one or all of these approved makes the Consultant / Owner shall select and approve alternative make(s).

- 2). All materials should conform to relevant standards and codes of BIS.
- 3) Materials with I.S.I. mark shall be used duly approved by the SBIIMS Engineer / Architect.
- 4) If any material is found to be not up to the mark, the contractor will have to produce original bills/certificate from the manufacturer or his authorised Distributor for authenticity and genuineness of the material for consideration and as per make approved by the SBIIMS Engineer in Charge. The same will not be considered for payment. All The materials to be ISI marked.



## TECHNICAL SPECIFICATIONS FOR ELECTRICAL AND AC WORKS

### CHAPTER : I GENERAL

1. All works shall be carried out as per accepted standard and as per IS: Specifications.
2. All materials, fittings, accessories etc. for use in electric installation shall be as per approved list of material attached, unless otherwise specified. In the case of materials for which no specific make is approved or specified the same shall confirm to relevant Indian Standard Specification and/or shall be approved by the SBIIMS Engineer in Charge.
3. In general, circuit wiring is to be done in separate conduits and not in point wiring conduits.
4. Wiring shall be done only in steel conduit system.
5. 2x1.5 Sqmm (22/0.3mm) multi stranded denotes 2 wires of 1.5 Sqmm. (22/0.3mm) multi stranded and so on for other sizes.
6. In case where metric size/rating materials is/are not available, equivalent British size/rating shall be permitted to be used with the written approval of the Consultant.
7. In point wiring for light points where bulkhead is provided in place of ceiling rose/batten holder, Rs.16.00 per point to be deducted ( - ).
8. Blanking plates shall be provided in the MCB distribution board in the blank unused ways, where MCBs are not provided, no extra payment to be allowed for the same, and if blanking plate not provided Rs.3/- per plate (per way) to be deducted from the rates of MCB enclosures ( - ).
9. The rates given in this schedule, are for the finished work covering cost of all materials, labour, royalties, lease rent, wastage temporary work, hire charges of tools and plant, equipment and machinery required to complete the work, over head charges and profit etc. unless specified other wise.
10. In case of any contradiction in the provision of the specifications and Schedule of rate, the provision of the latter would take precedence.
11. In booking dimensions, the order shall be consistent and generally in the sequence of length, width and height or depth or thickness.



13. The following tolerance shall be permitted in measurement unless stated otherwise. Any work done extra over the specified dimensions shall be ignored. Tolerances for areas and cubic contents are applicable only for Civil Works associated with the electrical work:
- Dimension shall be measured to the nearest 0.05 M.
  - Areas shall be worked out in the nearest 0.01 Sqm.
  - Cubic contents shall be worked out to the 0.01 Cum.
14. The agency carrying out the work shall certify that the work has been carried out as per statutory or other regulations in force and prescribed specifications.
15. The materials and labour involved shall be described and it shall be stated that the materials used are of approved make of the Board and as per list attached to the agreement/NIT etc.
16. The provision of scaffolding or ladder or any tools and plants required shall be deemed to be included in the item, unless otherwise stated.
17. Cutting through walls and floors lifting up floor boards and refixing cutting out plaster and making good all the work disturbed, notching or drilling holes through joists etc. shall be deemed to be included with the item of work.
18. The work shall be strictly carried out in accordance with the detailed layout plan of Electrical installation unless otherwise necessary to be altered due to site conditions during the course of execution.
19. Completion plans for the installation carried out shall be furnished.
20. Method and type of wiring shall be fully described and measured separately, it shall be classified according to the size and types of cables used.
21. Concealed conduit work and surface conduit work shall also be classified and described separately the former shall include embedding the conduit and allied fitting in walls, floors etc. during constructions or cutting chases, or both and making good as necessary.
22. Point wiring shall include all work necessary in complete wiring of any length via a switch :
- Ceiling rose or connector (in case of ceiling and exhaust fan points or stiff pendent).
  - Ceiling rose (in case of pendent points except stiff pendent points).
  - Lamp holder (in case of wall brackets, batten points bulk head fittings and similar other fittings).
  - Call bell or Buzzer (in this case the words "Via the switch" shall be read as "Via the bell push or ceiling rose" as the case may be.
  - Upto Electric Clock outlet.
  - Upto socket outlet.
- 22.1 When there is only one point on the distribution circuit (one way), the same shall be measured in two parts as circuit wiring according to the definition of the circuit wiring and the other as "Points" according to the above definition for "Points".
- 22.2 The following shall be deemed to be included in the Point Wiring.



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- (a) Rigid steel conduit/rigid PVC non-metallic conduit/ casing and capping/batten as the case may be, accessories for the same and wiring cables from controlling switch or any other type of switch to the point with ferrule numbering.
- (b) Switch and ceiling rose or connector or batten holder with special and suitable round block for neatly housing the connector as required.
- (c) In case of wall brackets, bulk head fitting and similar fittings, cable as required upto the Lamp Holder.
- (d) Bushed conduit or porcelain tubing when cables pass through wall etc.
- (e) Earth wire from 3 pin socket point to the common earth including connection to the pin of 3/5 pin socket outlet except earth wire from the first tapping of live wire to the sub distribution board.
- (f) All PVC/Wooden/Metal blocks switch boards and boxes sunk or surface type, with suitable covering, (Phenolic laminated sheet) including those required for mounting fan regulator but excluding those under the distribution board and main control switch.
- (g) All fixing accessories such as clips, nails, screws, phil plug, rawl plug, wooden plug etc. as required.
- (h) Joint for junction boxes and connecting the same as required.
- (i) Connections to ceiling rose or connector, socket outlet, lamp holder, fan regulator etc.
- (j) Socket outlets as specified.
- (k) Inter connection wiring between points on the same circuits in same switch box or from another.
- (l) Connector as required for looping of wiring for two or more wires wherever required.
- (m) Pendants, if provided shall be paid extra.
- (n) All the switches, socket, plate, boxes, blank plate and regulator to be modular plate type.

