



**E-tender document for the construction of office Building Block - A (Stilt + 5 Floors) & Block - B (Stilt + 2 Floors) for TSERC at Kalyan Nagar, Hyderabad as per the Super ECBC Compliance and Net Zero Energy Building Concept**

**Package I - Civil Works including STP**

**Tender No. TSERC/OB/NZEB/2022-23/1/e-tender Package 1 dated 30.11.2022**



**Telangana State Electricity Regulatory Commission (TSERC)**

5<sup>th</sup> Floor, Singareni Bhavan, Red Hills,  
Lakdikapul, Hyderabad, Telangana State, India - 500 004

**Phone: 040 – 23311125, 23311126.**

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## SECTION I: Invitation for Bids (IFB)

**Name of Work: Construction of office building Block - A (Stilt + 5 Floors) & Block – B (Stilt + 2 Floors) for Telangana State Electricity Regulatory Commission (TSERC) at Kalyan Nagar, Hyderabad as per Super ECBC Compliance and Net Zero Energy Building (NZEB) Concept as per the plan enclosed.**

**Notice Inviting Tender (NIT)/ Tender Document No: TSERC/OB/NZEB/2022-23/1/e-tender Package 1 dated 30-11-2022**

### **Background:**

- TSERC is constituted by Government of Telangana under the provisions of Section 82 of Electricity Act, 2003 ~~with~~ having the authority to regulate the Electricity industry in the state of Telangana.
- As the Commission is currently accommodated in a leased accommodation, the Commission intends to construct its own building in its site located at Kalyan Nagar, S. R. Nagar, Near CTI, Hyderabad.
- The complete office building will have an approximate built-up area of 71633.09 Sft. TSERC is planning to construct the complete building as a Net Zero Energy Building (NZEB) with Super ECBC compliance.
- Accordingly, TSERC inviting the e-tender in three (3) different packages comprising the following . The successful bidder shall be responsible for effective coordination for successful completion of the project without deviating the timelines.
  - Package 1. Civil works (including STP)
  - Package 2. Electrical installation, RE integration & Low current services, Firefighting, HVAC and automation
  - Package 3. Interiors and Finishing works
- Presently, TSERC is inviting tenders for Package 1 from eligible bidders **those who have sufficient proven experience in construction of Net Zero Energy Buildings with Super Energy Conservation Building Code (ECBC) compliance for participating in the e-tender process**
- Any amendment(s)/corrigendum/clarification(s) with respect to this Tender shall be uploaded on the websites of **www.tserc.gov.in** and **www.tender.telangana.gov.in**. The bidders should keep themselves updated by regularly visiting these websites for any amendment/corrigendum/clarification in regard to this Tender.

**DISCLAIMER:**

1. TSERC reserves the right to modify, amend, vary or supplement this document including all formats and Annexures. It has also the right to cancel the tender at any stage without mentioning any reason whatsoever.
2. While this document has been prepared in good faith, neither TSERC nor their employees or advisors make any representation or warranty, express or implied directly or indirectly, or accept any responsibility or liability, whatsoever, in respect of any statements concessions or omissions herein, or the accuracy, completeness or reliability of information, and shall incur no liability under any law, statute, rules or regulations and or notifications if any as to the accuracy, reliability or completeness of this tender document, even if any loss or damage is caused by any act or omission on their part.

**TELANGANA STATE ELECTRICITY REGULATORY COMMISSIONS (TSERC)  
HYDERABAD – 500 004**

**NOTICE INVITING TENDERS (NIT) NO. TSERC/OB/NZEB/2022-23/e-tender Package I Dt.30.11.2022**

1	Department Name	Telangana State Electricity Regulatory Commission
2	Tender Notice No.	TSERC/OB/NZEB/2022-23/e-tender Package - I Dt.30.11.2022
3	Name of the Project	Construction of “Vidyut Nyantran Bhavan” as per Super ECBC Net Zero Energy Building Concept.
4	Name of the Work	TSERC- Package - I, Civil works including STP-Construction of office building, Block-A (Stilt + 5 floors) and Block – B (Stilt + 2 Floors) for TSERC at Kalyan Nagar Hyderabad as per Super ECBC Net Zero Energy Building Concept as per the plan enclosed.
5	Estimated Contract Value (ECV)	<b>Rs.18,77,02,415</b> (Rupees Eighteen Crores Seventy-Seven Lakhs Two Thousand Four Hundred and Fifteen only)
6	Period of Contract	<b>10 months</b>
7	Form of Contract	Percentage Rate Contract
8	Bidding Type	Open
9	Bid call (Nos.)	Short call
10	Tender Category	Works
11	Type of quotation	Percentage on ECV
12	Transaction Fee Payable to ‘TSTS’.	As indicated on <i>e-procurement</i> platform (to be paid online) as indicated at Sl.No.23 of this table.
13	Bid Processing Fee	Not Applicable
14	Bid Security (i.e., EMD)	<b>Rs.18,77,025/-</b> (Rupees Eighteen Lakh Seventy Seven Thousand and Twenty Five only).
15	Bid Security (i.e., EMD) payable to	Out of total amount of EMD, Rs.1,00,000/- (Rupees One Lakh only) to be paid online through Net banking/ RTGS/ NEFT/ Credit Card/Debit Card on e-procurement platform. <b>Rs.17,77,025/-</b> (Rupees Seventeen Lakh Seventy Seven Thousand and Twenty Five only) by way of BG issued by a Nationalised /Public/Scheduled bank in the prescribed format in favour of TSERC, The copy of the BG shall be scanned and uploaded while submitting the bid through e-procurement platform. Alternatively, the total amount of bid security, i.e., <b>Rs.18,77,025/-</b> (Rupees Eighteen Lakh Seventy Seven Thousand and Twenty Five only) can be paid online through Net banking /RTGS / NEFT /Credit Card/Debit Card on e-procurement platform.
16	Bid Submission	Online
17	<b><u>Important Dates:</u></b>	
	Bid document downloading Start date & time	<b>30.11.2022, 12:00 Noon</b>

	Bid document downloading End date & time	<b>21.12.2022, 3.00 pm</b>		
	Pre bid Meeting	<b>15.12.2022, 11:30 am</b> (clarification if any, may be addressed to email id: <a href="mailto:tsercnetzerobuilding@gmail.com">tsercnetzerobuilding@gmail.com</a> in advance and prior to pre-bid meeting date at TSERC Conference Hall.		
	Bid submission closing date and time	<b>21.12.2022, 4.00 pm</b>		
	Bid Validity Period	180 days from the date of opening of PQB.		
	Pre-qualification/ Technical bid opening date & time (Qualification & Eligibility Stage)	<b>22.12.2022, 4.00 pm</b>		
	Price bid opening date & time (Financial bid stage)	<b>28.12.2022, 4.00 pm</b>		
18	<b><u>Geographical Particulars of the site:</u></b>			
	<b>Mandal</b>	<b>District</b>	<b>Assembly</b>	<b>Parliament</b>
	Khairatabad	Hyderabad	Jubilee Hills	Secunderabad
19	<b><u>Other Details:</u></b>			
	Tender Inviting Authority	Commission Secretary, TSERC		
	Address & contact details:	5 <sup>th</sup> Floor, Singareni Bhavan, Red Hills, Lakdikapul, Hyderabad - 500 004. Phone: (040) - 23311125, 23311126		
	Bid opening Authority	Commission Secretary, TSERC		
	Place of Opening of Tenders: Telephone:	TSERC office located at 5 <sup>th</sup> Floor, Singareni Bhavan, Red Hills, Lakdikapul, Hyderabad - 500 004. Phone: (040) – 23311125, 23311126,		
20	<b>Eligibility Criteria:</b>			
	<p>i) <b>Registration:</b> The bidder shall be a registered as Class-I or above Civil contractor or Special Class registered in Central Government or any State Government or State/Central Public Sector Undertakings in India.</p> <p>ii) <b>Work Experience:</b></p> <p>a) The bidder should have prior <b>own</b> experience in construction of NZEB with Super ECBC compliance or LEED certified building/Green Building. Documentary evidence shall be submitted as proof as certified by competent authority.</p> <p>b) The bidder shall have <b>own</b> experience in execution of construction of at least one multi-storied building of minimum 5000 sq.m built up area in last five financial years that is from 2017-18 to 2021-22). The work completion certificate shall be submitted</p>			



as proof certified by a competent authority. The bidder on his own or through consortium shall have experience of having executed electrical installations, RE integration and low current services, HVAC (Radiant Cooling Technology) and office / commercial space Automation experience.

