



Tender ID : RBO DHN/2024-25/01/002 Dated :08.08.2024

**TENDER DOCUMENT**

**STATE BANK OF INDIA  
REGIONAL BUSINESS OFFICE, DHANBAD  
RAJSHILA APARTMENT, LUBY  
CIRCULAR ROAD  
DHANBAD-826001, JHARKHAND**

INVITES TENDERS

Sl. No.	Description	
(a)	Tender ID	RBODHN/2024-25/01/002 dated: 08.08.2024
(b)	Tender Name	SUPPLY INSTALLATION TESTING AND COMMISSIONING OF 30KWP CAPACITY ONGRID CONNECTED ROOFTOP SOLAR PV POWER PLANT AT HIRAPUR BRANCH, DHANBAD
(c)	Ending Date of Tender	17.08.2024 up to 03:00 PM

Part-1

(TechnicalBid)

Name of the Tenderer.....

Address.....

GSTIN.....

**Reputed Solar Manufacturers/OEMs are only eligible to participate in this Tender.**

**The Regional Manager  
State Bank of India  
REGIONAL BUSINESS OFFICE, DHANBAD  
Rajshila Apartment, Luby Circular Road,  
Dhanbad - 826001  
Jharkhand**

SBI RBO DHANBAD



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## **NOTICE INVITING TENDERS**

**STATE BANK OF INDIA, LHO PATNA** (herein after referred to as **SBI**) invites **item rate** E-Tenders

From the Contractors/Vendors as mentioned in attached Tender document.

1.	Name & location of Work	:	<b>DESIGN,SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF 30KWP CAPACITY ONGRID CONNECTEDROOFTOP SOLAR PV POWER PLANT AT HIRAPUR BRANCH, DHANBAD</b>
2.	Eligibility Criteria		<b>Reputed Solar manufacturers/OEMs/Solar Vendors are only eligible to participate in this Tender. The eligibility criteria for bidders are:</b> <b>1. Average Annual financial turnover of best of three financial years during the last 5 years i.e 2018-19, 2019-20, 2020-21, 2022-23 &amp; 2023-24, ending 31.03.2024, should be at least 25.0 lakhs.</b> <b>2. Experienceofhavingsuccessfullycompletedsimilarworks during last 7 years ending31.12.2024 should beeitherofthefollowing:</b> <b>(a) Three similar completed works costing not less than the amount equal to 8.50 akhs.</b> <b>or</b> <b>(b) Two similar completed works costing not less than the amount equal to 12.50 lakhs.</b> <b>Or</b> <b>(c) One similar completed work costing not less than the amount equal to 25.00 lakhs</b> <b>3. Must have installed minimum30 KWP capacity or above capacity on-grid rooftop solar(PV) power system.</b> <b>4. Must have Offices/Service Centre in Jharkhand/Bihar preferably in Ranchi/Dhanbad/Jamshedpur.</b>  <b>Similar Work means Supply, Installation,Testing and Commissioning of On grid Roof Top Solar PV Power Plantfor Central/State Government departments,PSUs, State Government under takings,MNCs,reputed Corporate Companies etc.</b>
3.	Availability of tender documents	:	Tender documents can be downloaded from Bank's website <a href="http://www.sbi.co.in">www.sbi.co.in</a> under 'Procurement News' section OR SBI e-tender portal <a href="https://www.tenderwizard.com/SBIETENDER">https://www.tenderwizard.com/SBIETENDER</a>
5	Tender shall remain valid for	:	Foraperiodof90daysfromthedataofopeningofpricebidoftender
6	Earnest Money Deposit(EMD)		Rs.25,000.00 in the form of DD from any Nationalised Bank drawn in favour of 'StateBankofIndia,LHOPatna',payableat Patna.

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7	Initial Security Deposit	ISD amount is 2 % of the awarded amount less the EMD amount to be submitted within 7 days of acceptance of tender in the form of DD.
8	Security Deposit	5%(Less EMD+ISD) will be deducted from contractors bills. 40% ofSD will be refunded after satisfactory completion of work and thebalance60% will be refunded after defect liability period provided no defects has been noticed in the executed work.
9	Time allowed for completion	<b>75 days</b> from the date of issue of work order
10	Tender document downloading Start Date	<b>From 02:00PM(14:00Hrs) on 08.08.2024</b>
11	Tender document downloading end Date	<b>Up to 02:00PM(14:00Hrs) on 17.08.2024</b>
12	Last date and time of submission of Tender	<b>Up to 03.00P.M(15:00hrs) on 17.08.2024</b>
13	Date and time of opening of tender	<b>On 17.08.2024 at 03:30 PM</b>
14	For E-Tender related queries	<b><u>Service provider:</u></b> <b><u>M/S Antares Systems Limited.</u></b>  1 <sup>st</sup> floor,OldBankofIndiacompound, M/22Building,RoadNo.25,S.K.Nagar, Patna-800001  Mobile:Rakeshkumar - 9771414548, Mr.PawankumarSingh - 9771414547,Mr.AmitPrafulla - 9988401985  <b>Email:r.rakeshkumar@antaressystems.com</b>
15	Electronically Sealed e-tenders are invited from in two parts,i.e. <b>Cover-I and Cover-II separately</b> Sealed tenders in two parts i.e. cover-I and cover-II are to be submitted online on the website: <a href="https://www.tenderwizard.com/SBIETENDER">https://www.tenderwizard.com/SBIETENDER</a>  <b>**No bid shall be accepted offline.</b>	
	<b>a)Cover-I(TechnicalBid)</b>	<b>Technical bid envelope called "Electronic Format of TechnicalBid" shall contain the following documents: The bidders has toupload the scanned copy of documents which will be a part oftechnicalbidinthewebsite.Theyareasunder:</b>



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	<p>(i) DetailsofEMD:ScannedcopyofDemandDraftmustbeuploade dine-tenderwebsitealongwithtechnicalbid</p> <p>(ii) Thescannedcopyofdocumentssupportingtheeligibilitycriter iamustbeuploadedine-tenderwebsitei.e.</p> <ol style="list-style-type: none"><li>1. Average Annual financial turnover of best of three financial years during the last 5 years i.e 2018-19, 2019-20, 2020-21, 2022-23 &amp; 2023-24, ending 31.03.2024, should be at least 30.0 lakhs.</li><li>2. Experience of having successfully completed similar works during last 7 years ending 31.12.2024 should be either of the following:<ol style="list-style-type: none"><li>(a) Three similar completed works costing not less than the amount equal to 8.50 lakhs. or</li><li>(b) Two similar completed works costing not less than the amount equal to 12.50 lakhs. Or</li><li>(c) One similar completed work costing not less than the amount equal to 25.00 lakhs</li></ol></li><li>3. Musthaveinstalledminimum30KWcapacityorabovecapac ityon-gridrooftopsolar(PV)powersystem.</li><li>4. Must have Offices/Service Centre in Jharkhand/Bihar preferably in Ranchi/Dhanbad/Jamshedpur.</li></ol> <p>SimilarWorkmeansSupply,Installation,TestingandCommission ing of On grid Roof Top Solar PV Power Plant forCentral/StateGovernmentDepartments,PSUs,StateGovernmen tundertakings,MNCs,ReputedCorporateCompaniesetc.</p> <p>(iii)ElectronicformofTechnicalBid</p> <p>Theeligiblevendornotsubmitting/uploadinganyoftheabovetech nicalbiddocumentsinthewebsitewillbedis- qualifiedandtheirpricebidwillnotbeopened.</p> <p>Cover-Iwillbeopenedasperabovementioneddate&amp;timein thepresenceofTendererswhodesiretoattend.The tendererscan view the Tender opening details through their respective loginIdsontheabove-mentioned-e-tenderportal(Website).</p>
<p><b>b) Cover-II(PriceBid)</b></p> <p>ShallcontaintheElectronicformatofPriceBidItemrate.</p> <ul style="list-style-type: none"><li>• In case, the lowest Tendered Amount of two or more contractors is same, such lowest contractorswill again be asked to submit sealed/online "Revised offers" on the original Estimated cost of theTender including all sub sections/sub heads as the case may be. The lowest tender shall bedecidedonthebasisofrevisedoffers.</li><li>• The process of online re-bidding amongst two or more contractors offering same rates shallcontinuetill-1bidderisdiscovered.</li></ul>	



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	<ul style="list-style-type: none"> <li>In case, any of such contractor(s) (quoted same tender amount during initial bidding or subsequent bidding) refuse to submit revised offer, it shall be treated as "withdrawal of tender" by the contractor before acceptance. The earnest money of such contractor shall be forfeited.</li> <li>In case all the lowest contractors those have quoted same amount, refuse to participate in online revised bidding process for the project, the EMD of such contractor shall be forfeited and the tender shall be re-invited afresh for the project. The contractor(s), whose earnest money is forfeited because of non-submission of revised offer, shall not be allowed to participate in the re-tendering process of the work.</li> <li>No condition/stipulation in Cover-II other than unconditional general rebates shall be accepted.</li> </ul>
16	<b>Opening of Price Bid</b> : <b>Cover-II (Price Bid) will be opened only of those bidders who are successful in Technical Bid (Cover-I) after thorough scrutiny. The contractor/ vendor can view the Tender opening details through their respective log in Ids on the above-mentioned e-tender portal (Website).</b>
17	<b>Commencement of the work</b> : The date of commencement of the work will be reckoned as the date of handing over site or <b>07 days</b> from the date of issue of Work Order of the tender whichever is later
18.	<b>Deduction of Income Tax and GST</b> : A) TDS on Income Tax/GST will be deducted at source as per Govt. Guidelines. B) The contractor should comply with the following; <ol style="list-style-type: none"> <li>Contractor should have GST Registration Number</li> <li>Invoices should specifically/separately disclose the amount of GST levied at applicable rate as per GST provision</li> <li>Contractor should timely file his GST return in accordance with GST provisions to enable the Bank to claim the credit of GST paid to the contractor.</li> </ol>
19.	<b>Terms &amp; mode of payment</b> : <ol style="list-style-type: none"> <li>No advance payments shall be paid.</li> <li>50% of total project cost against materials delivery at site and production of test certificates and with necessary documents showing requisite quality as mentioned in tender document.</li> <li>47% after installation, commissioning, testing, successful trail run including grid synchronization along with supply and installation of metering, generation meter and approvals from local electricity Board/Discom/JBVL as required.</li> <li>3% will be held with us as SD for 5 yrs and could be released against submission of Performance Bank Guarantee from any scheduled/commercial Bank, other than SBI</li> </ol>