22.3 The mechanical protection provided to the wiring coming within 1.5 Mtr. from floor level upto switch board shall be deemed to have been included in the item of work. Method of installation and making good the damages shall be described in the specification.

22.4 The common earth continuity conductor shall be described stating material size and method of installation.

23.3 Any junction box provided for extending the wiring beyond the point referred to shall not be treated as the nearest tapping point.

## **CHAPTER: II**

### **METALLIC CONDUIT WIRING SYSTEM**

#### **2.0 SCOPE**



This chapter covers the detailed requirements for wiring work in metallic conduits. This chapter covers both surface and recessed types of works.

## 2.1 APPLICATION

- (i) Recessed conduit is suitable generally for all applications. Surface conduit work may be adopted in places like workshops, plant rooms, pump rooms, wiring above false ceiling/below false flooring and at locations where recessed work may not be possible to be done. The type of work viz. surface or recessed shall be as specified in the respective works.
- (ii) Flexible conduits may only be permitted for inter connections between switch gear, DB's and conduit terminations in wall.

## 2.2 MATERIALS

### 2.2.1 Conduits

- (i) All rigid conduit pipes shall be of steel and be ISI marked. The wall thickness shall be not less than 1.6mm (16 SWG) for conduits upto 32mm dia and not less than 2mm (14 SWG) for conduits above 32mm dia. These shall be solid drawn or reamed by welding and finished with galvanized or stove enamelled surface.
- (ii) The maximum number of PVC insulated cables conforming to IS:694-1990 that can be drawn in one conduit is given sizewise in Table-1 and the number of cables per conduit shall not be exceeded. Conduit sizes shall be selected accordingly in each run.
- (iii) No steel conduit less than 20mm in diameter shall be used.

### 2.2.2 Conduit accessories

- (i) The conduit wiring system shall be complete in all respects including their accessories.
- (ii) All conduit accessories shall be of threaded type and under no circumstances pin grip type or clamp grip type accessories shall be used.
- (iii) Bends couplers etc. shall be solid type in recessed type of works and may be solid or inspection type as required, in surface type of works.
- (iv) (a) Saddles for surface conduit work on wall shall not be less than 0.55mm (24 gauge) for conduits upto 25mm dia and not less than 0.9mm (20 gauge) for largest diameter. The corresponding widths shall be 19mm and 25mm.
- (b) The minimum width and the thickness of girder clips used for fixing conduits to steel joists, and clamps shall be as per Table-II.

### 2.2.3 Outlets

- (i) The switch box or regulator box shall be made of metal on all sides, except on the front. In case of welded mild steel sheet boxes, the wall thickness shall not be less than 1.2mm (18 gauge) for boxes upto a size of 20cm X 30cm and above this size 1.6mm (16 gauge) thick MS boxes



shall be used. The metallic boxes shall be duly painted with anticorrosive paint before erection as per Specifications.

- (ii) GI earth terminal with stud and 2 G.I. washers shall be provided in each MS box for termination of protective conductors and for connection to socket outlet/metallic body of fan regulator etc.
- (iii) A metal strip shall be welded/screwed, to the metal box as support if tumbler type of control switches, sockets and/or fan regulators are to be fixed therein.
- (iv) Clear depth of the box shall not be less than 50/60 mm and this shall be increased suitably to accommodate mounting of fan regulators in flush pattern.
- (v) The fan regulators can also be mounted on the switch box covers, if so stipulated in the tender specifications, or if so directed by the Engineer- in-Charge.
- (vi) Except where otherwise stated, 3mm thick phenolic terminated sheets shall be fixed on the front with brass screws, or aluminum alloy/cadmium plated iron screws as approved by the Consultant.

## 2.3 INSTALLATION

### 2.3.1 Common aspects for recessed and surface conduit works

- (i) Conduit Joints
  - (a) The conduit work of each circuit or section shall be completed before the cables are drawn in.
  - (b) Conduit pipes shall be jointed by means of screwed couplers and screwed accessories only. Threads on conduit pipes in all cases shall be between 13mm to 19mm long sufficient to accommodate pipes to full threaded portion of couplers or accessories.
  - (c) Cut ends of conduit pipes shall have no sharp edges, nor any burrs left to avoid damage to the insulation of the conductors while pulling them through such pipes.
  - (d) The Consultant, with a view to ensuring that the above provision has been carried out, may require that the separate lengths of conduit etc. after they have been prepared, shall be submitted for inspection before being fixed.
  - (e) No bare threads portion of conduit pipe shall be allowed unless such bare threaded portion is treated with anticorrosive pipe servative or covered with approved plastic compound.
- (ii) Bends in conduit
  - (a) All necessary bends in the system, including diversion, shall be done either by neatly bending the pipes without cracking with a bending radius of not less than 7.5cm or alternatively, by inserting suitable solid or inspection type normal bends, elbows or similar fittings, or by fixing cast iron inspection boxes, whichever is most suitable.
  - (b) No length of conduit shall have more than the equivalent of four quarter bends from outlet to outlet.
  - (c) Conduit fittings shall be avoided as far as possible on conduit system exposed to weather. Where necessary, solid type fittings shall be used.
- (iii) Outlets





(a) All outlets such as switches, wall sockets etc. may be either flush mounting type, or of surface mounting type, as specified in the Additional Specifications.

(iv) Painting after erection

After installation, all accessories of conduit pipes, fittings, switch and regulator boxes etc. shall be painted.

### 2.3.2 Additional requirements for surface conduit work

(i) Painting before erection

The outer surface of conduit including all bends, unions, tees, junction boxes, etc. forming part of the conduit system, shall be adequately protected against rust when such system is exposed to weather, by being painted with 2 coats of red oxide paint applied before they are fixed.

(ii) Fixing conduit on surface

(a) Conduit pipes shall be fixed by saddles, secured to suitable approved plugs with screws in an approved manner at an interval of not more than one metre, but on either side of the couplers or bends of similar fittings, saddles shall be fixed at a distance of 45 cm from the centre of such fittings.

(b) Where conduit pipes are to be laid along the trusses steel joists etc. the same shall be secured by means of saddles or girder clips or clamps as required by the Consultant.