- c) The bidder should have successfully executed works of value not less than Rs.18.00 crores in respect of construction of multi-storied buildings one or more multi storied buildings, put together in any one year during last five financial years that is from 2017-18 to 2021-22. Preference will be given to the local bidders who have experience in construction of government/TS power utilities buildings.

iii) **Financial Condition:**

- a. The bidder should have Liquid Assets/ Credit facilities/ Solvency Certificate issued by any Nationalized/ Scheduled (Public Sector) Bank for a value not less than **Rs.5.0 crores**. The solvency certificate shall not be older than **12 months** from the date of availability of tender specification on e-procurement platform.
- b. **Annual Turnover:** The Bidder should have minimum annual turnover of **Rs.18.00 crores** in any one year during the last five financial years that is 2017-18 to 2021-22. The Annual Turnover certificate issued by a registered Chartered Accountant shall be uploaded.

Note:

1) Joint Venture (Consortium): The joint venture firms will also be acceptable on production of joint venture agreement concluded for the purpose of this work only.

In case of joint venture, the prime member should have valid **Class-I** or above. The share of the prime member of the joint venture group should be more than **51%**. The eligibility criteria will be considered on the basis of combined resources of all the members.

2) Responsibility for correctness of the information submitted in the online bid lies with bidder. If any information furnished in the bid is believed or palpably false or proved to be false at a later date, the bid will not only be rejected but the bidder will be **BLACKLISTED**.

3) If non-eligible contractors participate in tenders, they will be disqualified.

21 **Procedure for bid submission:**

- a. The tender should be in the prescribed form which can be obtained from <https://tender.telangana.gov.in> from the date of electronic publication up to the time and date indicated in the tender notice.  
The bidder would be required to register on the e-procurement market place i.e., <https://tender.telangana.gov.in> and submit their bids online only. Offline bids are not acceptable. Those contractors who register themselves in the 'e' procurement market place can download the tender schedules.
- b. Intending bidders can contact office of the **Commission Secretary** through email for any clarification / information.
- c. The bidders who are desirous of participating in e-procurement shall submit their eligibility and qualification details, certificates, Technical bid, Financial bid, etc., in the standard formats prescribed in the tender documents, displayed at e-market place. The bidder shall sign on all pages of the documents, statements, relevant certificates, owning responsibility for their correctness/ authenticity and upload the scanned copies. The bidders should invariably upload the statement showing the list of documents, certificates, etc., uploaded in the "e" market place in support of their Technical bids.
- d. All the bidders shall invariably upload the scanned copies of proof of online payment (remittance)/BG towards EMD (payment made through Net banking/ RTGS/NEFT/credit card/debit card) in e-procurement system and this will be the primary requirement to consider the bid responsive, that is to process bid further in e-procurement and to consider its eligibility.

	<p>e. Bid evaluation of the bidders would be done solely based on the uploaded certificates/ documents, online payment of EMD in the e-procurement system.</p> <p>f. The bidder shall authenticate the bid with his digital certificate for submitting the bid electronically on e-procurement platform and the bids not authenticated by Digital certificate of the bidder will not be accepted on the e-procurement platform following the G.O.Ms.No.6, IT &amp; C Department, Dated 28.02.2005.</p> <p>g. Hard copies:</p> <p>i. Submission of original hard copies of the uploaded scanned copies of documents by participating bidders to the tender inviting authority before opening of the price bid is dispensed as per G.O.Ms.No.174, Irrigation &amp; CAD (PW-Reforms) Department, dated 01.09.2008.</p> <p>ii. The successful bidder will be notified for submission of original hardcopies of all the uploaded documents prior to issuing of Purchase Order (PO)/Letter of Intent (LOI).</p> <p>iii. The successful bidder shall invariably furnish the original proof of online payment (Remittance)/BG towards EMD, hard copies of certificates/ documents of the uploaded scanned copies such as registration certificate, experience certificates for similar works and minimum quantities, liquid asset/ credit facilities/ solvency certificate, EPF, GST registration certificates, etc., to the tender inviting authority, up on intimation, prior to issue of <b>Letter of Intent</b>, to the tender inviting authority, either personally or through courier or post and the receipt of the same within the stipulated date shall be the responsibility of the successful bidder.</p> <p>iv. The TSERC will not take any responsibility for any delay in receipt/non-receipt of the same. On receipt of documents, the TSERC shall ensure the genuineness of the certificates/documents uploaded by the bidder in e-procurement system, in support of the qualification criteria before issue of PO/LOI.</p> <p>h. If any successful bidder fails to submit the original hard copies of uploaded certificates/documents within the stipulated time or if any variation is noticed between the uploaded documents and the hard copies submitted by the bidder, <u>the successful bidder will be suspended from participating in the tenders on e-procurement platform for a period of 3 years and the EMD will be forfeited.</u></p> <p>The e-procurement system would deactivate the user ID of such defaulting successful bidder based on the trigger/recommendation by the tender inviting authority in the system. Besides this, TSERC shall invoke all processes of law including criminal prosecution of such defaulting bidder as an act of extreme deterrence to avoid delays in the tender process for execution of the works/projects by TSERC</p> <p>i. The successful bidder is requested to get a confirmed acknowledgement from the tender inviting authority as a proof of Hardcopies submission to avoid any discrepancy.</p>
22	<p><b>Statutory Requirements:</b></p> <p><u>The Bidder shall fulfil the following statutory requirements:</u></p> <p>a) <b>Income Tax:</b> The contractor shall furnish their copy of Permanent Account Number (PAN) card and copy of latest income tax return submitted, along with the proof of acknowledgement.</p> <p>b) <b>EPF &amp; GIS:</b> The contractor shall comply with the statutory labour rules and regulations that is EPF, GIS, CLARA etc., as applicable/in force and shall furnish the original returns and information as may be specified from time to time.</p> <p>c) <b>GST:</b> The contractor shall furnish their copy of valid GST registration certificate issued by concerned authorities along with relevant SAC/HSN code from the Commercial Tax Department. The quoted tender percentage shall be exclusive of GST. GST as applicable as on date shall be indicated separately in each invoice and the same will be paid to the</p>