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20.	<p><b>Additional security deposit(ASD)/Additional Performance guarantee(APG)</b></p>	<p><b>i. ASD/APG shall be applicable if the bid price is below 7.5% of the estimated cost.</b></p> <p><b>ii. The amount of such ASD/ APG shall be the difference between 92.5% of the estimated cost put to tender and the quoted price.</b></p> <p><b>iii. Vendor will submit Bank guarantee or FDR receipt favouring SBI but draw on any other Nationalised Bank may also be accepted as ASD/ APG.</b></p>
21.	Liquidated Damages	: If the bidder is not able to complete the work within the stipulated completion period as per terms of the 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.
22.	Defects Liability Period	: 12 Months (Twelve months) from the date of completion of the work and handing over to the Bank.
23	Any additional information	: The estimated rates as per the Break-up Of Quantities (BOQ) uploaded in this tender are 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, overheads, profit, statutory expenses, incidental charges and all related expenses to complete the work. However, <b>GST on work contract will be extra applicable.</b>
	<b>Notes:</b>	
a)	All Bidders are informed that, price bidding for the work will be through <b>Online tendering method</b> . The bill of quantity of tender i.e. " <b>Price Bid</b> " is to be submitted online. Work Order will be placed on the basis of L1 price by bidder in the "Price Bid".	



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b)	The Bidders 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 submission of bids not substantially responsive to the Tender Documents in every respect will be at the Bidders' risk and shall result in rejection of the Tender.
c)	In case the date of submission of Technical Bid, Price Bids declared as a holiday, the respective date will be considered on the next working day at the same time and the tenders will be opened on the next working day at the same time.
d)	SBI reserves the right to cancel or postpone or modify the tenders at any stage without assigning any reason.
e)	The Bidders are strongly advised to visit the site before submitting their Price Bid to make the work complete in all respects within the stipulated completion time.
f)	Corrigendum: (If any is to be followed as published in <a href="https://www.sbi.co.in">https://www.sbi.co.in</a> portal. OR SBI e-tender portal <a href="https://www.tenderwizard.com/SBIETENDER">https://www.tenderwizard.com/SBIETENDER</a> )
	<p><b>(For and on behalf of State Bank of India)</b></p> <p><b>The Regional Manager</b> <b>State Bank of India</b> <b>REGIONAL BUSINESS OFFICE, DHANBAD</b> <b>Rajshila Apartment, Luby Circular</b> <b>Road, Dhanbad - 826001</b> <b>Jharkhand</b></p>



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## **E-TENDERING INSTRUCTIONS TO BIDDERS**

### **General**

SBI hereby publish the TENDER on e-tendering Portal (Website): <https://www.tenderwizard.com/SBIETENDER> in Electronic mode hereinafter referred as "e Tendering" and TENDER will be hereunder called as "e-Tender". The e-tender published online through above portal (website) consisting of standard tender conditions, specifications, schedule of quantities, drawings (if any) for above referred work. Please note that copy of the above e-tender can be downloaded from above portal (website) and should be mandatorily submitted in Online Electronic Mode hereinafter referred as "Online Offer". The submission of Online offer duly Encrypted & Digitally signed on above portal should be in prescribed Electronic Forms (Online) available on above portal for respective tender in Online Envelope(s) on or before As per the key Dates mentioned in the Tender Notice in this document and online portal for above tender.

### **Instructions**

#### **1. Tender Bidding Methodology:**

Electronically Sealed Bid System – Two Stage – Two Envelopes'

#### **2. Broad outline of activities from Bidders prospective**

1. Procure a Digital Signing Certificate (DSC)
2. Register on the e-Procurement portal: <https://www.tenderwizard.com/SBIETENDER> (The contractor's need to upload scan copy of their valid empanelment letter in the portal otherwise the registration would be cancelled)
3. Create Users and assign roles on the above portal
4. View Notice Inviting Tender (NIT) on the above portal
5. Download Official Copy of Tender Documents from the above portal
6. Clarification to Tender Documents on the above portal
7. Bid-Submission on the above portal
8. Attend Public/Limited Online Tender Opening Event (TOE) on the above portal
  - Opening of Technical-Part
9. Post-TOE Clarification on the above portal (Optional)
  - Respond to SBI's Post-TOE queries
10. Attend Public/Limited Online Tender Opening Event (TOE) on the above portal
  - Opening of Financial-Part (Only for Technical Responsive Bidders)

For participating in this tender online, the following instructions are to be read carefully. These instructions are supplemented with more detailed guidelines on the relevant screens of the above portal.

#### **3. Digital Certificates**

For integrity of data and authenticity/ non-repudiation of electronic records, and to be compliant with IT Act 2000, it is necessary for each user to have a Digital Certificate (DC), also referred to as a Digital Signature Certificate (DSC),

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Of Class II or above, issued by a Certifying Authority (CA) licensed by Controller of Certifying Authorities (CCA) [refer <http://www.cca.gov.in>].

#### **4. Registration**

To use the Electronic Tender portal: <https://www.tenderwizard.com/SBIETENDER> vendors need to register on the portal. Registration of each organization is to be done by one of its senior persons vis-à-vis  
Authorized Signatory who will be the main person coordinating for the tendering activities. In the above portal terminology, this person will be referred to as the Super User (SU) of that organization. For further details, please visit the website/portal, and follow further instructions as given on the site.

Note: After successful submission of Registration details please contact to the Helpdesk of the portal to get your registration accepted/activated.

#### **HelpDesk:**

##### **Contact Person:**

**Mr. Rakesh Kumar Tel.No.9771414548,**  
**Mr. Pawankumar Singh Tel.No.9771414547, Mr. Amit Prafulla Tel.No.9988401985**  
**Email ID – [r.rakeshkumar@antaressystems.com](mailto:r.rakeshkumar@antaressystems.com)**

#### **5. Bidding related Information for this Tender (Sealed Bid)**

The entire bid-submission would be online on the portal. Broad outline of submissions areas as follows:

- Submission of Bid Security/Earnest Money Deposit (EMD) & Cost of Bid Document
- Submission of digitally signed copy of Tender Documents/Addendum
- Power of Attorney, · Two Envelopes, - Technical-Part, Each of the above electronic envelopes consists of Main bid and Electronic form (both mandatory) and bid Annexure (Optional).

NOTE: Please note that above-

Tendering system is an automatically time locked system which will be locked immediately as soon as due date and time is over and will not accept any offer after that. So, the tenderers are strictly advised to do their process well before the due date and time to avoid any such instances.

#### **6. Tender Opening Event (TOE)**

The e-Procurement portal offers a unique facility for 'Public/Limited Online Tender Opening Event (TOE)'. Tender Opening Officers as well as authorized representatives of bidders can attend the Public/Limited Online Tender Opening Event (TOE) from the comfort of their offices. For this purpose, representatives of bidders (i.e. Supplier organization) duly authorized are requested to carry a Laptop and Wireless Connectivity to Internet. Every legal requirement for a transparent and secure 'Public/Limited Online Tender Opening Event (TOE)' has been implemented on the portal. As soon as a Bid is decrypted with the corresponding 'Pass-Phrase' as submitted online by the bidder himself (during the TOE itself), salient points of the Bids are simultaneously made available for downloading by all participating bidders. The medium of taking notes during a manual 'Tender Opening Event' is therefore replaced with this superior and convenient form of 'Public/Limited Online Tender Opening Event (TOE)'. The portal has a unique facility of 'Online Comparison Chart' which is dynamically updated as a search on online bids is opened. The format of the chart is based on inputs provided by the Buyer for each Tender. The information in the Comparison Chart is based on the data submitted by the Bidders. A detailed Technical and/ or Financial Comparison Chart enhance Transparency. Detailed instructions are given on relevant screens. The portal has a unique facility of a detailed report titled 'Minutes of Online Tender Opening Event (TOE)' covering all important activities of 'Online Tender Opening Event (TOE)'. This is available to all participating bidders for 'Viewing/Downloading'. There are many more facilities and features on the portal. For a particular tender,

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the screensviewedbyaSupplierwilldependupontheoptionsselectedbytheconcernedBuyer.

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#### **7. Minimum Requirements at Bidder's end**

In order to operate on the electronic tender management system, the user's machine is required to be set up. The machine must have running XP service Pack 3 or higher version of Windows like Vista or Window 7. Also need to install Mozilla Firefox web browser and latest version of Java.

**IMPORTANT NOTE:** In case of internet related problem at a bidder's end, especially during 'critical events' such as - a short period before bid-submission deadline, during online public/limited tender opening event, during e-auction, it is the bidder's responsibility to have backup internet connections. In case there is a problem at the e-procurement/ e-auction service-provider's end (in the server, leased line, etc) due to which all the bidders face a problem during critical events, and this is brought to the notice of SBI by the bidders in time, then SBI will promptly re-schedule the affected event(s).

**The Regional Manager  
State Bank Of India  
REGIONAL BUSINESS OFFICE, DHANBAD  
Rajshila Apartment,  
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Jharkhand**

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**TERMS&CONDITIONSOFTHECONTRACT**

**GENERALINSTRUCTIONSTOTHEBIDDERS**

**EligibilityCriteria:ReputedSolarmanufacturers/OEMs/Solarrelatedvendorsareonlyeligible to participateinthisTender.**

**1.0 ScopeofWork**

TendersareinvitedbyStateBankofIndiaforthecaptionedwork.