(c) In long distance straight run of conduit, inspection type couplers at reasonable intervals shall be provided, or running threads with couplers and jamnuts shall be provided.

(iii) Fixing outlet boxes

Only a portion of the switch box shall be sunk in the wall, the other portion being projected out for suitable entry of conduit pipes into the box.

### 2.3.3 Additional requirements for recessed conduit work

(i) Making chase

(a) The chase in the wall shall be neatly made, and of ample dimensions to permit the conduit to be fixed in the manner desired.

(b) In the case of buildings under construction, the conduits shall be buried in the wall before plastering, and shall be finished neatly after erection of conduit.

(c) In case of exposed brick/rubble masonry work, special care shall be taken to fix the conduit and accessories in position along with the building work.

(ii) Fixing conduits in chase

(a) The conduit pipe shall be fixed by means of staples, J-hooks or by means of saddles, not more than 60cm apart, or by any other approved means of fixing.

(b) All threaded joints of conduit pipes shall be treated with some approved preservative compound to secure protection against rust.

(iii) Fixing conduits in 'RCC work'



- (a) The conduit pipes shall be laid in position and fixed to the steel reinforcement bars by steel binding wires before the concreting is done. The conduit pipes shall be fixed firmly to the steel reinforcement bars to avoid their dislocation during pouring of cement concrete and subsequent tamping of the same.
- (b) Fixing of standard bends or elbows shall be avoided as far as practicable, and all curves shall be maintained by bending the conduit pipe itself with a long radius which will permit easy drawing in of conductors.
- (c) Location of inspection/junction boxes in RCC work should be identified by suitable means to avoid unnecessary chipping of the RCC slab subsequently to locate these boxes.
- (iv) Fixing inspection boxes
- (a) Suitable inspection boxes to the minimum requirement shall be provided to permit inspection and to facilitate replacement of wires, if necessary.
- (b) These shall be mounted flush with the wall or ceiling concrete. Minimum 65mm depth junction boxes shall be used in roof slabs and the depth of the boxes in other places shall be as per IS:2667-1977.
- (c) Suitable ventilating holes shall be provided in the inspection box covers.
- (v) Fixing switch boxes and accessories
- Switch boxes shall be mounted flush with the wall. All outlets such as switches, socket outlets etc. shall be flush mounting type, unless otherwise specified in the Additional Specifications.
- (vi) Fish wire
- To facilitate subsequent drawing of wires in the conduit. GI fish wire of 1.6mm/1.2mm (16/18 SWG) shall be provided alongwith the laying of the recessed conduits.
- (vii) Bunching of cables
- (a) Cables carrying direct current may, if desired, be bunched whatever their polarity, but cables carrying alternating current, if installed in metal conduit shall always be bunched so that the outgoing and return cables are drawn into the same conduit.
- (b) Where the distribution is for single phase loads only, conductors for these phases shall be drawn in one conduit.
- (c) In case of three phase loads, separate conduits shall be run from the distribution boards to the load points, or outlets as the case may be.

#### 2.3.4 Earthing requirements

- (i) The entire system of metallic conduit work, including the outlet boxes and other metallic accessories, shall be mechanically and electrically continuous by proper screwed joints, or by double checknuts at terminations. The conduit shall be continuous when passing through walls or floors.



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(ii) Protective (loop earthing) conductor(s) shall be laid along the runs of the conduit between the metallic switch boxes and the distribution boards/switch boards, terminated thereto. These conductors shall be of such size and material as specified. Depending upon their size and material, the protective earth conductors shall be either drawn inside the conduits along with the cables, or shall be laid drawn inside the conduits alongwith the cables, or shall be laid external to

the conduits. When laid external to the conduits, this shall be properly clamped with the conduit at regular intervals.

(iii) The protective conductors shall be terminated properly using earth studs, earth terminal block etc. as the case may be.

(iv) Gas or water pipe shall not be used as protective conductor (earth medium).

TABLE - I

Maximum number of PVC insulated 650/1100 V grade aluminium/copper conductor cable conforming to IS:694-1990

Nominal cross sectional area of conductor in Sqmm.	20mm		25mm		32mm		38mm		51mm		64mm	
	S	B	S	B	S	B	S	B	S	B	S	B
1	2	3	4	5	6	7	8	9	10	11	12	13
1.50	5	4	10	8	18	12	--	--	--	--	--	--
2.50	5	3	8	8	12	10	--	--	--	--	--	--
4	3	2	6	5	10	8	--	--	--	--	--	--
6	2	--	5	4	8	7	--	--	--	--	--	--
10	2	--	4	3	5	5	8	6	--	--	--	--
16	--	--	2	2	3	3	6	5	10	7	12	8
25	--	--	--	--	3	2	5	3	8	6	9	7
35	--	--	--	--	--	--	3	2	6	5	8	6
50	--	--	--	--	--	--	--	--	5	3	6	5
70	--	--	--	--	--	--	--	--	4	3	5	4

Note:



1. The above table shows the maximum capacity of conduits for a simultaneous drawing in of cables.

2. The columns headed 'S' apply to runs of conduit which have distance not exceeding 4.25 m between draw in boxes and which do not deflect from the straight by an angle of more than 15 degrees columns headed 'B' apply to runs of conduit which deflect from the straight by an angle of more than 15 degrees.

3. Conduit sizes are the nominal external diameter.

TABLE - II

Girder Clips or clamps

(Clause 2.2.2(iv))

Size of conduit	Width	Thickness
(i) 20mm	19mm	0.9mm (20 SWG)
(ii) 25mm	19mm	0.9mm (20 SWG)
(iii) 32mm and above	25mm	1.2mm (18 SWG)

**CHAPTER: III****TESTING OF INSTALLATION**  
-----**3.0 SCOPE**

This chapter describes the details of tests to be conducted in the completed internal electrical installations, before commission.