	<p>contractor. The contractor shall remit the applicable GST to the concerned department and produce documentary evidence.</p> <p>d) <b><u>Taxes &amp; Cess etc.:</u></b> The quoted tender percentage shall be inclusive of all <u>taxes, duties seigniorage and local cess/charges, labour cess, payment towards NAC, EPF, insurance, SMET, DMET etc., payable to the government/ quasi-government bodies excluding GST and will be recovered at rates fixed by competent authority from time to time from the contractor bills and will be paid to the government/concerned authorities.</u></p> <p><b>Agreement will not be concluded without meeting the above statutory norms.</b></p>
23	<p><b>Other Payments to be made:</b></p> <p>Apart from the Bid Security (EMD) the bidder shall be liable to pay the following:</p> <p>a) <b><u>Transaction fee:</u></b> The participating bidders have to electronically pay a non-refundable Transaction fee to M/s. TSTS, the service provider, through Payment Gateway Service on e-Procurement platform, as indicated in e-procurement platform at the time of bid submission.</p> <p>b) <b><u>Corpus Fund:</u></b> Successful bidder has to pay corpus fund @ 0.04% of ECV (estimated contract value) with a cap of Rs.10,000/- (Rupees ten thousand only), for all works with ECV upto Rs.50 crore, and Rs.25,000/- (Rupees twenty five thousand only) for works with ECV above Rs.50 crore, plus applicable GST, through demand draft in favour of Managing Director, TSTS, Hyderabad, towards corpus fund at the time of concluding agreement. There shall not be any charge towards e-procurement fund in case of works, goods and services with ECV less than and upto Rs.10 lakh.</p>
24	<p><b>Documents to be scanned &amp; uploaded:</b></p> <p>a) The bidder shall scan and upload all the required documents/ Experience certificates / statements along with copies of registration of EPF, GST, Solvency certificate, etc.</p> <p>b) The bidder is liable to be disqualified, if it is found that the bidder have</p> <ul style="list-style-type: none"> <li>• misled or furnished false information in the forms / Statements/ Certificates submitted in proof of qualification requirements.</li> <li>• hidden a negative record of performance such as abandoning of work, not properly completing of earlier contracts, inordinate delay in completion of works, litigation history, financial failures and penalties imposed.</li> </ul> <p>c) If such discrepancies mentioned above are found, even during the execution of work, the contract is liable to be terminated and the bidder will be black listed and the bid security will be forfeited. The work will be carried out through any other agency for which the bidder shall be liable for all the cost and consequences.</p>
25	<p><b>Tender Document:</b></p> <p>a) The TSERC desires that the bidder shall download the tender document and read all the terms and conditions mentioned in the tender Document and seek clarification if any from the tender inviting authority. Any offline bid submission clause appearing in the tender document may be treated as not included.</p> <p>b) The bidder has to check <a href="http://www.tender.telangana.gov.in">www.tender.telangana.gov.in</a> or <b>TSERC website (www.tserc.gov.in)</b> from time-to-time to keep track of any changes to the work/ tender conditions, by viewing the Addendum/Corrigendum issued by the tender inviting authority. The TSERC shall not be responsible for any claims made on erroneous understanding/problems confronted on such erroneous understanding arising out of not noticing the e-procurement platform, TSERC website.</p>
26	<p><b>The bidder shall furnish the declaration that:</b></p> <p>i. The bidder has not been black listed in any department due to any reasons.</p>

	<ul style="list-style-type: none"> <li>ii. The bidder has not been demoted to lower category in any department for not filing the tenders after buying the tender schedules in a whole year and their registration had not been cancelled for a similar default in two consecutive years.</li> <li>iii. The bidder will explicitly agree to get disqualified themselves for any wrong declaration in respect of the above conditions and get their tender summarily rejected.</li> <li>iv. The soft copies uploaded by them are genuine and that any incorrectness/ deviation noticed can be viewed seriously and apart from cancelling the contract duly forfeiting bid security including necessary action that can be initiated for disruption of works including suspension of business and/ or black listing.</li> <li>v. <b><u>The Bidder has read tender specifications and all the pages/documents uploaded by the TSERC, understood the contents and will abide by them. The bidder whoever is bidding for the work is deemed to have signed on all the pages of the tender specification/ documents uploaded by the TSERC.</u></b></li> </ul>
27	<p><b>Bid Submission Acknowledgement:</b></p> <p>The bidder shall complete all the processes and steps required for Bid submission. The system will generate an acknowledgement with a unique ‘<b>bid submission number</b>’ after completing all the prescribed steps and processes by the bidder. Users may also note that the bids for which an acknowledgement is not generated by the e-procurement system are treated as invalid or not saved in the system. Such invalid bids are not made available to the tender inviting authority for processing the bids. The Government of Telangana, M/s TSTS and TSERC are not responsible for submission of incomplete bids by the bidders.</p>
28	<p><b>Other relevant information:</b></p> <ul style="list-style-type: none"> <li>i. TSERC reserves the right to reject any or all the tenders without assigning any reasons thereof.</li> <li>ii. TSERC reserves the right to amend, vary or modify the tender and its conditions before the <u>closing of bid submission period</u>.</li> <li>iii. Any other condition regarding receipt of tenders in conventional method appearing in the tender documents may please be treated as not applicable.</li> <li>iv. The contractors have to upload the information preferably in Zip format.</li> <li>v. The contractor should upload scanned copies of the documents duly signing each and every page.</li> </ul>
29	<p><b><u>General terms and conditions:</u></b> AS PER BID DOCUMENT.</p>

**Commission Secretary**

## **SECTION - II: GENERAL CONDITIONS & SPECIAL CONDITIONS OF CONTRACT**

### **Definitions**

In the “bid / tender” unless the context otherwise requires the words and phrases employed in this document shall have the meaning as assigned to them herein:

- (A). “bid / tender” shall mean the Techno Commercial and the Price/Financial Bid submitted by the bidder along with all documents/credentials/attachments, formats, etc., in response to this Bid Document, in accordance with the terms and conditions hereof.
- (B). “bidder / tenderer” shall mean bidding company (lead bidder) submitting the bid. Any reference to the bidder includes bidding company including its successors, executors and permitted assigns jointly and severally, as the context may require”;
- (C). “bidding company” shall refer to such single company or firm/consortium companies or firms who have submitted the bid in accordance with the provisions of this document;
- (D). “bid deadline” shall mean the last date and time for submission of bid in response to this tender notification as specified in bid information sheet and as specified in this bid document including all amendments thereof;
- (E). “bid document” shall mean all definitions, sections, layouts, drawings, photographs, formats and annexure etc., as provided in this bid including all the terms and conditions hereof.
- (F). “chartered accountant” shall mean a person practicing in India or a firm whereof all the partners practicing in India as a chartered accountant(s) within the meaning of the Chartered Accountants Act, 1949.
- (G). “competent authority” shall mean Commission/Commission Secretary, TSERC himself and/or a person or group of persons nominated by Commission for the purposes mentioned in this document;
- (H). "contract" means the agreement entered into between the TSERC and the Contractor/successful bidder, as recorded in the Contract Form signed by the parties, including all the attachments and appendices thereto and all documents incorporated by reference therein;
- (I). "contract price / contract value" shall mean the sum accepted or the sum calculated in accordance with the prices accepted in bid and/or the contract rates as payable to the contractor for the entire execution and full completion of the work (price for supply, transportation (including loading, unloading and transfer to site), insurance including change order etc.
- (J). “completion of work” means that the project/works have been completed operationally and structurally has been attained as per technical specifications.
- (K). “contract document" shall mean collectively the bid document, design, drawings, and specifications, BOQs, annexures, agreed variations, if any, and such other documents consisting the bid and acceptance thereof;
- (L). “day” means calendar day;

- (M). “defect liability period” means the period of validity of the warranties given by the contractor (commencing at completion of the project/works, during which the contractor is responsible for defects with respect to the project/works.
- (N). “designated authority” shall mean such authority is assigned by the Commission from time to time
- (O). “EMD or earnest money deposit” shall mean the unconditional and irrevocable online payment or DD only to be submitted along with the bid by the bidder;
- (P). “ECBC” Energy Conservation Building Code
- (Q). “eligibility criteria” shall mean the eligibility criteria as set forth in this tender document, BOQ, technical & special conditions of contract of this BID;
- (R). “effective date” means the date from which the time for completion shall be determined;
- (S). “GCC” means the general conditions of contract contained in this section;
- (T). "goods" means permanent plant, equipment, machinery, apparatus, articles and things of all kinds to be provided and incorporated in the works by the contractor under the contract but does not include contractor's equipment;
- (U). “NIT” shall mean Notice Inviting Tender (AA).
- (V). “NZEB” shall mean Net Zero Energy Building
- (W). “owner” “employer” or “TSERC” shall mean Telangana State Electricity Regulatory Commission, Hyderabad.
- (X). “price/financial bid” shall mean online bid, containing the bidder's quoted price as per the format prescribed in annexure C of this BID document
- (Y). “qualified bidder” shall mean the bidder(s) who, after evaluation of their techno commercial bid as per eligibility criteria set forth in this bid document and BOQ stand qualified for opening and evaluation of their price/financial bid;
- (Z). “statutory auditor” shall mean the auditor of a company appointed under the provisions of the Companies Act, 2013 or under the provisions of any other applicable governing law;
- (AA). “services” means all those services ancillary to the supply of the products, to be provided by the contractor under the contract; e.g. transportation (including loading, unloading and transfer to site) and provision of marine or other similar insurance, inspection, expediting, carrying out guarantee tests, operations, maintenance etc.
- (BB). “successful bidder(s) / contractor(s)” shall mean the bidder(s) selected by employer pursuant to this Bid i.e. on whom award is made.
- (CC). “standards” shall mean the standards mentioned in the technical specification of the goods and equipment utilized for the work or such other standard which ensure equal or higher quality and such standards shall be latest issued by the concerned institution like Bureau of Indian Standards (BIS), Bureau Energy Efficiency (BEE) etc.