**1.1 SiteandItsLocation** :Theproposedworkistobecarrriedoutatcaptionedsite.

**2.0 TenderDocuments**

**2.1**Theworkhastobecarrriedoutstrictlyaccordingtotheconditionsstipulatedin tenderconsistingthefollowingdocumentsandthemostworkmenlikemanner,

- a) GeneralConditionsofContract
- b) SpecialConditionsofContract
- c) TechnicalSpecifications
- d) Drawings
- e) PriceBid

**2.2**Theabovedocumentsshallbetakenascomplementaryandmutuallyexplanatoryofoneanotherbutincaseofambiguities ordiscrepancies,shalltakeprecedenceintheordergivenbelow:

- a) PriceBid
- b) Drawings
- c) TechnicalSpecifications
- d) SpecialConditionsofContract
- e) GeneralConditionsofContract

**2.3**The tenderdocuments are nottransferable.

**3.0SiteVisit**

TheBiddermustobtainhimselfonhisownresponsibilityandhisownexpensesallinformationanddatawhichmaybe required for the purpose of filling this tender document and enter into a contract for the satisfactoryperformanceofthework.TheBidderisrequestedtosatisfy himselfregardingtheavailabilityofwater,power,transportand communication facilities, the character quality and quantity of the materials, labour, the law and ordersituation,climaticconditionslocalauthoritiesrequirement,trafficregulationset;TheBidderwillbefullyresponsible forconsideringthefinancialeffectofanyorallthefactorswhilesubmittinghistender.

**4.0 EarnestMoneyDeposit(EMD):-**

**4.1**The Bidder are requested to submit the Earnest Money **AS SPECIFIED** to be deposited in the form as mentionedinNIT.

**4.2**NointerestwillbepaidontheEMD.

**4.3**EMDofunsuccessfulBidderswillberefundedwithin30daysofawardofContractonsubmissionofdetailsofBankAccountbythebidders.

**4.4**EMDofsuccessfulBidderwillberetainedasapartofsecuritydeposit.

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**4.5** The EMD shall stand absolutely forfeited if the Bidder revokes his tender at any time during the period when he is required to keep his tender open acceptance by the SBI or after it is accepted by the SBI, 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 Bidder will have to submit a sum equivalent to 2% of contract value less EMD to be deposited through SBI Bank draft for Bankers Cheque in favour of The Regional Manager, Patna East (I) within a period of 07 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 respective 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 Bidder 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 SBI. However, the written acceptance of the tender by the Bank will constitute a binding agreement between SBI and successful Bidder 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 **75 days** from the date of handing over site or **07 days** from the date of issue of work order 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 Tendering Process. If the Bidder 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 for the delayed periods subject to a maximum of 5% of contract value.

**11.0 Tendered Rates and Prices**

**11.1** The Bidders shall quote their rates for individual items 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.

**11.2** The tenderers shall quote their rates for individual items both in words and figures. In case of discrepancy between the rate quoted in words and figures the unit rate quoted in words in the original tender will prevail. If no rate is quoted for a particular item in either of the tender documents the contractor shall not be paid for that item when it is executed.



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

**11.4** The tenderers should not change the units as specified in the tender. If any unit is changed the tenders would be evaluated as per the original unit and the contractor would be paid accordingly. The tenderers should not change or modify or delete the description of the item. If any discrepancy is observed, they should immediately bring it to the knowledge of the Architect/SBI.

**11.5** The rate quoted shall be firm and shall include all costs, allowances, taxes, vat levies etc. but excluding GST which will be paid separately to the contractors.

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



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**SAMPLEOFARTICLESOFAGREEMENT**

ARTICLESOFAGREEMENTmadethis.....dayof.....betweentheStateBankof India,aCorporationconstituteundertheStateBankofIndiaAct,1955andhavingitsCorporateCentreatMadam Cama Road, Mumbai 400 021. (hereinafter referred to as "the OWNER" ) which expressionshall include its successor or successors and assigns ) of the ONE PART through the authorized officer Regional Manager (Designation)/otherauthorizedofficer.

AND M/s.....having its registered office at .....(hereinafterreferredtoasthe'Contractor'oftheOTHERPART.

WHEREAStheOwnerisdesirousofexecuting.....workat.....(hereinafter Calledthe'works')

ANDWHEREAStheownerhascausedtheplans,drawingsandspecifications,prices scheduleofquantitiesoftheworktobeexecutedattheSBI asperconditionsofthecontractandspecialconditions PreparedsubjecttowhichtheofferoftheContractorshallbeaccepted.

AND WHEREAS the Contractor has deposited with the ownerRupees... ..assecurity deposit for the due performance of the agreement AND WHEREAS the Owner issued work order therefore to thecontractor.

ANDWHEREASSaiddrawings..... inclusiveofthespecifications,priced schedule of quantities, condition of contract and special conditions (hereinafter collectively referred to as the saidcondition)havebeensignedbythepartiesheretoandthecontractorhasagreedtoexecutetheworksuponandsubje cttothesaidconditions.

AgreedtoexecuteuponandsubjecttotheconditionssetforthhereinandScheduleofitemsandquantities generalconditionsofcontract,Specificationandallcorrespondencesexchangedbyorbetweenthepartiesfromthesub missionoftendertilltheawardofwork,bothletterinclusive,(allofwhicharecollectivelyhereinafterreferredto as "the said condition") the work shown upon the said drawings and/ or described in the said specification andincluded in the schedule ofitems and quantities at the respective rates therein at of such other sum as shallbecomepayablethereunder(Hereinafterreferredtoas"thesaidcontractamount").

NOWITISHEREBYAGREEDASFOLLOWS:

1. In consideration of the payment to be made to the contractor as hereinafter provided the contractorshalluponandsubjecttothesaidconditionsexecutedthecompletedtheworksshownuponthesaid drawingsetc.andsuchfurtherdetaileddrawingsasmaybefurnishedtothecontractorbythesaidownerthroughthe Architect(ifengaged)asdescribedinthesaidspecificationsandthesaidpricedscheduleofquantities.
2. TheownerwillpaytothecontractorthesumofRs.....(Rupees..... ..),hereinaftercallthecontractsumorsuchothersumasshallbecomepayablehereunderatthe times and in the manner specified in the said condition. However, the actual sum will be paid on theactualvalueofworkdone,irrespectiveofthecontractsum.
3. The plans, agreement and documents above mentioned shall form the basis of this contract and alldisputestobedecidedinthemannerprescribedintheconditionsattachedhereto.



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4. Thesaidcontractcomprisesthe .....worksasabovementioned,and shall subsidiary works connected therewith within the same site as may be ordered to be done from timetotimebythesaidOwnereventhroughsaidworksmaynotbeshownonthedrawingsordescribedinthesaid specificationsorthepricedscheduleofquantities.
5. Notwithstanding what are stated in the special condition, conditions, of contract and hereinafter statedthe owner reserves to himself the right to alter the drawings and nature of the work and of adding to oromittinganyitemsofworksfromorofhavingportionsofthesamecarriedoutdepartmentallyorotherwiseandsuch halternationsorvariationsshallbecarriedoutwithoutprejudicetothiscontact.
6. The said condition shall be read and be treated as forming part of this Agreement, and the parties heretowill respectively be bound thereby and to abide by and submit themselves to the conditions and performthesameontheirparttoberespectivelyobservedandpreferred.
7. Employer reserves to itself the right of altering the drawings and nature of the work by adding to oromittinganyitemsofworkorhavingportionsofthesamecarriedoutwithoutprejudicetothiscontract.
8. Timeshallbeconsidered astheessenceofthiscontractand theContractorherebyagreestocommencetheworksoonafterthesiteishandedovertohimorfrom7<sup>th</sup>dayafteriss ueofformalworkorder as provided for in the said conditions whichever is earlier and to complete the entire work within90dayssubjecttoneverthelesstheprovisionsforextensionoftime.
9. AllpaymentsbytheemployerunderthisContractwillbemadeonlyatPatnaCircle.
10. AnydisputearisingunderthisAgreementshallbereferredtohearbitrationofasolearbitratorappointedwithconse ntoftheOwnerandthecontractorasindicatedintheArticleofthegeneralconditions.Theawardofthe arbitrator shallbefinalandbindingonbothparties.ThecourtinPatnashallhavejurisdictiontodeterminethesame.
11. ThattheseveralpartsofthiscontracthavebeenreadbytheContractorandfullyunderstodbythecontractor.

INWITNESSWHEREOF,thepartiesheretohaveexecutedthesepresentshedayandyearfirstthereinabovewritten

WITNESS

EXECUTANTS

1.

1.OWNER

2.

2.CONTRACTOR

CommonSeal

In case of the company, the common seal be affixed pursuant to resolution of Board of Directors inaccordance with Articles of Association of the Company the director etc. as the case may be affixingcommonsealmaybeinitialintokenthereofandalsobyputtingtheirnames.





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## **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 Corporate Centre at State Bank Bhavan, Madame Cama Road, Mumbai 400021 and include the client's 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 firm or company.
- 1.4 The expression 'works' or 'work' 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 tenders subject to such addition thereto or deduction therefrom as may be made under the provision hereinafter 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.

### **3.0 Errors, Omissions and Discrepancies**

In case of errors, omissions and/or disagreement between written and scaled dimensions on the drawings or between the drawings and specification set, the following orders 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 tenders 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.

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#### **5.0 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.

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

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

All drawings, specifications and copies thereof furnished by Architects/ Consultants (if engaged) are the properties of the SBI. They are not to be used on other work.

**6.1 Detailed drawings and instructions:** The Architects/Consultants (if engaged) 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 therefrom.

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 SBI through the Architect/Consultant (if engaged).

#### **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 of 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 for the delayed period, subject to a maximum of 5% of the contract value.

#### **9.0 Materials, Appliances and Employees**

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

#### **10.0 Permits, Laws and Regulations**

Permits and licenses required for the execution of the work shall be obtained by the contractor at his own expenses. The contractor shall give notices and comply with the regulations, laws, and ordinances rules, applicable to the contract. If the contractor observes any discrepancy between the drawings and specifications, he shall promptly notify the SBI 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 therefrom and shall indemnify the SBI any legal actions arising therefrom.

#### **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.



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He shall take adequate care and steps for protection of the adjacent properties. The contractor shall take all precautions for safety and protection 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 SBI/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 SBI, Architect/consultant and their representatives necessary for inspection and examination and test of the materials and workmanship. No person unless authorized by the SBI/architect/consultant and their representatives necessary for inspection and examination and test of the materials and workmanship. No person unless authorized by the SBI/architect/consultant except the representative of public authorities shall be allowed on the work at any time. The proposed work either during its construction stage or its completion can also be inspected by the Chief Technical Examiner's organization, a wing of central Vigilance commission.