**3.1 GENERAL****3.1.1 Tests**

On completion of installation, the following tests shall be carried out:

1. Insulation resistance test.
2. Polarity test of switch.
3. Earth continuity test.
4. Earth electrode resistance test.

**3.1.2 Witnessing of tests**

Testing shall be carried out for the completed installations, in the presence of and to the satisfaction of the Consultant by the contractor. All test results shall be recorded and submitted to the Department.

**3.1.3 Test instruments**

All necessary test instruments for the tests shall be arranged by the contractor if so required by the Consultant.

**3.2 INSULATION RESISTANCE**

3.2.1 The insulation resistance shall be measured by applying between earth and the whole system of conductors, or any section thereof with all fuses in place, and all switches closed, and except in earthed concentric wiring, all lamps in position, or both poles of the installation otherwise electrically connected together, a direct current pressure of not less than twice the working pressure, provided it need not exceed 500 volts for medium voltage, circuits, where the supply is derived from a three wire D.C. or a polyphase A.C. system the neutral pole of which is connected to earth either directly or through added resistance, the working pressure shall be deemed to that which is maintained between the phase conductor and the neutral.

3.2.2 The insulation resistance shall also be measured between all the conductors connected to one pole, or phase conductor of the supply, and all the conductors conned to the neutral, or to the other pole or phase conductors of the supply with all the lamps in position, and switches in off position, and its value shall be not less than that specified in sub clause 3.1.3.



3.2.3 The insulation resistance in mega ohms measured as above shall not less than 12.5 mega ohms for the wiring with PVC insulated cable subject to a minimum of 1 megaohm.

3.2.4 Where a whole installation is being tested, a lower value than that given by the formula, subject to a minimum of 1 megaohm, is acceptable.

3.2.5 A preliminary and similar test may be made before the lamps etc. are installed, and in this event the insulation resistance to earth should not be less than 25 megaohms for the wiring with PVC insulated cables, subject to a minimum of 2 megaohms.

3.2.6 The term outlet includes every point along with every switch except that a switch combined with a socket outlet, appliance or lighting fitting is regarded as one outlet.

3.2.7 Control rheostats, heating and power appliances and electric signs may, if required, be disconnected from the circuit during the test, but in that event the insulation resistance between the case or frame work, and all live parts of each rheostat, appliance and sign shall be not less than that specified in the relevant Indian Standard Specifications, or where there is no such Specification, shall be not less than one megaohm.

### 3.3 POLARITY TEST OF SWITCH

3.3.1 In a two wire installation a test shall be made to verify that all the switches in every circuit have been fitted in the same conduits throughout, and such conductor shall be labeled or marked for connection to the phase conductor or to the non-earthed conductors of the supply.

3.3.2 In a three wire or a four wire installation, a test shall be made to verify that every non linked single pole switch is fitted in a conductor which is labeled, or marked for connection to one of the phase conductors of the supply.

3.3.3 The installation shall be connected to the supply for testing the terminals of all switches shall be tested by a test lamp, one lead of which is connected to the earth. Glowing of test lamp to its full brilliance, when the switch is in 'ON' position irrespective of appliance in position or not, shall indicate that the switch is connected to the right polarity.

### 3.4 TESTING OF EARTH CONTINUITY PATH

The earth continuity conductor, including metal conduits and metallic envelopes of cables in all cases, shall be tested for electric continuity. The electrical resistance of the same along with the earthing lead, but excluding any added resistance, or earth leakage circuit breaker, measured from the connection with the earth electrode to any point in the earth continuity conductor in the completed installation shall not exceed one ohm.

### 3.5 MEASUREMENT OF EARTH ELECTRODE RESISTANCE

3.5.1 Two auxiliary earth electrode, besides the test electrode, are placed at suitable distance from the test electrode (see figure). A measured current is passed between the electrode 'A' to be tested and an auxiliary current electrode 'C' and the potential difference

between the electrode 'A' and auxiliary potential B' is measured. The resistance of the test electrode 'A' is then given by;

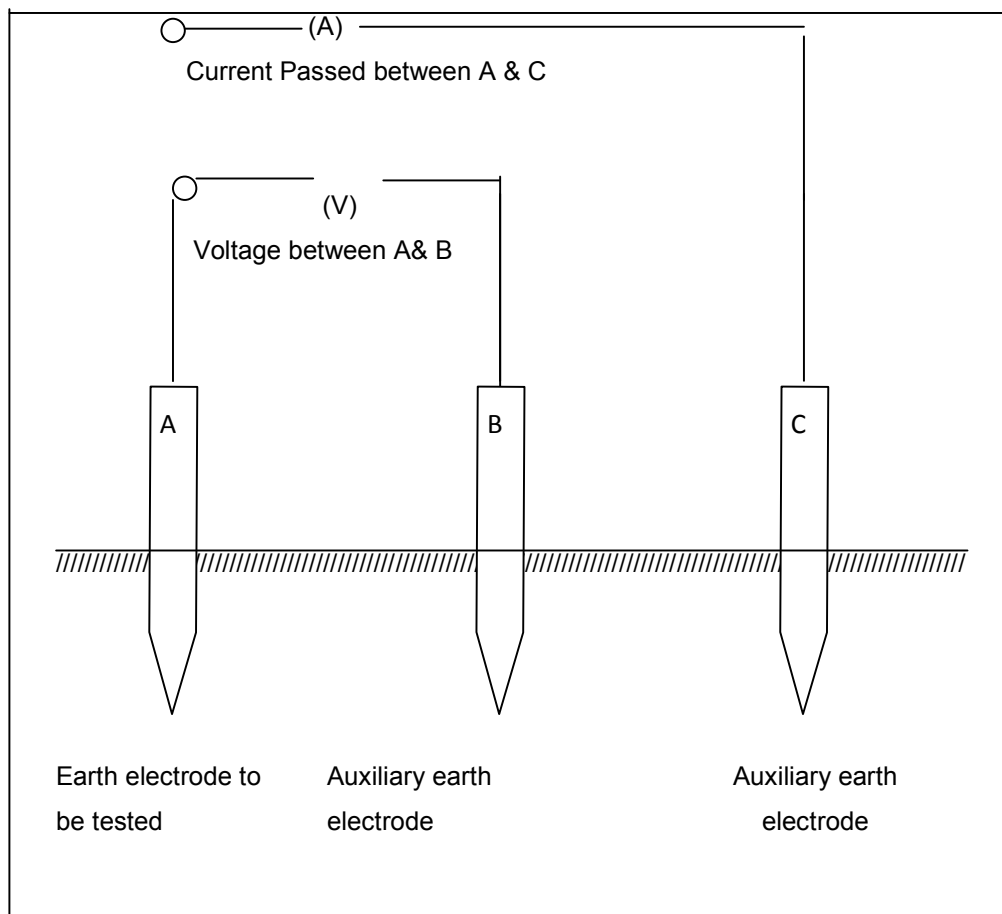
$$R = \frac{V}{I}$$

Where,

R = Resistance of the test electrode in ohms.