- (DD). “time for completion” means the time within which completion of the project/works is to be attained as per the LOA or the relevant provisions of the contract;
- (EE). “LEED AP” means Leadership in Energy and Environmental Design Accredited Professional
- (FF). “IGBC AP” means Indian Green Building Council Accredited Professional
- (GG). “GRIHA CP” Green Rating for Integrated Habitat Assessment Certified Professional

## 1. Scope of Work:

Construction of office building Block - A (Stilt + 5 Floors) & Block - B (Stilt + 2 Floors) for TSERC at Kalyan Nagar, Hyderabad as per Super ECBC Compliance and NZEB Concept as per the plan enclosed.

## 2. Eligibility Criteria:

### 2.1 Technical Criteria:

**Registration:** The bidder shall be a registered as class-I or above civil contractor or special class registered in central government or any state government or State/Central Public Sector Undertakings in India.

### Work Experience:

- a. The bidder should have prior own experience in construction of NZEB or super ECBC complaint or LEED certified green building. documentary evidence shall be submitted as proof certified by competent authority. Preference will be given to the local bidders who have experience in construction of government/TS power utilities buildings.
- b. The bidder shall have prior own experience in execution of construction of atleast one multi storied building minimum 5000 sq m built up area in last five financial years that is from 2017-18 to 2021-22. The work completion certificate shall be submitted as proof certified by a competent authority and shall have experience of either on their own or through a consortium of having executed electrical installations, RE integration & low current services, HVAC (Radiant cooling technology) and office / commercial space automation experience.
- c. The bidder should have successfully executed works of value not less than Rs.18.00 Crores in respect of construction of multi storied buildings one or more put together in any one year during last financial years that is from 2017-18 to 2021-22
- d. A consent letter shall be submitted as documentary evidence having HVAC experience certificate regarding green building construction and also to produce all necessary certificates.
- e. The bidder's team shall include one team member with LEED/ AP /IGBC AP/ GRIHA CP/ either through the consortium or as an employee. In case of consortium, a declaration to be submitted mentioning the willingness to work with the respective bidder for the completion of the works assigned and till completion of this project. A copy of the certificate of LEED AP/IGBC AP/ GRIHA CP shall be submitted along with the declaration letter.
- f. The bidder shall have valid GST and PAN. Copy of both shall be submitted.
- g. The bidder shall have prior experience of executing coordinated building services such as HVAC, Plumbing, Electrical & integrated Building Management Systems and Fire-fighting systems.

**In respect of the above eligibility criteria the bidders are required to furnish the following information along with the supporting documents in the technical bid as per the format provided in Annexure D.**

### 2.2 Financial Criteria:

2.2.1 The bidder should have liquid assets/credit facilities/solvency certificate issued by any nationalized / schedule (public sector) bank for a value not less than Rs.5.00 Crores. The solvency certificate shall not be older than 12 months from the date of availability of tender specification on e-procurement platform.



2.2.2 annual turnover: The bidder should have minimum annual turnover of Rs.18.00 Crores in any one year during the last five financial years that is from 2017-18 to 2021-22. The annual turnover certificate issued by a registered chartered accountant shall be uploaded.

***Bidders shall upload/submit all the necessary and supportive documents in the online portal as per the details mentioned in the Clause 7 provided in the tender document.***

### **3. Eligible Bidders:**

In order to submit the bid, the bidders have to get themselves registered online on Telangana e- Procurement portal ([www.tender.telangana.gov.in](http://www.tender.telangana.gov.in)) with valid digital signature certificate (DSC). The bidders should have a DSC issued from any agency authorized by TSTS, Government of Telangana. The invitation for bid is open to all bidders including an individual, proprietorship firm, partnership firm, company registered under Companies Act or a consortium having eligibility to participate as per eligibility criteria.

### **4. Consortium**

Consortium or JV is allowed for this tender. However, the bidder or its consortium partner shall fulfill the criteria mentioned and also the agreement shall mention that who will be the lead bidder for this tender. The consortium agreement exclusively for this project only accepted and shall clearly mentioned in the agreement. TSERC will only communicate with the Lead partner of the consortium or JV .

### **5. Clarification on bidding documents**

A prospective bidder requiring any clarification on the bidding documents may request the TSERC in writing through email at the TSERC mailing address indicated below. The TSERC will respond in writing to any request for clarification or modification of the bidding documents that it receives not later than ten (10) days prior to the deadline for submission of bids prescribed by the TSERC. TSERC may examine the query and may amend the tender if required.

The address of TSERC, for communication:

**The Commission Secretary,**  
Telangana State Electricity Regulatory Commission (TSERC),  
D.No. 11-4-660, Singareni Bhavan, 5<sup>th</sup> Floor  
Bazarghat, Hyderabad, Telangana - 500 004.  
Ph: 040 – 23397625.  
Email: [tsercnetzerobuilding@gmail.com](mailto:tsercnetzerobuilding@gmail.com)

### **6. Amendment to bidding documents**

At any time prior to the deadline for submission of bids, the TSERC may, for any reason, whether at its own initiative, or in response to a clarification requested by a prospective Bidder, may amend the bidding documents.

### **7. Procedure for submission of bid**

All the bidders shall follow the instructions on the Telangana e-tender portal for submitting their bids to this e-tender. Please visit the e-tender portal i.e., <https://tender.telangana.gov.in> All the confirmatory documents as enlisted in this tender document in support of online information furnished by the bidder are to be uploaded by the bidder while submitting the bid online bid. The technical bid in the e-tender portal will contain the documents listed in the checklist which is provided in this tender document. Bidders are requested to upload

appropriate documents through online portal. The financial/price bid as per the format provided in this tender document shall be uploaded through the online e-tender portal.

Any additional/ other relevant documents to support the information/ declaration furnished by bidder online against eligibility criteria may also be uploaded by the bidder in the appropriate space of technical bid in the form of single PDF / zip file as the additional documents.

As this is an e-tender, Bidders are requested to upload all the relevant information through e- tender portal only.

However, TSERC has right to ask for hard copies of the uploaded documents only, if they are found to be blur or invisible cases only for the evaluation purpose.

The bidder has to refer the BOQ uploaded and mention the price details as per the formats provided in the annexure C and upload the same in e-tender portal only at respective space.

#### **8. Cost of bid preparation**

The bidder shall bear all costs associated with the preparation and submission of its bid, including cost of presentation for the purposes of clarification of the bid, if so desired by the TSERC. TSERC will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the tendering process.

#### **9. Language of Bids**

The proposal prepared by the bidders and all correspondence and documents relating to the Bid exchanged by the bidder and TSERC, shall be written in English language, provided that any printed literature furnished by the bidder may be written in another language so long the same is accompanied by an English translation in which case, for purposes of interpretation of the bid, the English translation shall govern.

#### **10. Contacting the Employee**

- i) No bidder shall contact any of the employee's of TSERC on any matter relating to its bid, from the time of the opening of bids to the time the contract is awarded. Canvassing in connection with the tenders in any shape or form is strictly prohibited and tenders submitted by such tenderers who resort to canvassing shall be liable for rejection. Request for site visit, if any required, can be sent to the email **tsercnetzerobuilding@gmail.com** and the issuer of this tender notification will let the indenter know about the site visit through email.
- ii) Information relating to the examination, evaluation and comparison of bids and recommendations for the award of contract shall not be disclosed to bidders or any other persons not officially concerned with such process until the award to the successful bidder has been announced. Any effort by a bidder to influence TSERC in bid evaluation, bid comparison or contract, award decisions may result in rejection of the bidder's bid.