### **14.0 Assignment and subletting**

The whole of work included in the contract shall be executed by the contractor and he shall not directly entrust and engage or indirectly transfer assign or under let the contractor or any part or share thereof for 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 (if engaged) instructions and shall be subject from time to time to such tests as the SBI/Architect/Consultant may direct at the place of manufacture or fabrication or on the site or an approved testing laboratory. The contractor shall provide such assistance, instruments, machinery, 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 & patterns 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 in adequacy 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/SBI 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 material 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 payments 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 of incorrect information or the failure to obtain correct information relieve him from any risks or from the entire responsibility for the fulfillment of contract.



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### 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 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 items to any extent subject to maximum variation of the contract value by 25%. The entire amount paid under Clause 20 hereof as well as amount 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 Work to be measured

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

### 21.0 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 tenders 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 subclause (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's name and material employed be delivered for verification to the Employer or before the end of the week following that in which the work has been executed.



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- e) It is further clarified that for all such authorized extra items where rates cannot be derived from the tender, the contractor shall submit rates duly supported by rate analysis worked on the "market rate basis" for material, labour, hire/running charges of equipment and wastages etc plus 15% towards establishment charges, contractor's overheads and profit. Such items shall not be eligible for escalation.

#### **22.0 Final Measurement**

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

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

On successful completion of entire works covered by the contract to the full satisfaction of the 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, contractor's labour, equipment and machinery.
- b) Demolish, dismantle and remove the contractor's site office, temporary works, structures including labour sheds/camps and constructions and other items and things whatsoever brought upon or erected at the site or any land allotted to the contractor by the SBI and not incorporated in the permanent works.
- c) Remove all rubbish, debris etc from the site and the land allotted to the contractor by the 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 working 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.

**23.1** Upon the satisfactory fulfillment 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 so there receipt of the application for virtual completion certificate, issue a VCC in respect of the work for which the VCC has been applied.

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

#### **24.0 Work by other agencies**

The SBI/Architect consultant reserves the right to use premises and any portion of the site for execution 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 SBI. Such work shall be carried out in such manner as not to impede the progress of the works included in the contract

#### **25.0 Insurance of Works**

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

- i) Contractor's All Risk Policy including third party compensation as detailed below.
- ii) Workmen Compensation Policy.

**25.1** 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 recovered 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,



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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 to the site by the contractor to the replacement value of such constructional plant and other things.
- c) Such insurances 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
- d) Submitted original "Contractor's All Risk Insurance Policy" and "Workmen's Compensation (General) Policy" made by contractor's own cost.

**25.2 Damage to persons and property:** The contractor shall, except in 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 results of the execution or maintenance of the works in accordance with the contract.
- d) Injuries or damages 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.

**25.3 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 provisions sub-clause of this clause.

**25.4** 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.

### **25.5 Third Party Insurance**

**25.5.1** Before commencing the execution of the work the contractor but without limiting his obligations and responsibilities under clause 26.0 of GCC shall insure against this 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.

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

Such insurances shall be effected with an insurer and in terms approved by the SBI which approval shall not be unreasonably 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





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**25.5.3** 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.

#### **25.6 Accident or Injury to Workmen**

**25.6.1** 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 in relation thereto

#### **25.6.2. Insurance against accident setc 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 to any person employed by any sub-contractor the contractor's 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.

**25.6.3 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.

**25.6.4.** 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 sum 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 damages 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 07 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 **75 days** from the date of handing over the site or 60 days from the date of issue of the work order, whichever is later. 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 dates 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 by the contractor and the mode, manner and speed of execution and maintenance

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of the works are to be of kind and conducted in a manner to the satisfaction of the Architect/consultant/SBI should the rate of progress of the work or any part thereof be at any time be in the opinion of the Architect/consultant/SBI shall thereupon take such steps as considered necessary by the Architect/consultant/SBI to expedite progress so as to complete the works by the prescribed time or extended time. Such communications from the Architect/consultant/SBI 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 hereinafter provided be carried on during the night or holidays without the permission in writing of Architect/consultant/SBI, save when the work is unavoidable or absolutely necessary for the saving of life or property or for the safety of the work in which case the contractor shall immediately advise the Architect/consultant. However the provisions of the clauses 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/SBI 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 restriction of work**

If at any time after acceptance of the tender SBI 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 fore-closure of the whole or part of the work.

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

In case of such stores having been issued from SBI 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/SBI 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 to cause any damage or injury to the work already done or endanger the safety thereof for any of the following reasons.

- a) On account of any default on the part of the contractor, 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.

### **33.0 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 courses as they may deem best suited to the interest of the SBI.

- 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.





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- b) To employ labour 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 labour and materials (the cost of such labour 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 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 a sale thereof, or sufficient part thereof.

In the event of any of the above courses being adopted by the Employer the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any material or entered into any engagements or made 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 values so certified.

#### **34.0 Bank's Right to Terminate the Contract**

If the contractor being an individual or a firm committary' 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 act of insolvency or winding up shall be unavailing 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 fulfil 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 thereunder.

- 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's instruction to the contrary subject any part of the contract. Then and in any of said cases the Employer may not withstanding any previous waiver, after giving seven days notice in writing to the contractor, determine the contract, but without thereby affecting the powers of the 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 person employed for completing and finishing or using the material 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



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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 material setc.

### **35.0 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 or materials used on the work or as to any other question, claim, right, matter or thing whatsoever in any way arising out of or relating to the contract, designs, drawings, specifications, estimates, instructions, orders or these conditions or otherwise concerning the work or the execution or failure to execute the same, whether arising during the progress of the work or after the cancellation, termination, completion or abandonment thereof shall be dealt with as mentioned hereinafter:

i) If the contractor considers that he is entitled to any extra payment or compensation in respect of the works over and above the amounts admitted as payable by the Architect (if engaged) 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 Assistant General Manager and endorse a copy of the same to the Architect (if engaged), within 30 days from the date of disallowance thereof for 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 SBI 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 SBI in writing in the manner and within the time aforesaid.

ii) The Assistant General Manager 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 Assistant General Manager submit his claims to the conciliating authority namely the DGM & Circle Development Officer for conciliation along with all details and copies of correspondence exchanged between him and the Assistant General Manager.

iii) 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 the Bank 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.

iv) 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. It will also be an 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 persons shall be entitled to proceed with the reference from the stage at which it was left by his predecessor.

It is a term of this contract that the party invoking arbitration shall give a list of disputes with amounts claimed in respect of each dispute along with the notice for appointment of arbitrator. It is also a term of this contract that no person other than a person appointed by such Chief General Manager 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. 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. 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 fixed or settled the amount of cost to be paid



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### **36.0 Certificate of Payment**

The contractor shall be entitled under the certificate to be issued by the Architect/Consultant/SBI to the contractor within 10 working days from the date of certificate of 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 work 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 SBI shall modify the certificate of payment as issued by the Architect/Consultant from time to time while making the payment. The contractor shall submit final bills only after taking actual measurements and properly recorded in the Measurement book (M.B). 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 the 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 this 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.

### **41.0 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 SBI/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 variations shall be applicable in this contract.

### **43.0 Force Majeure**

**43.1** Neither contractor nor SBI/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

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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.

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**43.2** 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 adding necessary evidence in support thereof.

**43.3** From the date of occurrence of a case of force majeure, obligations of the party affected shall be suspended during the continuance of any inability so caused. With the cause itself and inability resulting therefrom 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.

**43.4** 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.

#### **44.0 Local Laws, Acts, Regulations**

The contractor shall strictly adhere to all prevailing labour laws inclusive of contract labour (regulation and abolition act of 1970) and other safety regulations. The contractor shall comply with the provision of all labour legislation including the latest requirements of all the Acts, laws, and any other regulation 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 thereunder 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 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 action thereof.



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## **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 execution 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.

### **3.0 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 SBI/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.

### **6.0 Fire fighting arrangements**

- a) The contractor shall provide suitable arrangement for fire fighting 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 handling, storage and disposal of combustible materials and waste.
  - ii) Work operations which can create fire hazards.
  - iii) Access for fire-fighting 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 fire fighting 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/ SBI. Any communication from one party to the other shall be deemed to be recorded 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 a minimum number of pages in triplicate and shall be 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/ SBI 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.



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#### **8.0 Site Meetings**

Site meetings will be held to review the progress and quality evaluation. The contractor shall deputee 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/SBI.

#### **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 pit 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 subcontractors 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.

#### **12.0 As built drawings:**

- a. For the drawings issued to the contractor by the Architect/consultant/SBI. 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 SBI/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/SBI 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 SBI/Architect/consultant. And submit two copies of such modified drawings to the architect/consultant/SBI 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 contractor's account.

#### **15.0 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 on work contract. GST on work contract will be paid extra as applicable. Item wise rates bid in "Price Bid" will be the basis of final order placement.**

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

The SBI 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 Bidder or Bidders shall have no right to question the acts of the SBI. However adequate transparency would be maintained by the SBI.

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

The Contractor shall conform to the provisions of all local by laws and Acts relating to the work and to the Regulation setc. 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 by laws 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 restoration setc. and shall indemnify the Employer against such liabilities and shall defend all claims arising from such claims of liabilities.



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18.0 Possession Prior to Completion

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The Owners 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.

#### **19.0 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 cost 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, light 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 material etc. and other work that may be executed on the site including the tools and material 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 labours 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 contractor 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 SBI/ 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 SBI/ Consultant are not in accordance with specifications or instructions, the substitution or proper re-executed with materials or workmanship not in accordance with the drawings and specifications or instructions. In case the Contractor refuses to comply with the order the SBI/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 SBI/ 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 SBI/ Consultant immediately dismiss from work any person employed thereon by him, whom in the opinion of the SBI/ Consultant be unsuitable or incompetent or whom may misconduct himself. Such discharge shall not be the basis of any claim for compensation or damages against the SBI/ Consultant or any of their officer or employee.