V = Reading of the voltmeter in volts.

I = Reading of the ammeter in amps



### 3.5.2

(i) Stray currents flowing in the soil may produce serious errors in the measurement of earth resistance. To eliminate this, hand driven generator is used.



(ii) If the frequency of the supply of hand driven generator coincides with the frequency of stray current, there will be wandering of instrument pointer. An increase or decrease of generator speed will cause this to disappear.

3.5.3 At the time of test, the test electrode shall be separated from the earthing system.

3.5.4 The auxillary electrodes shall be of 13mm diameter mild steel rod driven upto 1m into the ground.

3.5.5 All the three electrodes shall be so placed that they are independent of the resistance area of each other. If the test electrode is in the form of a rod, pipe or plate, the auxillary current electrode 'C' shall be placed at least 30m away from it, and the auxillary potential electrode 'B' shall be placed mid way between them.

3.5.6 Unless three consecutive readings of test electrode resistance agree, the test shall be repeated by increasing the distance between electrodes A and C upto 50m and each time placing the electrode B midway between them.

3.5.7 On these principles, 'Megger Earth Tester' containing a direct reading ohm-meter, a hand driven generator and auxillary electrodes are manufactured for direct reading of earth resistance of electrodes.

### 3.6 TEST CERTIFICATE

On completion of an electrical installation (or an extension to an installation) a certificate shall be furnished by the contractor, countersigned by the certified supervisor under whose direct supervision the installation was carried out. This certificate shall be in the prescribed form as given in Appendix 'A' in addition to the test certificate required by the Local Electric Supply Authorities.

## CHAPTER-IV

### MCB TYPE DISTRIBUTION BOARDS

4.1 (i) MCBDB's may be of single phase, 3 phase (horizontal type) suitable for feeding single phase loads, or 3 phase (vertical type) suitable for feeding single phase as well as 3 phase loads as specified. These shall be complete with accessories, but without MCBs which shall be specified as a separate item in the tender documents.

(ii) The current ratings and the number of ways shall be as specified. Blanking plates shall be provided to close unused ways.

(iii) DB with integral incomer

Where it is proposed to install the controlling MCCB/ELCB/MCB, the total number of outgoing MCBs will be reduced by one or two numbers corresponding to SP or SP&N at the incoming, since the total





number of ways are fixed in MCBDBs. Bus bars in such units shall also be correspondingly shorter. The inter connections shall be done between the incomer and outgoings as part of the DB in the works.

(iv) MCBDBs shall be of surface/flush mounting pattern according to the requirement of their location and shall be suitable to accommodate MCB's and ELCB at incoming as well as outgoing in single pole or multipole configuration as required.

(v) MCBDB's shall be dust and vermin proof conforming to IP 42 and shall be fabricated out of CRCA sheet steel. 1.2 mm thick with stove enamelled paint finish.

(vi) MCBDB's shall have removable type end plates with knock outs at the bottom and top.

(vii) Only the knobs of the MCBs shall protrude out of the front covers through openings neatly machine made for the purpose.

(viii) The bus bars used shall be solid electrolytic copper of appropriate sections.

(ix) DIN bar(s) shall be provided for mounting the MCBs.

#### 4.2 PRE-WIRED MCB DISTRIBUTION BOARDS

(i) Prewired MCBDBs shall be provided only where specified.

(ii) The complete board shall be factory fabricated and shall be duly prewired in the works, ready for installation at site.

(iii) The board shall be of wall mounted cubical type construction, fabricated out of 1.2 mm thick sheet steel with stove enamelled paint finish.

(iv) The board shall also be provided with a loose wire box ( if mentioned in the scope of work ) as a compartment for the complete width and, depth of the board and of minimum height of 125 mm in case of TPN DB's and 100 mm in case of SPN BD's.

(v) The board shall be provided with a hinged cover of 1.6mm thick sheet steel in the front. Only the knobs of the MCBs shall protrude out of the front covers through openings neatly machine made for the purpose.

(vi) Knock out holes at the bottom and detachable plate with knock out holes at the top of the board shall be provided.

(vii) The board shall be complete with the following accessories.

- (a) 200A copper bus bar(s)
- (b) Neutral link
- (c) Common earth bar
- (d) Din bar for mounting MCBs
- (e) Elemex type terminal connectors suitable for incoming and outgoing cables.
- (f) A set of indication lamps with HRC cartridge fuses for each phase of the incoming supply.
- (g) Earthing stud(s).



(viii) The board shall be fully prewired with single core PVC insulated copper conductors/insulated solid copper links and terminated on to extended type terminal connectors, suitable for connections to the sizes of the respective conductors.

(ix) All incoming and outgoing wiring to the prewired MCBDB's shall be terminated only in the Elemex type extended terminal connectors to be provided within the DB. The terminal connectors shall therefore be so provided as to facilitate easy cable connections and subsequent maintenance.

(x) A common copper earth bar shall be provided within the loose wire box. The common neutral bar as well as the terminal connectors shall however be provided within the main compartment just below the loose wire box.

#### 4.3 MINIATURE CIRCUIT BREAKERS (MCB's)

(i) 'Light' series 10 KA Breaking Capacity shall be used only for normal 'lighting' circuits.