#### **11. Bid document cost and earnest money deposit (EMD)**

##### **11.1 Bid document cost: free of cost**

The bidder shall submit the EMD for the cost as mentioned in the bid information sheet. The EMD should be in the form of online payment mode of e tender portal or RTGS/NEFT to TSERC above account or demand draft in favor of TSERC, payable at Hyderabad.

##### **11.2 Earnest Money Deposit:**

- a. The EMD will not be received in the form of cash/cheque. While furnishing the bids online, the bidders have to pay EMD online on e-procurement platform.

- b. The EMD will be retained in the case of successful bidder and will not carry any interest. It will be dealt with as provided in the relevant clauses of this tender specification.
- c. The bid security shall be forfeited by TSERC, if
  - (i) the bidder withdraws from the bid before expiry of its validity.
  - (ii) the successful bidder does not accept the order or fails to enter into a contract within validity period of offer.
- d. When a tender is to be accepted, the tenderer whose tender is under consideration shall, attend the designated authority, before the end of the period specified by written intimation to him. If the tenderer fails to attend the office before the end of the period specified, his tender will not be considered. He shall forthwith upon intimation being given to him by the Commission Secretary , TSERC of acceptance of his tender, attend the office of the Commission Secretary , TSERC and sign an agreement in the proper departmental form for the due fulfillment of the contract. The contractor is bound by the specifications of APSS and terms and conditions stipulated in this specification.

**a) PERFORMANCE BANK GUARANTEE(PBG)**

- (i). In addition to the EMD, the balance amount of total up to 5% (five percent) of the value of contract shall be paid by the successful bidder as balance security deposit by way of bank guarantee from nationalized bank / public scheduled bank approved by TSERC as per proforma appended or demand draft from nationalized bank or scheduled bank (public sector) at the time of entering into the agreement. The above performance bank guarantee shall be furnished within fifteen (15) days from the date of receipt of Letter of Intent.
- (ii). The performance bank guarantee (i.e., 5% of value of contract that includes earnest money deposit and balance performance bank guarantee) will be released to the contractor after the expiry of guarantee period of 24 months (twenty four months) from the date of completion of work and based on the satisfactory performance certificate issued by the Commission Secretary or designated authority and after all defects, if any, shall have been made good to the satisfaction of the TSERC and according to the true intent and meaning thereof. This amount will not bear any interest.

**b) RETENTION AMOUNT:**

- (i). Further, 7.5% (Seven and Half) of the value of work done will be recovered from each running bill towards retention amount for the due fulfillment of the contract. The retention amount recovered from the running bills will be released to the contractor after completion of guarantee period of 24 months (twenty four months) from the date of completion of work and after all defects, if any, shall have been made good to the satisfaction of the TSERC and according to the true intent and meaning thereof. This amount will not bear any interest.
- (ii). Failure to enter into the required agreement or to make the security deposit as defined in the above paragraphs shall entail forfeiture of the earnest money deposit.

**11.3 Guarantee Period:**

- (i). The guarantee period for all the components of works done and material supplied under this contract shall be 24 months (Twenty Four months) unless otherwise specified explicitly. The guarantee period will be reckoned from the date of

- satisfactory completion of work. The repairs, rectifications and defects, etc., if any, arising during the guarantee period shall be attended and made good by the contractor to the satisfaction of the TSERC and according to the true intent and meaning thereof, without any extra cost to TSERC.
- (ii). The written agreement to be entered into between the contractor and the TSERC shall be the foundation and basis of the rights of both the parties and the contract shall not be deemed to be complete until the agreement has first been signed by the contractor and then by the proper officer authorized to enter into contracts on behalf of TSERC.
  - (iii). The work shall be commenced from the dates specified by TSERC, otherwise EMD will be forfeited.
  - (iv). **If the successful bidder fails to sign the agreement or otherwise commit default, the TSERC shall have the right to recover damages according to law apart from forfeiting the earnest money deposit.**
  - (v). The tenderer shall examine closely the APSS and also the standard preliminary specifications contained therein, and sign the divisional office copy of the APSS and its addenda volume in token of such study before submitting his tender offer. The tenderer shall also carefully study the drawings and additional specifications and all the documents which form part of the agreement to be entered into by the accepted tenderer. The APSS and other documents connected with the contract such as specifications, plans, descriptive specification sheet regarding materials etc., can be seen at any time between 11.00 a.m. and 5.00 p.m. on all working days in the office of the Commission Secretary TSERC, Hyderabad.
  - (vi). The tenderer's attention is directed to the requirements for materials under the clause 'Materials and Workmanship' in the 'Preliminary Specifications'. 'Materials conforming to the ISS' shall be used on the work, and the tenderer shall quote his percentage accordingly.
  - (vii). Every tenderer is expected, before quoting his percentage less/excess on ECV value on the estimated rates, to inspect the site of the proposed work. The tenderer should also inspect the quarries and satisfy himself about the quality and availability of materials. The names of quarries etc., where from certain materials are to be obtained are given in the descriptive specification sheet or Schedule 'C'. The best class of materials to be obtained from the quarries or other source defined shall be used on the work. In every case, the materials must comply with relevant standard specification. Samples of materials as called for in the standard specifications or in these tender conditions, or as required by the Commission Secretary or designated authority, in any case shall be submitted for the Commission Secretary's or designated authority's approval before the supply to site of work is begun. If the contractor, after examination of the source of materials defined in the descriptive specification sheet is of opinion that materials complying with the standard specifications of the contract cannot be obtained in quality or sufficient quantity from the source defined in the descriptive specification sheet, he shall so state clearly in his tender that where from he intends to obtain materials subject to the approval of the designated authority.
  - (viii). If further necessary information is required, the Commission Secretary or designated authority will furnish such information.
  - (ix). The TSERC will not, however, after acceptance of a contract rate, pay any extra charge for lead or for any other reason, in case the contractor found later on to have misjudged the materials availability. Attention of the tenderer is directed to the standard preliminary specifications (SPS) regarding payment of seigniorage, local cess, tolls etc.
  - (x). The tenderer's particular attention is drawn to the sections and clauses in the SPS

dealing with: -

1. Test, inspection and rejection of defective materials and work;
  2. Carriage;
  3. Construction Plant;
  4. Clearing up during progress and for delivery;
  5. Accidents;
  6. Delays;
  7. Particulars of payment.
- (xi). The contractor should closely peruse all the specifications, clauses which govern the percentage which he is tendering.
- (xii). A bill of quantities (Schedule-A) accompanies this tender schedule. It shall be definitely understood that TSERC does not accept any responsibility for the correctness or completeness of this schedule and that this schedule is liable to alterations/omissions, deductions or additions at the discretion of the Commission Secretary or designated authority or as set forth in the conditions of contract. The tenderer will, however, base the tender on this schedule of quantities. The estimated rates worked out by the TSERC for each item are furnished in the Schedule-A.
- (xiii). The bidder has to furnish his overall percentage either '+' or '-' that is excess or less on estimated contract value (ECV). The bidder needn't indicate individual item rates for each and every item listed in schedule. In case of excess tender percentage, the same should not exceed '+5 %'. The excess or less tender percentage quoted by the bidder will be applied uniformly on the estimated rates of all the items in order to deduce unit rates for the items while preparing agreement. As such, the bidder need not indicate individual item rates for each and every item listed in Schedule - 'A' (Bill of Quantities)
- (xiv). No alteration which is made by the tenderer in the contract form, the conditions of contract, drawings, specifications or quantities accompanying the tender will be recognized and if any alterations are made, the tender will be considered void.
- (xv). The bidder should work out his own overall percentage, either '+' or '-', i.e., excess or less on ECV. However, bidders who wish to change their offer already submitted can do so online, before closing date & time for submission of bids online. Hard copies in this regard will not be accepted.
- (xvi). **Price Variation: No price variation will be allowed on accepted rates under any circumstances for materials and labour or whatever etc. The excess or less percentage over the ECV quoted by the contractor shall be firm and binding upon the contractor till the work is completed. The quoted percentage less/excess on ECV value shall be binding on the tenderer even for award of part work.**