#### **25.0 Concealed Work**

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The Contractor shall give not less than 5 days notice of the SBI/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 the opinion of the SBI/ Architect be either opened up for measurement at the Contractor's 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 SBI/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 SBI/Architects in writing for any such substitution well in advance. For materials designed in this specification by such terms as "Equal" or "other approved" etc. specific approval of the SBI/Architects shall 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 SBI.

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

The Contractor shall make good at his own cost and to the satisfaction of the SBI all defects and other faults which may appear within 12 months after completion of the work. In default the SBI 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 SBI from any money due to the contractor. In the event of the amount being insufficient the SBI 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 SBI 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.

#### **31.0 Safety Measures at Site**

All personnel at sites 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.

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 Work 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 labour shall be engaged for holding the ladder and if the ladder is used for carrying materials as well as suitable footholds and handholds shall be provided on the ladder and the ladder shall be given an inclination not steeper than ¼ to 1 (¼ horizontal and 1 vertical).
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 stagings 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 an 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 port



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nocasebelessthan30cmsforladderuptoandinclodingMetersinlength.Forlongerladdersthewidthshouldbeincreasedatlea  
st6mmforeachadditional30cms.Uniformstepspacingshallnotexceed30cms.
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. Ladders 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 cuttings 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 person employed on the Site and maintained in a condition suitable for immediate use; and the Contractor should take adequate steps to ensure proper use of equipment by those concerned.
    - e) Workers employed on mixing Asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective goggles.
    - f) Those engaged in white washing and mixing or stacking of cement bags or any materials which are injurious to the eyes shall be provided with protective goggles.
    - g) Those engaged in welding work shall be provided with Welder's protective eye-shields.
    - h) Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.
    - i) When workers are employed in sewers and manholes, which are in use, the Contractor shall ensure that the manhole covers are opened and are ventilated at least for an hour before the workers are allowed to get into the manhole 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 defects 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 gives signal 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 equipments shall be altered or removed while it is in use. Adequate washing facilities shall be provided at or near places of work.

### **32.0 Fire Safety Measure**



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

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 sections 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 a specified store only after closing them properly.
8. Personal protective equipment such as safety shoes, hand gloves, welder's 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/torch shall be provided by the contractor to the workmen while working beyond office hours.

**33.0 Electrical work terms & conditions :-**

1. All PVC insulated and armoured cables used shall conform to ISI 554/64 and of 650/1100V grade. Test certificates of cables issued by manufacturers are to be furnished after installation on demand.
2. Minimum bending radius of PVC armoured cables shall be 12 times the diameter of cable.
3. Contractor would be required to furnish after completion, two sets of detailed drawings.
4. The work must be guaranteed for a period of 12 months for its satisfactory performance from the date of completion and all defects cropping up within this period must be rectified at contractor's cost immediately.
5. Caution boards as per statutory requirements must be displayed wherever required.
6. All material, fittings and appliances used in electrical installations shall conform to the latest relevant Indian Standard specifications, wherever they exist. A list of approved material is annexed and other materials not covered will have to be got approved by SBI Engineer-in-charge, prior to actual use.
7. Contractor is required to ensure that no damage is caused to Bank's property during execution of the job and should make good damages, if any, at their own cost.
8. Work has to be carried on without disturbing normal banking operations.
9. Contractor shall provide all labour and materials including necessary scaffolding for proper execution of the work.
10. Bank shall have the right to change the quantities as per on spot requirements.
11. Contractor should submit the Test Certificate form at the time of submission of final bill.
12. Necessary blanking plates are to be provided wherever required.
13. For the Earthing IS 3043 for conduit to be used in wirings shall confirm IS 9537 (Part-II) 1981 or latest in all respect.
14. All the materials which shall be used in the work shall be as per specification and must be from the list of approved materials as mentioned in the specification. Samples of the materials proposed to be used shall be submitted for approval and nothing shall be used which are not approved.
15. It is obligatory under Indian Electricity Rule that electrical installations work shall be executed under qualified Electrical Supervisor holding a valid Electrical Supervisor's Certificate of competency guaranteed by the State License Board.
16. The contractor has to obtain labour license and abide by Rules and Regulations of contract labour (Regulation and abolition Act, 1970 and central rule 1971 as also relevant latest amendments hereto.)
17. Evidence vouchers from manufacturers/authorized agent showing use of proper materials should be furnished as and when required.
18. Quantities are approximate and the work will be paid on the measurement basis as per ISI code of measurement.
19. Test report of supply authority has to be filled in, if required.



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**NOTE:-**

- The Bidders shall use all the material strictly as per the list of approved make as stated above, it is mandatory to take the written confirmation well in advance if the material as stated above is not available and/or the same is not suitable (colour, size, shape, texture) as per the site condition.
- Whether a product is equivalent or not will be decided by the Engineer-in-Charge only.
- Contractor has to submit purchase voucher of items from authorized vendor of respective brand on demand by EIC.

**Approved Make of Materials**

S.No.	Components	Specifications	Warranty
1	Solar Module (GoldiGreen/Panasonic/TATA Solar/Waree / Vikram/ Navisol/ Solar max/Nano/ Lubi/ PV PowerTech/ HHV/BHEL)	Mono crystalline/CIGS,300Wp -540Wp	25years
2	Solar Grid Tied Inverter AS REQUIRED (Schneider/ABB /Sungrow/Fronius/Kstar/Delta/Solis/Pow erone)SMA/Solarage/Polycab/Solare Growwatt/FUJI)	IP 65; Transformer less with MPPT, minimum efficiency of 98%.	5years
3	Mounting Structure and GI Tray <b>(MINIMUM HEIGHT FROM G/L/ROOF LEVEL SHOULD BE 5 FEET)</b>	Made from Hot dip galvanized, 80micron thick, Design wind speed 150kmph	25years
4	Cables DC (Finolex/ Skyton/ Bonton/  Cable AC (Polycab/V-Guard/Gloster /Havells/RR)	Single core DC cable, UV stabilised, multi-strand XLPE PVC insulated) XLPE PVC insulated 4 core solid CU conductor, XLPE insulated, FLEXIBLE, PVC inner sheathed, 1100V, cable as per IS	-
5	Array Junction Box (if required)	Polycarbonate IP 65 (Protection DC fuses, DC Isolator and DC SPD)	
6	AC/DC Distribution Board	MDS/Hager/L&T/ABB	
7	String Combiner Box	Robotina/Trinity Touch/Hensel /Cape Electric/ AKG	
8	LV Switchgear	ABB/L&T/Schneider/MDS or Equivalent	
9	Energy Meter	Secure/L&T or Equivalent	
11	Connectors	MC4/ or Equivalent	
12	Surge protection (spd)	ZOTUP, MDS, L&T, Hager	
13	AC DB (if required)	Polycarbonate IP 65 (Protection AC Isolator along with phase indicators)	
14	Earthing	Chemical type 3mtr ISI Mark along with Earthing Chambers As per IS 3043	
15	Earthing Strip	25mm x 3mm Copper Type	
16	Lighting Arrestor	Standard (Copper Type)	



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**Note:-**

1. The contractor should obtain prior approval from SBI/ Consultants before placing order for any specific materials SBI may/delete any of them or brands out of the above list.
2. All materials should conform to relevant standards and codes of BIS. Materials with I.S.I. mark shall be used duly approved by the SBI Engineer.
3. Any material is found to be not up to the mark, the contractor will have to produce original bills/certificate from the manufacturer or his authorized Distributor for authenticity and genuineness of the material for consideration and as per make approved by the SBI. The same will not be considered for payment.
4. Any additional items as per BOQ specifications or as per the instructions of the bank/Consultants. Any of the above items/other items if any will be as approved by the Consultants & Engineer-in-charge



## **TECHNICAL SPECIFICATIONS**

### **1.1 INTRODUCTION:**

In grid-connected Solar Photo Voltaic (SPV) systems, solar energy is fed into the building loads that are connected to the public electricity grid through a service connection with surplus energy being fed into the grid and short fall being drawn from the grid. Production of surplus energy may happen when solar energy produced exceeds building load energy demand. This surplus is fed into the grid, when energy demand in the building exceeds solar energy production, energy is drawn from the grid. Grid-connected solar PV systems have no battery storage and will not work during grid failure. For buildings with grid-connected solar PV systems, the service connection meter needs to be of the bidirectional type, whereby import kWh and export kWh are separately recorded.

### **1.2 QUALITY AND WORKMANSHIP:**

**Solar PV modules are designed to last 25 years or more. It is therefore essential that all system components and parts, including the mounting structures (Minimum 5 feet), cables, junction boxes, distribution boxes and other parts also have a life cycle of at least 25 years. Therefore, all works shall be undertaken with the highest levels of quality and workmanship. During inspection of Bank Engineer and its representatives will pay special attention to neatness of work execution and conformity with quality and safety norms. Non-compliance works will have to be redone at the cost of the Installer.**

### **1.3 DEFINITION:**

A Grid Tied Solar Rooftop Photo Voltaic (SPV) power plant consists of SPV array, Module Mounting Structure, Power Conditioning Unit (PCU) consisting of Maximum Power Point Tracker (MPPT), Inverter, and Controls & Protections, interconnect cables and switches. PV Array is mounted on a suitable structure. Grid-tied SPV system is without battery and should be designed with necessary features to supplement the grid power during daytime. Components and parts used in the SPV power plants including the PV modules, metallic structures, cables, junction box, switches, PCU etc., should conform to the BIS or IEC international specifications, wherever such specifications are available and applicable.

Solar PV systems shall consist of following equipments/components.

- Solar PV modules consisting of required number of Crystalline PV modules with linear performance warranty.
- Grid interactive Power Conditioning Unit with Remote Monitoring System including the SIM recharge for the 5-year period.
- Mounting structures (Minimum 5 feet height).
- Junction Boxes.
- Earthing and lightning protections (both DC & AC sides).





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- IR/UVprotectedPVCCables,pipesandaccessories.



## 1.4 SOLAR PHOTOVOLTAIC MODULES:

1.4.1 The PV modules used must qualify to the latest edition of IEC PV module qualification test or equivalent BIS standards **Crystalline Silicon** Solar Cell Modules IEC 61215/IS 14286. In addition, the modules must conform to IEC 61730 Part-2- requirements for construction & Part 2 - requirements for testing, for safety qualification or equivalent IS.