(ii) 'Power' series 10 KA Breaking Capacity MCB's shall be invariably used for motor loads helogen lamp fittings, sodium/mercury discharge lamps and all 'power' circuits.

(iii) Ratings (Amps as well as KA), number of poles, type as MCB or isolator, etc. shall be as specified in the tender documents.

**CHAPTER : V****MEDIUM VOLTAGE CABLING****5.0 Scope**

5.1 The scope of work shall cover supply, laying, connecting, testing and commissioning of low and medium voltage power and control cabling.

**5.2 Standards**

5.2.1 The following standards and rules shall be applicable:

- 1) IS:1554 PVC insulated electric cables (heavy duty)
- 2) IS:1753 Alluminium conductors for insulated cables
- 3) IS:961 Recommended current ratings for cables.
- 4) Indian electricity act and rules. All codes and standards mean the latest. Where not specified otherwise the installation shall generally follow the Indian Standard Codes of Practice or the British Standard Codes of Practice where Indian Standards are not available.

**5.3 Cables**

5.3.1 All cables shall be 1100 volt grade PVC insulated, sheathed with or without steel armouring as specified and with an outer PVC protective sheath. Cables shall have high conductivity stranded aluminium or copper conductors and cores colour coded to the Indian Standards.

5.3.2 All cables shall be new without any kinds or visible damage. The manufacturers name, insulating material, conductor size and voltage class shall be marked on the surface of the cable at every 600mm centres.

**5.4 Installation**

5.4.1 Cables shall be laid in the routes marked in the drawings. Where the route is not marked, the contractor shall mark it out on the drawings and also on the site and obtain the approval of the Architect/Consultant before laying the cable. Procurement of cables shall be on the basis of actual site measurements and the quantities shown in the schedule of work shall be regarded as a guide only.

5.4.2 Cables, running indoors shall be laid on walls, ceiling, inside shafts or trenches. Single cables laid shall be fixed directly to walls or ceiling and supported at not more than 500mm. Where number of cables are run, necessary perforated cable trays shall be provided wherever shown. Perforated trays shall be mild steel or aluminium as specified in the schedule of work and supported on mild steel frame work as shown on drawings or as approved. Cables laid in built up trenches shall be on steel supports. Plastic identification tags shall be provided at every 30m.

5.4.3 Cables shall be bent to a radius not less than 12 (twelve) times the overall diameter of the cable or in accordance with the manufacturer's recommendations whichever is higher.

5.4.4 In the case of cables buried directly in ground, the cable route shall be parallel or perpendicular to roadways, walls etc. cables shall be laid on an excavated, graded



trench, over a sand or soft earth cushion to provide protection against abrasion. Cables shall be protected with brick or cement tiles as shown on drawings. Width of excavated trenches shall be as per drawings. Backfill over buried cables shall be with a minimum earth cover of 600mm. The cables shall be provided with cables markers at every 35 meters and at all loop points.

5.4.5 The general arrangement of cable laying is shown on drawings. All cables shall be full runs from panel to panel without any joints or splices. Cables shall be identified at end terminations indicating the feeder number and the Panel/Distribution board from where it is being laid. All cable terminations for conductors upto 4 sqmm may be insertion type and all higher sizes shall have tinned copper compression lugs. Cable terminations shall have necessary brass glands. The end terminations shall be insulated with a minimum of six half lapped layers of P.V.C. tapes. Cable armouring shall be earthed at both ends.

## 5.5 Testing

5.5.1 MV cables shall be tested upon installation with a 500V Meggar and the following readings established

1) Continuity on all phases

2) Insulation Resistance

(a) between conductors

(b) all conductors and ground All test readings shall be recorded and shall form part of the completion documentation.

## SECTION : VI

### EARTHING

#### 6.0 Scope

6.1 The scope of work shall cover earthing stations, laying aluminium/copper earth strips and connecting the power panels, DBs and switch boards.

#### 6.2 Standards

6.2.1 The following standards and rules shall be applicable:

1) IS:3043-1966 Code of Practice for earthing.

2) Indian Electricity Act and Rules.

6.2.2 All codes and standards mean the latest. Where not specified otherwise the installation shall generally follow the Indian Standard Code of Practice or the British Standard Codes of Practice in the absence of Indian Standards.

#### 6.3 Plate Earthing Station

6.3.1 The substation earthing shall be with copper plate earthing station unless otherwise specified.



6.3.2 The earthing station shall be as shown on the drawing. The earth resistance shall be maintained with a suitable soil treatment.

6.3.3 The resistance of each earth station should not exceed 2 ohms.

6.3.4 The earth lead shall be connected to the earth plate through copper/brass bolts.

#### 6.4 Pipe Earthing Station

6.4.1 The earth station shall be as shown on the drawing and shall be used for equipment earth grid. The earth electrode shall be 2.5 meter long 40mm dia galvanized steel pipe. The earth resistance shall be maintained with a suitable soil treatment.

6.4.2 The resistance of each earth station should not exceed 5 ohms.

6.4.3 The earth lead shall be fixed to the pipe with a clamp and safety set screws. The clamps shall be permanently accessible.

#### 6.5 Earth leads and connections

6.5.1 Earth lead shall be bare copper or aluminium or galvanised steel as specified with sizes shown on drawings. Copper leads shall have a phosphor content of not over 0.15 percent. Aluminium and galvanised steel buried in ground shall be protected with bitumen and hessian wrap or polythene faced hessian and bitumen coating. At road crossings necessary hume pipes shall be laid. Earth lead run on surface of wall or ceiling shall be fixed on saddles or wall so that the strip is atleast 8mm away from the wall surface.

6.5.2 All earth strip shall be jointed as follows:

Copper Copper rivetting with 80mm fish plate and brazing

Aluminium Riveting with 2 Nos. 100mm long bimetal fish plates using copper rivets

Galvanised Steel Lap welding with 50mm minimum lap

6.5.3 All strips shall be run on walls/beams with 6mm thick galvanised steel earth saddles at 500mm centre to centre.

#### 6.6 Equipment Earthing

6.6.1 All apparatus and equipment transmitting or utilising power shall be earthed in the following manner. Copper earth wires shall be used where copper wires are specified. Aluminium wires may be used where aluminium phase wires are specified unless otherwise indicated in the schedule of work.