## 12.Site- visit:

- 12.1 The bidder, at the bidder's own responsibilities, cost and risk, is encouraged to visit and examine the site of works and its surrounding, approach road, existing works, if any, connected to the tendered work, drawings connected to the work, if / as available and obtain all information that may be necessary for preparing the bid and entering into a contract for execution of the works. The cost of visiting the site shall be at the bidder's own expense.
- 12.2 It shall be deemed that the bidder has visited the site/area and got fully acquainted with the working conditions and other prevalent conditions and fluctuations thereto whether the tenderer actually visits the Site /Area or not and has taken all the factors into account while quoting rates.
- 12.3 The Bidder is expected, before quoting his rate, to go through the requirement of materials/workmanship, specifications, requirements and conditions of contract.
- 12.4 The Bidder, in preparing the bid, shall rely on the site investigation report uploaded along with tender document.

### **13. Price basis and escalation**

Basis of the price quoted shall be with reference to BOQ. Price mentioned in the quotation must be firm and shall be in Indian rupees only. Hence prices mentioned in financial Bid shall be firm and not subject to escalation till the execution of the complete work. TSERC has full rights to call for negotiations for further decreasing the prices or going for reverse bidding.

### **14. Taxes, levies and duties for the preparation of the bid**

Prices of items shall be quoted as per the BOQ. However, the prices shall be inclusive of transportation, insurance, levies and any other duties etc., (wherever applicable) and exclusive of GST. Bidder has to arrange on its own to deliver the material at site.

### **15. Period of validity of bid**

Bids shall remain valid for complete bid document period validity as mentioned in NIT. In exceptional circumstances, the TSERC may solicit the bidder's consent to an extension of the bid validity period. The request and response thereto shall be made in writing through letters/ e-mails.

### **16. Power of Attorney**

A power of attorney duly authorized by the respective companies board, indicating that the person(s) signing the bid has/have the authority to sign the bid and thus the bid is binding upon the bidder during the full period of its validity. However, TSERC shall have right to accept the authorization of the persons by ensuring genuinity based on the supporting documents.

### **17. Signing of bid**

- i. The original copy of the bid, consisting of the documents mentioned in the bid document shall be typed or written in indelible ink and shall be signed by the bidder or a person or persons duly authorized to bind the bidder to the contract. The authorization shall be indicated by written power of attorney accompanying the bid and submitted as Attachment 2 to this bid document. All pages of the bid shall be initialed by the person or persons signing the bid.
- ii. The tenderer shall ensure that no interlineations, erasures or overwriting shall be resorted to. However, in exceptional circumstances any interlineations, erasures or overwriting shall only be valid if they are initiated by the signatory to the bid.

### **18. Deadline for submission of bids**

- (i). Bids must be submitted as per the timings stated in bid information sheet.
- (ii). The TSERC may, at its discretion, extend this deadline for submission of bids by amending the bidding documents, in which case all rights and obligations of TSERC and bidders will thereafter be subject to the deadline as extended.
- (iii). No bid may be withdrawn in the interval between the bid submission deadline and the expiration of the bid validity period. Withdrawal of a bid during this interval may result in the bidder's forfeiture of its EMD.

### **19. Preliminary examination of bids.**

The TSERC will examine the bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished,

whether the documents have been properly signed, whether the bids are generally in order and properly uploaded in the e-tender portal.

## **20. Bid opening process**

TSERC will be opening the technical bids in online.

## **21. Technical evaluation**

The TSERC will carry out a detailed evaluation of the online bids determined to be substantially responsive in order to determine whether the technical aspects are in accordance with the requirements set forth in the bidding documents. In order to reach such a determination, the TSERC will examine and compare the technical aspects of the online bids on the basis of the information provided by the bidders, taking into account the following factors:

- a) Overall completeness and compliance with the qualification criteria; past experience; desired manpower availability; competency; in house machinery, documents submitted etc.
- b) The bidder does not meet minimum acceptable standards of completeness, consistency and will be rejected for non- responsiveness.
- c) The project is to be completed on war footing basis. While making the bid evaluation, the factor of 'less time consumed in execution' will get priority over others.
- d) Any other relevant factors, if any, listed in the tender document, or that the TSERC deems necessary or prudent to take into consideration

## **22. Technical specifications:**

The bidder shall closely study all specifications in detail, which govern the rates for which he is bidding/tendering. The details are mentioned in the BoQ which is uploaded along with tender document.

## **23. Handing over of site to the bidder:**

At present the site is clear from all obstacles with a bore well point for fetching ground water.

The successful bidder (contractor) can take over the site and commence the work, immediately after signing the agreement.

## **24. Commencement of work:**

The work should be completed within the stipulated period that is 10 months and the date of commencement shall be reckoned from the next working day of execution of agreement. In order to complete the project on war footing, work has to be undertaken on 24/7 that is more than one shift. The amount quoted may also include this provision of working on more number of shifts. However, TSERC may consider extending the timeline, if required with reference to the request made by the contractor showing cogent and valid reason, if the delay is from contractor's side.

## **25. Handing over of site by bidder:**

On completion of the work all rubbish, debris, brick bats etc. shall be removed by the contractor at own expense of the tenderer and the site is cleaned and handed over to TSERC. The tenderer shall intimate officially of having completed the work as per contract and it has been cleaned/spruced for occupation forthwith.

## **26. Deployment of manpower and machineries:**

- (i). The bidder(s)/tenderer(s) will deploy sufficient number and size of equipment /machineries/ vehicles and the technical/ supervisory personnel required for execution of the work.

- (ii). The TSERC can direct to increase the manpower or other resource to comply with the progress of work schedules or to makeup shortfalls if any.

**27. Change in constitution of the contracting agency:**

- (i). Prior approval in writing of the TSERC shall be obtained before any change is made in the constitution of the contracting agency, otherwise it will be treated as a breach of contract.
- (ii). After reconstitution of the contract agency the tenderer should certify that all the applicable laws have been followed in doing so.

**28. Award criteria**

- (i). TSERC will award the contract to the successful Bidder whose bid has been determined to be substantially responsive and to be the lowest financial bid (L1) as per the tender documents.
- (ii). If more than one bidder stand as L1, TSERC will select the bidder on reverse tendering or based on the previous experience of bidders.

**29. Letter of Acceptance (LOA)/ work order/ agreement**

- (i). Prior to the expiration of the period of bid validity, the TSERC will notify the successful bidder in writing by issuing LOA/ work order either through any one or more of the modes namely telefax, scanned e-mail though registered/speed post/couriered letter and through a messenger if possible, that its bid has been accepted. The LOA will constitute the basis of the contract. In case, bidder does not return the duplicate copy of LOA with duly signed and acceptance within 7 days, then the LOA will be deemed to be cancelled and EMD of the bidder will be forfeited.
- (ii). The bidder shall sign an agreement with TSERC within 15 days from the date of issue of LOA. The successful bidder shall execute an agreement with TSERC in the INR 200 Non-judicial stamp paper of Telangana Jurisdiction only in the name of the Tenderer (2 sets). In case of the successful bidder fails to execute necessary agreements as prescribed, within the stipulated period, then his EMD shall be forfeited and his tender shall be held as non-responsive.
- (iii). The written agreement to be entered into between the contractor and the TSERC, shall be the foundation of the rights of both the parties and the contract shall not be deemed to be executed until the contract is signed by both the parties that is Contractor and the TSERC.

**30. Additional PBG:**

If the bidder quotes 15% less than estimated contract value, additional PBG in the shape of DD or BG for equivalent to difference amount shall be deposited with TSERC before signing the agreement along with PBG. The same will be refunded after satisfactory completion of the works.