- a) For the PV modules to be used in a highly corrosive atmosphere throughout their lifetime, they must qualify to IEC 61701/IS 61701.
- b) The total solar PV array capacity should not be less than allocated capacity (kWp) and should comprise of solar **crystalline** modules of minimum 300 Wp and above wattage. Module capacity less than minimum 300 watt should not be accepted.
- c) Protective devices against surges at the PV modules shall be provided. Low voltage drop bypass diodes shall be provided.
- d) PV modules must be mandatorily tested and approved by one of the IEC authorized test centers.
- e) The module frame shall be made of corrosion resistant materials, preferably having anodized aluminum.
- f) The bidder shall carefully design & accommodate requisite numbers of the modules to achieve the rated power in his bid. Bank shall allow only minor changes at the time of execution.

### 1.4.2 Other general requirement for the PV modules and subsystems shall be the following:

- a) The rated output power of any supplied module shall have tolerance of +/-3%.
- b) The peak-power point voltage and the peak-power point current of any supplied module and/or any module string (series connected modules) shall not vary by more than 2 (two) percent from the respective arithmetic means for all modules and/or for all module strings, as the case may be.
- c) The modules shall be provided with a junction box with either provision of external screw terminal connection or sealed type and with arrangement for provision of by-pass diode. The box shall have hinged, weather proof lid with captive screws and cable gland entry points or may be of sealed type and IP-65 rated.
- d) IV curves at STC should be provided by bidder.



1.4.3 Modules deployed must use an RFID identification tag. The following information must be mentioned in the RFID used on each module (This can be inside or outside the laminate, but must be able to withstand harsh environmental conditions).

- a) Name of the manufacturer of the PV module.
- b) Name of the manufacturer of Solar Cells.
- c) Month & year of the manufacture (separate for solar cells and modules).
- d) Country of origin (separately for solar cells and module).
- e) I-V curve for the module Wattage,  $I_m$ ,  $V_m$  and FF for the module.
- f) Unique Serial No and Model No of the module.
- g) Date and year of obtaining IEC PV module qualification certificate.
- h) Name of the test lab issuing IEC certificate.
- i) Other relevant information on traceability of solar cells and module as per ISO 9001 and ISO 14001.

#### **1.5. ARRAY/MODULE MOUNTING STRUCTURE:**

- i. Hot dip galvanized/Aluminum mounting structures (Minimum 5-feet height) shall be used for mounting the modules/ panels/ arrays. Each structure will have an angle of inclination as per the site conditions to total maximum insulation.
- ii. The mounting structure must be Non-invasive Ballast Type and any sort of penetration of roof to be avoided. The design details are as follows:
  - a. The inclination of modules should be within 10-15 degrees.
  - b. The upper edge of the module must be covered with wind shield so as to avoid bulk air ingress below the module. Slight clearance must be provided on both edges (upper & lower) to allow air for cooling.
- iii. The mounting structure should be as per latest IS 2062: 1992 and galvanization of the mounting structure shall be in compliance of latest IS 4759.
- iv. The fasteners should be made up of stainless steel. The structure shall

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signed to allow easy replacement of any module. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels.
- v. The total load of the structure (when installed with PV modules) on the terrace should be less than 60 kg/m<sup>2</sup>. The load shall be well distributed so that point loads are well within the limits.
  - vi. The minimum clearance of the structure from the roof level should be minimum 5-feet.
  - vii. The structures should be laid on the rooftop on weather resistant FRP mountings which should be non-penetrating type and proper drainage of rain water over terrace through the installation area should be maintained.
  - viii. The structures should be suitably loaded with reinforced concrete blocks of appropriate weight made out of M25 concrete mixture.
  - ix. Special care should be taken while designing all structures for modules to cater to heavy rainfall.
  - x. The array shall be located sufficiently inside the boundary wall of the terrace (parapet wall) and should not be projecting out. PV array shall be installed in the terrace space free from any obstruction and/or shadow. PV array shall be installed utilizing optimum terrace space to minimize the effect of shadows due to adjacent PV panel rows.
  - xi. Adequate spacing shall be provided between two panel frames and rows of panels to facilitate personnel protection, ease of installation, replacement, cleaning of panels and electrical maintenance.
  - xii. Additional waterproofing shall be provided in the areas where RCC blocks are placed on the terrace.
  - xiii. The minimum clearance between lower edge of PV panel and terrace ground level shall be 150 mm to allow ventilation for cooling, also ease of cleaning and maintenance of panels as well as cleaning of terrace.
  - xiv. The PV array structure design shall be appropriate with a factor of safety of min. 1.5.
  - xv. **Each array may be provided with two bird repellents spikes at a level higher than the upper edge of the array.** The location of the spike should be selected for minimum shadow effect.
  - xvi. The support structures shall be free from corrosion when installed.
  - xvii. PV modules shall be secured to support structure using screw fasteners and/or metal clamps. Screw fasteners shall use existing mounting holes provided by module manufacturer. No additional holes shall be drilled on module frames. Module fasteners/clamps shall be adequately treated to resist corrosion.
  - xviii. Adequate spacing shall be provided between any two modules secured on PV array for improved wind resistance.



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- xix. The structures shall be designed to withstand operating environmental conditions for a period of minimum 25 years.



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- xx. The structures should be appropriately designed to withstand high wind velocities up to 200 km per hour. (The bidder is required to submit a certificate from an authorized chartered engineer with regards to the strength and durability of the structure)

#### **1.6 JUNCTION BOXES (JBs):**

a. The junction boxes are to be provided in the PV array for termination of connecting cables. The J. Boxes (JBs) shall be made of GRP/FRP/Powder Coated Aluminium/cast aluminium alloy/PC with full dust, water & vermin proof arrangement. All wires/cables must be terminated through cable lugs. The JB shall be such that input & output termination can be made through suitable cable glands.

b. Copper bus bars/terminal blocks housed in the junction box with suitable termination threads conforming to IP65 standard and IEC 62208 Hinged door with EPDM rubber gasket to prevent water entry. Single/double compression cable glands. Provision of earthing. It should be placed at 5 feet height or above for ease of accessibility.

c. Each Junction Box shall have High quality Suitable capacity Metal Oxide Varistors (MOVs)/SPDs, suitable Reverse Blocking Diodes. Suitable earthing should be provided to SPD. The Junction Boxes shall have suitable arrangement monitoring and disconnection for each of the groups.

d. Suitable markings shall be provided on the bus bar for easy identification and the cable ferrules must be fitted at the cable termination points for identification.

#### **1.7 DISTRIBUTION BOARD:**

i. Distribution panel to receive the DC output from the array field.

ii. DC DPBs shall have sheet from enclosure of dust & vermin proof conform to IP 65 protection. The bus bars are made of copper of desired size and suitable capacity.

a) Arrangement such as grouting and calming should be provided to secure the installation against the specific wind speed. The vendor should provide concrete foundation 500mm x 500mm x 500mm to increase the strength. Non-invasive structures are recommended to avoid leakage in roof.

b) The mounting structure steel shall be as per latest IS 2062:1992 and galvanization of the mounting structure shall be in compliance of latest IS 4759.



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- c) Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts. Necessary protection towards rusting need to be provided either by coating or anodization.
- d) The fasteners used should be made up of stainless steel. The structure shall be designed to allow easy replacement of any module. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels. Lay out should allow for easy access for panel cleaning.
- e) Regarding civil structures the bidder need to take care of the load bearing capacity of the roof and need arrange suitable structures based on the quality of roof.
- f) The total load of the structure (when installed with PV modules) on the terrace should be within permissible limit.
- g) The minimum clearance of the structure from the roof level should be 300mm.
- h) CBs/MCCBs shall be provided for controlling the DC power output to the PCU along with necessary surge arrestors.

### **1.8 AC DISTRIBUTION PANEL BOARD:**

- a. Distribution Panel Board (DPB) shall control the AC power from PCU/inverter and should have necessary surge arrestors. Interconnection from AC DB to mains at LT Busbar while in grid tied mode.
- b. All switches and the circuit breakers, connectors should conform to IEC 60947, part I, II and III/IS 60947 part I, II and III.
- c. The changeover switches, cabling work should be undertaken by the bidder as part of the project.
- d. All the Panel's shall be metal clad, totally enclosed, rigid, floor mounted, air - insulated, cubical type suitable for operation on three phase/single phase, 415 or 230 volts, 50Hz
- e. The panels shall be designed for minimum expected ambient temperature of 45 degree Celsius, 80 percent humidity and dusty weather.
- f. All indoor panels will have protection of IP54 or better. All outdoor panels will have protection of IP65 or better.
- g. Should conform to Indian Electricity Act and rules (till a amendment).



h. All the 415 AC or 230 volts devices / equipment like bus support insulators, circuit breakers, SPDs, VT setc., mounted inside the switch gear shall be suitable for continuous operation and satisfactory performance under the following supply conditions

Variation in supply voltage	+/-5%
Variation in supply frequency	+/-3Hz

### 1.9. PCU/ARRAYS RATIO:

- a) Total Inverter capacity should be greater than or equal to the Rooftop Power Plant Capacity.
- b) Maximum power point trackers shall be integrated in the PCU/inverter to maximize energy drawn from the array.

### 1.10 PCU/Inverter:

As SPV array produce direct current electricity, it is necessary to convert this direct current into alternating current and adjust the voltage levels to match the grid voltage. Conversion shall be achieved using an electronic inverter and the associated control and protection devices. All these components of the system are termed the "Power Conditioning Unit (PCU)". In addition, the PCU shall also house MPPT (Maximum Power Point Tracker), an interface between Solar PV array & the inverter, to the power conditioning unit/inverter

The inverter output should be compatible with the grid frequency. Typical technical features of the inverters shall be as follows:

- Switching devices: IGBT/MOSFET.
- Control: Microprocessor/DSP.
- Nominal AC output voltage and frequency: 415V, 3Phase, 50Hz (In case single phase inverters are offered, suitable arrangement for balancing the phases must be made.).
- Output frequency: 50Hz.
- Grid Frequency Synchronization range: +3Hz or more.
- Ambient temperature considered: -20°C to 80°C.
- Humidity: 95% Non-condensing.