#### 6.6.2 Power transmission apparatus

Metallic conduit shall not be accepted as an earth continuity conductor. A separate insulated/bare earth continuity conductor of size 50% of the phase conductor subject to the minimum and maximum shall be provided.

Copper Aluminium Galvanised Steel



Minimum (sqmm)	2.5	4.0	6
Maximum (sqmm)	65	100	200

The earth continuity conductor may be drawn inside the conduit in which case, it should be insulated.

6.6.3 Non-metallic conduit shall have an insulated earth continuity conductor of the same size as for metallic conduit. All metal junction and switch boxes shall have an inside earth stud to which the earth conductor shall be connected. The earth conductor shall be distinctly colored (green) for easy identification.

6.6.4 Armoured cables shall be earthed by 2 distinct earth connections to the armouring at both the ends and the size of connection being as for the metallic conduit.

6.6.5 In the case of unarmoured cable, an earth continuity conductor shall either be run outside along the cable or should form a separate insulated core of the cable.

6.6.6 3 Ph. power panels and distribution boards shall have 2 distinct earth connections of the size correlated to the incoming cable size. In case of 1 Ph. DB's a single earth connection is adequate. Similarly for 3 Ph and 1 Ph isolating switches there shall be 2 and 1 earth connections respectively, sizes being correlated to the incoming cable.

6.6.7 Utilising Equipment

3 Ph. motors and other 3 Ph apparatus shall have 2 distinct earth connections of size equal to 50% of the connecting cable subject to the following:

	Copper	Alluminim	Galvanised Steel
Minimum (sqmm)	6.5	10	20
Maximum (sqmm)	65	100	200

6.6.8 For 1 Ph motors and 1 Ph apparatus, the single earth connections shall be provided of the above size. For all light fittings and fans a single earth connection with 2.5 sqmm copper or equivalent size shall be provided.

6.6.9 All street light poles shall have an earth stud and shall be connected to the cable armouring using 6.5 sqmm copper or equivalent unless shown otherwise. For street lighting poles planted in ground, 2.4 meter long 10 SWG bare copper wire shall be coiled and buried with every fourth pole in addition to connection to cable armouring.

6.6.10 An equipment earthing grid is established as shown on the drawings. All earth connections to all panels, DBs and equipment shall be connected to the nearest point of the earthing grid.



## 6.7 Testing

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6.7.1. The following earth resistance values shall be measured with an approved earth meggar and recorded.

- 1) Each earthing station
- 2) Earthing system as a whole
- 3) Earth continuity conductors

## CHAPTER : VII

### MV SWITCHGEAR

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## 7.0 Scope

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7.1 The scope of work shall cover the supply, installation, testing and commissioning of all power panels, incorporating, switch fuses, bus bars, and contactor interconnections, earthing etc. meeting the requirements shown in equipment schedule and the drawings.

## 7.2 Standards

7.2.1 The following standards and rules shall be applicable:

- 1) IS:2516-1972 Specification for AC circuit breakers.
- 2) IS:4047-1977 Specification for Heavy duty air breaker switch gear and fuses for voltage not exceeding 1000 V.
- 3) IS:1818-1972 Specification for AC isolator and earthing switches.
- 4) IS:3072-1975 Code of Practice for installation and maintenance of switch gear.
- 5) IS:3106-1966 Code of Practice for selection, installation and maintenance of fuses (Voltage not exceeding 650 V).
- 6) IS:4237-1967 General requirements for switch gear and control gear for voltage not exceeding 1000 V.
- 7) IS:2607-1976 Air break isolators for Voltages not exceeding 1000 V.
- 8) IS:8623-1977 Specification for factory built assemblies of switch gear and control gear for voltage upto and including 1000 V AC and 1200 V DC.
- 9) Marking and arrangement of switch gear bus bars main connections and auxillary wiring.
- 10) Indian Electricity Act and Rules.



All codes and standards mean the latest. Where not specified otherwise the installation shall generally follow the Indian Standard Codes of Practice or the relevant British Standard Codes of Practice in the absence of corresponding Indian Standards.

### 7.3 Circuit Breakers

7.3.1 Circuit breakers shall be air break horizontal draw out type fully interlocked and meeting the requirements of IS:2516 or BS:3659. Breakers shall be rated for a medium voltage of 600 V and rated full load amperes as indicated on drawings. Breaker shall be capable of making and breaking system short circuits specified.

7.3.2 Breakers shall be unless specified otherwise manually operated, complete with front-of-the-panel operating handle, isolating plug with safety shutters, mechanical ON/OFF indicator, silver plated arching and main contacts, are chutes, trip free operating. Breakers shall be capable of being racked out into 'Testing', 'Isolator' and 'Maintenance' positions and kept locked in any position. Breakers for remote operation shall be motor operated spring charged.

### 7.4 MCCB's

7.4.1 Moulded case circuit breakers shall be standard products of established manufacturers and shall conform to BS:3871. Breakers shall be rated for system short circuit levels and if unavoidable, backed up by HRC fuses. Breakers shall incorporate thermal and magnetic trips unless shown otherwise in the drawings.

### 7.5 Switch Fuse Units & Disconnects

7.5.1 Switch fuse units shall have quick make, quick break silver plated preferably double break contacts with operating mechanism suitable for rotary operation in the case of cubicle mounting.

All switches shall be rated according to the equipment schedule or drawings and shall withstand the system prospective fault current let through. Cam operated rotary switches with adequate terminal adopters upto 25A are acceptable but for all higher rating switch fuse units shall be heavy duty type conforming to IS:4047.

7.5.2 Fuses shall be HRC cartridge type conforming to IS:2208 with a breaking capacity corresponding to system fault level. Fuses shall be link type with visible indication. Screw type diazed fuses are not acceptable for any ratings.