**31. Taxes and duties**

Except as otherwise specifically provided in the Contract, the bidder shall bear and pay all taxes, duties, levies and charges assessed on by all municipal, state or central government authorities in connection with the Facilities where the Site is located.



### 32. Defect liability period

- 32.1 The successful bidder, on whom award is made, warrants that the facilities or any part thereof shall be free from defects in the design, engineering, materials and workmanship of the equipment supplied/ services offered and of the work executed, wherever applicable.
- 32.2 The defect liability period shall be twenty-four (24) months from the date of completion of the works.
- 32.3 The TSERC shall give the successful bidder, on whom award is made a notice stating the nature of any such defect together with all available evidence thereof, promptly following the discovery thereof. The TSERC shall afford all reasonable opportunity for contractor to inspect any such defect.

### 33. Goods and Services Tax (GST) on works contract:

- i. The percentage quoted by the contractor is exclusive of GST on all materials and services.
- ii. GST for the works contract shall be as per GST Act 2017. For works contract, IT Tax deduction at source (TDS) and GST TDS of the bill amount on each work bill will be recovered as applicable from time to time.
- iii. **All taxes, duties seigniorage and local cess/charges, labour cess, payment towards NAC, EPF, insurance, SMET, DMET etc, payable to the government / quasi-government bodies excluding GST are deemed to be included in the quoted prices and will be recovered at rates fixed by competent authority from time to time from the contract bills.**

### 34. Terms of Payment

Name of work	Type of bill	Amount to be paid	Amount to be deducted	Refund of deductions
L.S. contract (Supply of materials and constructions)	Intermediate Bills	92½ % of value of work done.	7½% of value towards security.	Nil
	Final Bill	92 ½ % of value of work done less amount if any withheld for proper maintenance / rectifications.	7½% of value towards security.	<ol style="list-style-type: none"> <li>1. 2.5% out of 7½% so far collected from bills to be refunded on completion of the whole works.</li> <li>2. Balance 5% to be refunded on expiry of defects liability period or on rectification of any defects that appears during the defects liability period which ever happens latter.</li> <li>3. The PBG. collected at the time of entering into agreement is also returnable along with item (2) above.</li> </ol>

### **35. Miscellaneous:**

#### **i. Extension of time for completion**

The time(s) for completion specified in the respective W.O. shall be extended if the Bidder is delayed or impeded in the performance of any of its obligations under the contract by reason of any of the following:

- a. any occurrence of force majeure as provided in clause of force majeure,
- b. any changes in laws and regulations as provided in change in laws and regulations clause or
- c. any default or breach of the contract by the TSERC, specifically arises any problem
- d. any other matter specifically mentioned in the Contract;

by such period as shall be fair and reasonable in all the circumstances and as shall fairly reflect the delay or impediment sustained by the contractor. However, Commission Secretary, TSERC shall have all rights in accepting the reason for delay duly after examining the reason for delay as per the request of the contractor.

#### **ii. Sub-letting of work:**

No subletting of work as a whole by the contractor is permissible. Subletting of work implicated jobs is permissible with the prior approval of TSERC. The contract agreement will specify major items of supply or services for which the contractor proposes to engage sub-contractor/sub-vendor. The contractor may from time to time propose any addition or deletion from any such list and will submit proposals in this regard to the Commission Secretary / designated authority for approval well in advance so as not to impede the progress of work. Such approval of the Commission Secretary / designated authority will not relieve the contractor from any of his obligations, duties and responsibilities under the contract.

#### **iii. Prohibition of child labour engagement:**

The contractor/contractual agencies must not engage any child labour during the course of execution of the contract work within the meaning and scope of the Child Labour Prohibition and Regulation Act, 1986 and its relevant Act and Rules amended from time to time by the Government of India.

#### **iv. Compliance of applicable labour laws:**

- a. The contractor shall abide by the rules and regulations notified under Labour's Laws as applicable in the matter of weekly holidays, overtime allowance, leave with wages and compensatory holidays etc.
- b. The contractor shall strictly implement all relevant provisions enumerated under Contract Labour (Regulation and Abolition) Act. 1970. It will comply the requirement of filing all statutory documents and records as applicable with the concerned authorities. It shall take full responsibility for obtaining labour license from central/state authority as per the Act. It will also ensure timely filing of all statutory returns as are applicable under the Act, rules and regulations.
- c. The contractor shall not pay less than the minimum wages specified to any category of labour engaged by the contractor in terms of the notifications under Minimum Wages Act, 1948 as notified by the state government or central government whichever is higher and as may be in force. The payment has to be in accordance with the Payment of Wages Act 1936 along with the rules and regulations notified thereof. In this matter the decision of the department shall be final and binding. The contractor shall provide benefits / facilities to its employees in accordance with the applicable laws to this locality that is Hyderabad,

Telangana. TSERC shall be kept completely indemnified against any liability and consequences thereof. The contractor will be responsible to maintain records/documents pertaining to payment of wages to its workmen as desired by state/central government laws including Payment of Wages Act, 1936, Equal Remuneration Act, 1976 and Payment of Bonus Act 1965.

- d. The contractor should maintain all records in Telugu or English as per the provision made in the various statutes including Contract Labour (Regulation and Abolition) Act, 1970 and the Contract Labour (Regulation and Abolition) Central Rules, 1971, Minimum Wages Act, 1948, Workmen Compensation Act, 1923, Employees State Insurance Act, 1948 etc. and latest amendment thereof. The records of the contractor shall be open for inspection by the nominated representative of TSERC. Any violations of this clause shall be treated as breach of contract and action shall be taken accordingly.
- e. The contractor will strictly regulate the terms of employment of the employees and manage the discipline as per Industrial Employment (Standing Orders) Act. 1946.
- f. The contractor shall get himself registered under Employees Provident Funds, Employees State Insurance (ESI) and get the registration number or Code number allotted for the specific establishment within reasonable time and submit the same to the TSERC, which are to be obtained before payment of 1st bill under the contract.
- g. The contractor shall be solely responsible for the payment of wages, including overtime wages to the workmen and ensure its timely payment thereof through bank.
- h. The contractor shall abide the rules and regulations of Pradhan Mantri Suraksha Yojana.
- i. The contractor or its workmen shall not at any point of time have any claim whatsoever against the TSERC.
- j. The contractor shall indemnify the TSERC in so far as liability incurred by the TSERC on account of any default by the contractor.
- k. Neither the contractor nor his workmen can be treated as employees of the TSERC for any purposes. They are not entitled for any claim, right, preference etc. over any job/regular employment of the TSERC.
- l. If the contractor fails to discharge the duties or neglects to perform the work agreed to be done under the agreement, the TSERC is entitled to terminate this agreement as per clause and get the work done by / through other means and claim reimbursement of actual expenses incurred and also damages for the loss incurred on account of failure on the part of the contractor to discharge the duties or to perform the work under the agreement.
- m. The contractor shall in addition to any indemnity provided by the relevant clauses of the agreement or by law, indemnify and keep indemnified, the TSERC against all claims, damages or compensation under the provisions of Payment of Wages Act, 1936, Minimum Wages Act, 1948, Employer's Liability Act, 1938, Workmen's' Compensation Act, 1923, Employees Provident Fund and Miscellaneous Provisions Act, 1952, Employees State Insurance Act, 1948 any modification thereof or any other law relating thereto and rules made there under from time to time, as may be applicable to the contract which may arise out of or in context of the construction or maintenance or performance of the work under the contract and also against costs, charges and expenses of any suit, action or proceedings arising out of any accident or injury or death.

**v. Settlement of Disputes:**

- a. It is incumbent upon the contractor to avoid litigation and disputes during the course of execution of the work. However, if such disputes take place between the contractor and TSERC, effort shall be made first to settle the disputes at the TSERC level by mutual consultation and discussion.