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- GridFrequencyTolerancerange: +3ormore.



- Grid Voltage tolerance: -20% & +15%.
- No-load losses: Less than 1% of rated power.
- Inverter efficiency (minimum): >93%.
- THD: <3%.
- PF: >0.95.

a. Three phase PCU/ inverter shall be used with each power plant system (10kW and/or above) but in case of less than 10kW single phase inverter can be used.

b. PCU/inverters shall be capable of complete automatic operation including wake-up synchronization & shutdown.

c. The output of power factor of PCU inverter is suitable for all voltage ranges or sink of reactive power, inverters should have internal protection arrangement against any sustainable fault in feeder line and against the lightning on feeder.

d. Built-in meter and data logger to monitor plant performance through external computers shall be provided.

e. The power conditioning units/inverters should comply with applicable IEC/ equivalent BIS standard for efficiency measurements and environmental tests as per standard codes IEC 61683/IS 61683 and IEC 60068-2(1,2,14,30)/Equivalent BIS Std.

f. The charge controller (if any) / MPPT units environmental testing should qualify IEC 60068-2(1,2,14,30)/Equivalent BIS Std. The junction boxes/ enclosures should be IP65 (for outdoor)/IP54 (indoor) and as per IEC 529 specifications.

g. The PCU/inverters should be tested from the MNRE approved test centers/NABL/BIS/IEC accredited testing calibration laboratories. In case of imported power conditioning units, these should be approved by international test houses.

#### 1.11 INTEGRATION OF PV POWER WITH GRID:

The output power from SPV would be fed to the inverters which convert DC produced by SPV array to AC and feeds it into the main electricity grid after synchronization. In case of grid failure, or low or high voltage, solar PV system shall be out of synchronization and shall be disconnected from the grid. 4 pole isolation of inverter output with respect to the grid need to be provided.

#### 1.12 DATA ACQUISITION SYSTEM/PLANT MONITORING:

i. Data Acquisition System shall be provided for each of the solar PV plant.



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ii. Data Logging Provision for plant control and monitoring, time and date stamped system data logs for analysis with the high quality, Metering and Instrumentation for display of systems parameters and status indication to be provided.

iii. Data from the inverter shall be uploaded to internet via sim card-based device. The monitoring details should be shared by the Bank.

iv. The following parameters are accessible via the operating interface display in real time separately for solar power plant.

1. AC Voltage.
2. AC Output current.
3. Output Power.
4. Power factor.
5. DC Input Voltage.
6. DC Input Current.
7. Time Active.
8. Time disabled.
9. Time idle.
10. Power produced
11. Protective function limits (Viz-AC Over voltage, AC Under voltage, Over frequency, Under frequency ground fault, PV starting voltage, PV stopping voltage).

v. All major parameters available on the digital bus and logging facility for energy auditing through the internal microprocessor and read on the digital front panel at any time) and logging facility (the current values, previous values for up to a month and the average values) should be made available for energy auditing through the internal microprocessor and should be read on the digital front panel.

vi. PV array energy production: Digital Energy Meter should log the actual value of AC/DC voltage, Current & Energy generated by the PV system provided. Energy meter along with CT/PT should be of 0.5 accuracy class.

Computerized DC String/Array monitoring and AC output monitoring shall be provided as part of the inverter and/or string/array combiner box or separately.

vii. String and array DC Voltage, Current and Power, inverter AC output voltage and current (All 3 phases and lines), AC power (Active, Reactive and Apparent), Power Factor and AC energy (All 3 phases and cumulative) and frequency shall be monitored.

viii. The data shall be recorded in a common work sheet chronologically date wise. The data file shall be MS Excel compatible. The data shall be represented in both tabular and graphical form.



- ix. All instantaneous data shall be shown on the computer screen.
- x. Software shall be provided for USB download and analysis of DC and AC parameter data for individual plant.
- xi. Provision for Internet monitoring and download of data shall be also incorporated.
- xii. Remote Server and Software for centralized Internet monitoring system shall be also provided for download and analysis of cumulative data of all the plants.
- xiii. Simultaneous monitoring of DC and AC electrical voltage, current, power, energy and other data of the plant to be provided.

xiv. **Remote Monitoring and data acquisition through Remote Monitoring System software at the Bank location with latest software/hardware configuration, service connectivity (including the SIM recharge for the period of 5 years) for online / real time data monitoring/control to be supplied. operation & maintenance/control to be ensured by the supplier. Provision for interfacing these data on [NAME OF THE ORGANISATION] server and portal in future shall be kept.**

**1.13 METERING:**

a. The bidirectional electronic energy meter per the statutory requirements of DISCOM shall be installed for the measurement of import/Export of energy (getting statutory requirements and installation of bidirectional meter is installers scope with free of cost).

b. Solar meter to be installed to measure the solar generation as per PSPCL/UHBVN/SBPDCL guidelines.

**c. The bidder must take approval/NOC from the Concerned DISCOM for the connectivity, technical feasibility, and synchronization of SPV plant with distribution network and copy submit to Bank before commissioning of SPV plant.**

d. Inverters should comply with anti-islanding norms of PSPCL/UHBVN/SBPDCL.

**1.14 POWER CONSUMPTION:**



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Regarding the generated power consumption, priority need to give for internal consumption first and thereafter any excess power can be exported to grid. Decision of appropriate authority like DISCOM, state regulator may be followed.

### 1.15 PROTECTIONS:

The systems should be provided with all necessary protections like earthing, Lightning, and grid islanding as follows:

#### 1.15.1 LIGHTNING PROTECTION:

The SPV power plants shall be provided with lightning & overvoltage protection. The main aim in this protection shall be to reduce the overvoltage to a tolerable value before it reaches the PV or other subsystem components. The source of overvoltage can be lightning, atmospheric disturbances etc. The entire space occupying the SPV array shall be suitably protected against lightning by deploying required number of lightning arrestors. Lightning protection should be provided as per IEC 62305 standard. Lightning conductor should be made of 25mm dia 4000mm long GI spike as per provision of IS 2309-1969. Necessary concrete foundation to be provided for holding lightning conductor considering the wind speed. It should be earthed through 20x3 GI flat from pit with proper insulation. Height of lightning conductor from array structures should be min 4 meter.

#### 1.15.2 SURGE PROTECTION:

Internal surge protection shall consist of three MOV type surge arrestors connected from +ve and -ve terminal to earth (via arrangement) / SPD (type II). SPD should be provided in AC and DC side of solar PV system. It should have protection voltage of 2.5kV and nominal discharge current of 5kA (8/20) microsec. SP earthing terminals should be connected to earthing system.

#### 1.15.3 EARTHING PROTECTION:

- a. Each array structure of the PV yard should be grounded/ earthed properly as per IS: 3043- 1987. In addition the lightning arrester/masts should also be earthed inside the array field. Earth Resistance shall be tested in presence of the representative of Bank engineer as and when required after earthing by calibrated earth tester. PCU, ACDB and DCDB should also be earthed properly. Minimum 03 GI pipe earth pit to be provided as per relevant IS code.
- b. Earth resistance shall not be more than 5 ohms. It shall be ensured that all the earthing points are bonded together to make them at the same potential.



### 1.16. Grid Islanding:

a. In the event of a power failure on the electric grid, it is required that any independent power-producing inverters attached to the grid turn off in a short period of time. This prevents the DC-to-AC inverters from continuing to feed power into small sections of the grid, known as "islands." Powered islands present a risk to workers who may expect the area to be unpowered, and they may also damage grid-tied equipment. The Rooftop PV system shall be equipped with islanding protection. In addition to disconnection from the grid (due to islanding protection), disconnection due to under and over voltage conditions shall also be provided.

b. A manual disconnect 4-pole isolation switch (MCB/MCCB) as per maximum inverter output current beside automatic disconnection to grid would have to be provided at utility end to isolate the grid connection by the utility personnel to carry out any maintenance. This switch shall be locked by the utility personnel.

### 1.17 CABLES:

Cables of appropriate size to be used in the system shall have the following characteristics:

- i. Shall meet IEC 60227/IS 694, IEC 60502/IS 1554 standards.
- ii. Temp. Range: -10°C to +80°C.
- iii. Voltage rating 660/1000V.
- iv. Excellent resistance to heat, cold, water, oil, abrasion, UV radiation Flexible.
- v. Sizes of cables between array interconnections, array to junction boxes, junction boxes to inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire solar system to the minimum. The cables (as per IS) should be insulated with a special grade PVC compound formulated for outdoor use.

Cable Routing/Marking: All cable/wires are to be routed in a GI cable tray and suitably tagged and marked in proper manner by good quality ferrule or by other means so that the cable is easily identified.

The cables should be so selected that they should be compatible up to the life of the solar PV panels i.e. 25 years.

The ratings given are approximate. Bidders to indicate size and length as per system design requirement. All the cables required for the plant provided by the bidder. Any change in cable sizes if desired by the bidder/approved after citing



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appropriate reasons. All cable schedules/layout drawings approved prior to installation.

Multi Strand, Annealed high conductivity copper conductor PVC type A pressure extruded insulation or XLPE insulation. Overall PVC/XLPE insulation for UV protection Armoured cable for underground laying. All cable trays including covers to be provided. All cables conform to latest edition of IEC/equivalent BIS Standards as specified below: BoS item / component Standard Description Standard Number Cables General Test and Measuring Methods, PVC/XLPE insulated cables for working voltage up to and including 1100V, UV resistant for outdoor installation IS/IEC 69947.

The size of each type of DC selected shall be based on minimum voltage drop however the maximum drop shall be limited to 1%.

The size of each type of AC cable selected shall be based on minimum voltage drop however the maximum drop shall be limited to 2%.

#### **1.18 TOOLS & TACKLES AND SPARES:**

Operation and maintenance guide and consumable spares like fuses should be provided by vendor.

#### **1.19 DANGER BOARDS AND SIGNAGES:**

Danger boards should be provided as and where necessary as per IE Act. / IE rules as amended up to date. Three signages shall be provided one each at battery cum control room, solar array area and main entry from administrative block. Text of the signage may be finalized in consultation with Bank.