7.5.3 All disconnects shall consist of switch units quick make, quick break type with silver plated contacts. The switches shall preferably have double breaks. The switches shall preferably have sheet steel enclosures, which in turn is mounted on suitable angle iron frame work. In wet





locations switches shall have cast iron enclosures. Disconnects shall have a minimum breaking capacity of 5KV at 415 Volts.

#### 7.6 Instrument Transformers, Meters & Relays

7.6.1 Ammeters and Voltmeters shall have moving iron spring controlled dead beat elements in square-bezel flush type cases 96mm in size and suitable for switch board mounting. Meters shall conform to BS:89 and have grade 'A' accuracy. Scale ranges shall meet with the requirements or as indicated on the drawing or in the Schedule of quantities.

7.6.2 Electronic energy meters shall be two element switch board mounting type suitable for unbalanced loads. Meters should incorporate a KVA demand meter with an integration time of 30 minutes. In case of two incoming feeders, a summing CT shall be provided with the meter. Meters shall conform to BS:37. The energy meters for DG Set and Transformer shall be calibrated and got certified by the respective Electricity Authority.

#### 7.7 Cubicle Boards

7.7.1 All boards shall be combination of 14 and 16 SWG sheet steel free standing, extensible, totally enclosed, dust tight, vermin proof cubicle, flush dead front and modular construction suitable for 3 phase 415V 4 wire 50 Hertz system. All boards shall be accessible from the front for the maintenance of switch fuses, bus bars, cable terminations, meters etc. Cables shall be capable of entering the board both from top as well as bottom. All panels shall be machine pressed with punched openings for meters etc. All sheet steel shall be rust inhibited through a process of degreasing, acid picking, phosphating etc. The panels shall be finished with two coats of synthetic enamel of approved colour over one coat of red oxide primer. Engraved plastic labels shall be provided indicating the feeder details, and capacity and danger signs.

7.7.2 The boards shall accommodate air insulated bus bars, air circuit breakers, switch fuse units with HRC fuses, starters, necessary meters, relays contracts etc. as required and arranged in suitable tiers. All breakers and switch fuses shall be suitably derated taking into account specified ambient temperature and running temperature inside the cubicle.

7.7.3 The switch board shall be fully compartmentalised in vertical tiers housing the feeder switches in totally enclosed independent compartments. Each compartment shall be self sufficient with switch unit, fuses, contractors, relays, indicating lamps and an inter locked door with facility for padlocking. Each feeder must terminate in an independent labelled terminal



block. Strips type terminal block accommodating several feeders together is not acceptable. Pressure clamp type terminals suitable for alluminium wires may be used upto switches of 25A and cable lugs for higher ratings. All terminations shall be shrouded in an approved manner. The entire enclosure shall meet with IS:2147/1962. Feeder connections shall be cut of solid insulated copper/alluminium wires or strips with bimetallic clamps wherever required. Internal wiring, bus bar markings etc. shall conform to IS:375/1963. Internal wiring shall have terminal ferrules. Main switch should be at an easily accessible height and the highest switch operating handle should not be over 1.75m from floor level. Cable glands need not form part of the switch board as the cost of glands will form part of the cable termination.

## 7.8 Bus Bars

7.8.1 Bus bars shall be three phase and neutral and of copper or alluminium or alluminium alloy as specified and shown on drawings and rated for a temperature specified, based on insulated conductor rating (IS:8084-1976). Neutral bars may be of one half the size of the phase bars.

The main horizontal bus bars shall be of uniform cross section and rated in accord with the incoming switch. e vertical bus bars for the feeder columns may be rated at 75% of aggregate feeder capacity and shall be uniform in size. Bus bars and interconnections shall be taped with PVC colour coded tape to prevent bar-to-bar accidental shorts. Each bus bar shall be directly and easily accessible on removal of the front cover. Bus bars shall be totally enclosed, shrouded and supported on non-hygroscopic insulator blocks to withstand thermal and dynamic overloads during system short circuits. An earth bus of size 50% of the phase subject to the following maximum and minimum shall be provided. Individual switch components shall be connected with the earth bus through copper or alluminium or galvanized steel strip size as shown. All wire connections to bars shall be through lugs, bolts and nuts and spring washers.

	Copper	Alluminium	Galvanized Steel
	-----	-----	-----
Minimum	6.5 sqmm	10 sqmm	16 sqmm
Maximum	65 sqmm	120 sqmm	200 sqmm

The minimum size of earth bar in a board shall however be 15 x 3 Cu or 25 x 3 Al. or equivalent.

## 7.9 Isolators



7.9.1 Isolators shall be fixed on wall on self supported angle iron frame work as required and mounted as near to the motor as possible. Where several motors are installed, isolators if required shall be provided at a central location on a common frame work.

7.9.2 Painting, earthing and lables shall be provided as generally indicating for MV switch gear.

#### 7.10 Earthing

7.10.1 All switch panels shall be provided with an earth bar as specified.

7.10.2 Earthing of the switch boards shall be through the equipment earthing system provided in the building with two earth connection as shown.

#### 7.11 Installation

7.11.1 All panels shall be supported on MS channel incorporated in the panel during the fabrication. all such supports shall be prime coated with two finish coats after completion of the work all panels shall be touched up for damaged painting.

7.11.2 All panels shall be meggared phase to phase and phase to neutral using a 1000V meggar with all outgoing feeders in closed position. The meggar value should not be less than 2.5 megohms between phases and 1.5 megohms between phases and neutral.

7.11.3 Fabrication drawings of all panels shall be approved by the Consulting Engineers before fabrication.

#### 7.12 Testing & Inspections

7.12.1 All switch boards shall be factory inspected before finishing and dispatch.

7.12.2 Certificate for all routine and type tests for circuit breakers in accordance with the IS:2516-1963 shall be finished. In addition, all panels shall be meggared phase to phase and phase to neutral, using a 1000V meggar with all switch gear in closed position. The meggar value should not be less than 2.5 megohms between phases and 1.5 megohms between phase and neutral.