#### **1.20 DRAWINGS & MANUALS:**

Two sets of Engineering, electrical drawings and installation and O&M manuals are to be supplied. Bidders shall provide complete technical data sheets for each equipment giving details of the specifications along with make/makes in their bid along with basic design of the power plant and power evacuation, synchronization along with protection equipment.

I. Approved ISI and reputed makes for equipment to be used.

II. For complete electro-mechanical works, bidders shall supply complete design, details and drawings for approval to Bank before progressing with the installation work.



### **1.21 PLANNING AND DESIGNING:**

- i. The bidder should carry out the considering optimal usage of the space, material & labour. The bidders should submit the array layout, drawings along with a hadow analysis report to Bank for approval. Bidders should submit detailed SLD for approval.
- ii. Bank reserves right to change/modify sub-systems and components at any stage as per the local site conditions/requirements.
- iii. The bidder shall submit preliminary drawing for approval & based on any modification or recommendation, if any. The bidders shall submit three sets and soft copy in CD of final drawing for formal approval to proceed with installation work.

### **1.22 DRAWINGS TO BE FURNISHED BY BIDDER AFTER AWARD OF CONTRACT:**

- i. The Contractor shall furnish the following drawings Award/Intent and obtain approval.
- ii. General arrangement and dimensioned layout Schematic drawings showing the requirement of SV panel, Power conditioning Unit(s)/inverter, Junction Boxes, AC and DC Distribution Boards, meters etc. Structural drawing along with foundation details for the structure.
- iii. Itemized bill of material for complete SV plant covering all the components and associated accessories.
- iv. Layout of solar Power Array.

**1.23 Safety - The bidder shall take entire responsibility for electrical safety of the installation(s) including connectivity with the grid and follow all the safety rules & regulations applicable as per Electricity Act, 2003 and CEAG guidelines etc.**





**QUALITY CERTIFICATION STANDARDS AND TESTING FOR GRID-CONNECTED ROOF-TOP SOLAR PV SYSTEMS/POWER PLANTS**

Quality certification and standards for grid-connected rooftop solar PV systems are essential for the implementation of this technology. Hence, all components of grid-connected rooftop solar PV system/plant must conform to the relevant standards and certifications given below:

<b>Solar PV Modules</b>	
IEC 61215/IS 14286	Design Qualification and Type Approval for Crystalline Silicon Terrestrial Photovoltaic (PV) Modules
IEC 61646/Equivalent IS (Under Dev.)	Thin Film Terrestrial PV Modules
IEC 62108	Concentrator PV Modules & Assemblies
IEC 61701	Salt Mist Corrosion Testing of Photovoltaic (PV) Modules
IEC 61853-Part 1/IS 16170: Part 1	Photovoltaic (PV) module performance testing and energy rating –: Irradiance and temperature performance measurements, and power rating
IEC 62716	Photovoltaic (PV) Modules – Ammonia (NH <sub>3</sub> ) Corrosion Testing (As per the site condition like dairies, toilets)
IEC 61730-1,2	Photovoltaic (PV) Module Safety Qualification – Part 1: Requirements for Construction, Part 2: Requirements for Testing
<b>Solar PV Inverters</b>	
IEC 62109-1, IEC 62109-2	Safety of power converters for use in photovoltaic power systems – Part 1: General requirements, and Safety of power converters for use in photovoltaic power systems; Part 2: Particular requirement for inverters. Safety compliance (Protection degree IP65 for outdoor mounting, IP54 for indoor mounting)
IEC/IS 61683 (as applicable)	Photovoltaic Systems – Power conditioners: Procedure for Measuring Efficiency (10%, 25%, 50%, 75% & 90-100% Loading Conditions)
IEC 62116/UL 1741/IEEE 1547 (as applicable)	Utility-interconnected Photovoltaic Inverters- Test Procedure of Islanding Prevention Measures
IEC 60255-27	Measuring relays and protection equipment – Part 27: Product safety requirements
IEC 60068-2/IEC 62093 (as applicable)	Environmental Testing of PV System – Power Conditioners And Inverters
<b>Fuses</b>	



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<p>IS/IEC60947(Part1, 2&amp;3),EN50521</p>	<p>Generalsafetyrequirementsforconnectors,switches,circuitbreakers(AC/DC): a) Low-voltage Switchgear and Control-gear, Part 1: Generalrules b) Low-Voltage Switchgear and Control-gear, Part 2: CircuitBreakers c) Low-voltage switchgear and Control-gear, Part 3:Switches, disconnectors, switch-disconnectors and fusecombinationunits d) EN 50521: Connectors for photovoltaic systemsSafetyrequirementsandtests</p>
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IEC 60269-6	Low-voltage fuses - Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems
<b>Surge Arrestors</b>	
BFC 17-102:2011	Lightning Protection Standard
IEC 60364-5-53/ IS 15086-5 (SPD)	Electrical installations of buildings-Part 5-53: Selection and erection of electrical equipment - Isolation, switching and control
IEC 61643-11:2011	Low-voltage surge protective devices-Part 11: Surge Protective devices connected to low-voltage power systems Requirements and test methods
<b>Cables</b>	
IEC 60227/IS 694, IEC 60502/IS 1554 (Part 1&2)/ IEC 69947 (as applicable)	General test and measuring method for PVC (Polyvinylchloride) insulated cables (for working voltages up to and including 1100V, and UV resistant for outdoor installation)
BS EN 50618 (BT (DE/NOT) 258)	Electric cables for photovoltaic systems Mainly for DC Cables
<b>Earthing/Lightning</b>	
IEC 62561	Series (Chemical earthing) (as applicable)
IEC 62561-1	Lightning protection system components (LPSC)- Part 1: Requirements for connection components
IEC 62561-2	Lightning protection system components (LPSC)- Part 2: Requirements for conductors and earthing electrodes
IEC 62561-7	Lightning protection system components (LPSC)- Part 7: Requirements for earthing enhancing compounds
<b>Junction Boxes</b>	
IEC 60529 IEC 529	Junction boxes and solar panel terminal boxes shall be of the thermoplastic type with IP65 protection for outdoor use, and IP54 protection for indoor use
<b>Energy Meter</b>	
IS 16444 or as specified by the DISCOMs	A.C. Static direct connected watt-hour Smart Meter Class 1 and 2—Specification (with Import & Export/Net energy measurements)
<b>Solar PV Roof Mounting Structure</b>	
IS 2062/IS 4759	Material for the structure mounting
IEC 62548	PV arrays—Design requirements
<p><b>QUALITY STANDARDS AND CERTIFICATIONS FOR A GRID-CONNECTED ROOFTOP SOLAR PV SYSTEM</b></p> <p>Equivalent standards may be used for different components of the systems. In case of clarification, the following organizations/agencies may be contacted:</p> <ul style="list-style-type: none"> <li>• <b>Ministry of New and Renewable Energy (MNRE)</b></li> <li>• <b>National Institute of Solar Energy (NISE)</b></li> <li>• <b>The Energy and Resources Institute (TERI)</b></li> <li>• <b>TUV Rheinland</b></li> <li>• <b>UL</b></li> </ul>	



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**III. CERTIFICATE**

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

Signature and date of

Signature and date of

Contractor

Engineer of SBI

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



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IV-MEMORANDUMFORPAYMENT

R.BILLNO.....

1.Totalamountduesincepreviousbill(D)(A+B)	Rs.....
2.PVAonaccountofescalationinpriceofsteel Cementandothermaterialsandlabouras detailed inseparatestatementenclose	Rs.....
3.Deductions:	
a. SecuredAdvancepaidinthe previousR.A.	Rs.....
b. Retentionmoneyonvalueof worksasper Acceptedtenders:uptodate amount Less:Alreadyrecovered(-)	Rs.....
Balanceto berecovered	Rs.....
c. Mobilizationadvance,ifany	
i.Outstandingamount(Principal+Interest)	
Asondate	Rs.....
ii.Toberecoveredinthisbill	Rs.....
iii.Anyotherdepartmental materialcost	
Toberecoveredasper contract,ifany	Rs.....
iv.Anyother departmental servicechargestobe	
Recoveredifany,asper contract(Water,poweretc.)	
Enclosestatement	Rs.....
4.Totaldeductionaspercontractor	Rs.....
5. Netamount payableas perContract(E-F)	Rs.....

(Rupees.....)inwords.

Thisbillamountingto..... (bothfiguresandwords)hasbeenscrutinizedbymeafterduetest  
Checkofthemeasurementofworksasrequiredandasrecommendedforpayment.DatedSigna

tureofBank'sEngineer

Inchargeoftheproject

STATUTORYDEDUCTIONS:

1. Totalamountdue(E)	Rs.....
2. Less:IncomeTaxPayable	Rs.....
3. NetPayable	Rs.....

**SBI RBO DHANBAD**



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The figure in the Memorandum for ..Payment ..... has been verified and the bill passed for .....paymentRs... (Wordsandfigures)

Date:

SignatureofPremisesoffice

**DETAILSOFINSURANCEPOLICIES**

Type ofPolices	NameofInsurance	Amount(Rs.)	PolicyNo.	Validity
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Workmen'sCompensation

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Remarks:

1. This only an 'on -account' payment and is not be interpreted either as approval of work,materialsbroughttoraffixedatsiteorforthatmatterapprovalofanysort.
2. Thequantumofworkdoneandmaterialsdeliveredatsitehavebeencertifiedby.....
3. Should youwishto auditsuchwork,kindlycontract theundersigned and oblige.

\_\_\_\_\_  
Architects



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**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



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**MAINTENANCEOFRECORDS**

A)RegistersatthesiteofficeoftheBank’sEngineer:

1. Measurement Books
2. Drawingregister
3. Materialsandsiteregister
4. HindranceRegister
5. Sitevisit& InstructionsRegister.





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**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 Bank's letter no.
- b) 2<sup>nd</sup> extension vide Bank's letter no.
- c) 3<sup>rd</sup> extension vide Bank's 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



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**BILL OF QUANTITIES (BOQ)**

**(ASPERANNEXURE-IIIINSEPARATE ATTACHMENTFILE)**