- b. The contractor should make request in writing to the Commission Secretary, TSERC for settlement of such disputes/claims within 30 (thirty) days of arising of the cause of dispute/claim failing which no disputes/claims of the contractor shall be entertained by the TSERC.
- c. Effort shall be made to resolve the dispute in two stages. In first stage dispute shall be referred to the designated authority of the TSERC. If difference still persist the dispute shall be referred to any authority appointed by the Commission.

**vi. Legal Jurisdiction:**

Matters relating to any dispute or difference arising out of this tender and subsequent contract awarded based on this tender shall be subject to the jurisdiction of Courts of the **Hyderabad** only.

**vii. Drawing:**

The provisional drawings are uploaded with this tender document. However detailed, approved drawings for all the related components will be released for execution as per the site requirements.

**viii. Non-disclosure/ Confidentiality clause:**

- a. The bidder will not at any time during subsistence of contract or afterwards, disclose to any person any information as to documents, components, parts, information, drawings, data, sketches, plans, programs, specifications, techniques, processes, software, inventions and other materials, both written and oral, of a secret, confidential or proprietary nature, including without limitation any and all information relating to finance, invention, research, design or development of information system and any supportive or incidental subsystems, and any and all subject matter claimed in or disclosed by any patent application prepared or filed by or on behalf of TSERC, in any jurisdiction, and any amendments or supplements thereto. The bidder should understand that any breach of this clause would constitute a serious offence for which appropriate legal action may be taken to ensure the enforcement of confidentiality clause. TSERC also desires that the bidder shall hold in trust and confidence, and not disclose to others or use for its own benefit or for the benefit of other, any Proprietary Information which is disclosed to the bidder by TSERC in NIT/ tender document at any time during the agreement / award of work / execution of work and thereafter.
- b) The bidder shall disclose proprietary information received under the contract to person within its organization only if such persons (i) have a need to know and (ii) are bound in writing to protect the confidentiality of such proprietary information.
- c) This clause shall survive and continue even after any expiration or termination of the contract and shall bind the contractor, its employees, agents, representatives, successors, heirs and assigns.
- d) However, the successful bidder shall submit a non-disclosure agreement to TSERC before signing the agreement.

**ix. Force Majeure**

Bidder shall not be considered in default if delay in delivery of works occurs due to causes beyond his control such as acts of God, natural calamities, civil wars, strikes, fire, frost, floods, riot or epidemic/ pandemic diseases etc. Only those causes which have delayed duration shall be considered cause of force/ calendar majeure. A notification to this effect duly certified by local chamber of commerce/ statutory / competent authorities shall be given by the bidder to TSERC by registered/speed post letter/by hand/email. In the event of delay due to such causes, the

delivery schedule will be extended for a length of time equal to the period of force majeure or at the option of TSERC, the order may be cancelled. Such cancellation, would be without any liability whatsoever on the part of TSERC. In the event of such cancellation, the bidder shall refund any amount advanced or paid to the bidder by TSERC.

**x. Corrupt or Fraudulent practices:**

The TSERC requires that bidders observe the highest standard of ethics during the procurement and execution of such contracts. TSERC defines, for the purposes of this provision, the terms set forth below as follows:

- A. i) "corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution; and
  - ii) "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the TSERC, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the TSERC of the benefits of free and open competition;
- B. will reject a proposal for award if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;
- C. will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a contract of the TSERC.

**xi. Termination for Default**

The TSERC may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the contractor, terminate the contract in whole or part:

- a. if the Contractor fails to deliver any or all of the goods and complete the Work within the period(s) specified in the W.O. within any extension thereof granted by the TSERC or
- b. if the contractor supplied different product other than mentioned in LOA/W.O.
- c. if the contractor fails to perform any other obligation(s)/duties under the contract.
- d. if the contractor, in the understanding of the TSERC has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

**xii. Bankruptcy**

If the successful bidder after signing of the contract has incurred / invited a situation of becoming bankrupt or have a receiving order made against it or compounded by its creditors, or being a proceeding is commenced for winding up, not being a voluntary winding up for the purpose only of amalgamation/ reconstruction, or required to carry on its business under a receiver for the benefit of its creditors or any of them, the TSERC will be at liberty:

To terminate the contract forthwith by notice in writing to the liquidator or receiver or to any person in whom the contract may become vested and to act in the manner as though the last-mentioned notice has been the notice referred to in such clause and the equipment and materials have been taken out of the contractor's hands. To give such liquidator, receiver or other person, the option of carrying out the contract subject to such person providing a guarantee, for the due and faithful performance of the contract up to an amount to be determined by the TSERC.

## **SPECIAL CONDITIONS OF CONTRACT (S.C.C.)**

### **1. GENERAL:**

The special conditions of contract are an extension of and are to be read in conjunction with the general conditions of contract. In case of contradictory provisions in the two, the provision as per the special conditions of contract shall prevail.

### **2. DRAWINGS:**

The drawings enclosed to the specification are for tender purpose and are only indicative of the nature of work included in this contract. The actual detailed construction drawings shall be issued to the successful tenderer after the work is awarded. However, all the drawings required for the execution of the entire work included in this contract shall not be made available simultaneously on award of work but shall be issued from time to time for various works as per programme and priorities fixed by the Commission Secretary or designated authority and depending on the actual progress of work. Immediately after award of work, the contractor shall give a programme indicating therein any particular or special sequence in which he would like to carry out the work under this contract. However, the decision of the Commission Secretary or designated authority on such programme and sequence of construction shall be final and binding on the contractor. In case, work is delayed due to delays in the issue of construction drawings, the contractor shall be given suitable extension of time as may be decided by the Engineer in charge. However, the contractor shall not be entitled to any type of claim whatsoever on this account.

- i. Architectural drawings shall take precedence over Structural drawings, which in turn shall take precedence over services drawings in regard to all dimensions.
- ii. The Contractor shall verify all dimensions at the Site and bring to the notice of the TSERC discrepancies if any, the TSERC's decision in this respect shall be final.

### **3. WORK TO BE CARRIED OUT BY LICENSED PERSONS/FIRMS:**

Technically competent persons or firms holding valid licenses shall only carry out any special service installations included in the scope of the Work.

### **4. INSPECTION AND TESTING OF MATERIALS;**

The Contractor shall, if so required, produce manufacturers' test certificates for any particular batch of materials supplied by him. The tests carried out shall be as per relevant Indian standards and shall be carried out at government approved test facility specified by the TSERC.

For checking setting out and testing materials at the Site the Contractor shall provide the following minimum testing equipment:

- i. Theodolite
- ii. Automatic levels
- iii. Steel tapes
- iv. Weighing machines
- v. Spirit levels, plumb bobs
- vi. Micro meters
- vii. Thermometers
- viii. Hydraulic testing machines
- ix. Smoke test machines
- x. Complete concrete testing lab equipment
- xi. Moisture meters
- xii. Complete sets of sieves

xiii. Oven.

All such equipment shall be calibrated at specified frequency for accuracy at a testing facility approved by the TSERC and calibration certificates will be submitted to the TSERC. Site office, site laboratory, temporary store room, construction machineries, first aid box, safety material, sanitary facilities for labour, temporary lighting for site area while executing works, water supply arrangements to be constructed and maintained by the contractor at his own expense.

**5. REFERENCE DRAWINGS:**

The Contractor shall maintain on site one set of all drawings issued to him for reference.

**6. Appointment of incharge by the contractor at site**

The contractor shall appoint / engage minimum two dedicated Civil Graduate Engineers and minimum two Civil Diploma Engineers for coordination with the TSERC and supervising the works at site.

**7. COMPLETION DRAWINGS AND STANDARD MEASUREMENT BOOK (SMB):**

On completion of the Work, the contractor shall submit **soft copy and three printed and laminated complete set of the site produced drawings and marked up prints of "AS BUILT"** drawings verified and approved by TSERC and its architect. These drawings shall include and show all the changes / deviations made from the working drawings during the course of construction and also the other details as called for by TSERC. During the execution of the works a set of drawings shall be retained in the contractor's site offices for the exclusive purpose of recording changes made to the Work as the construction proceeds. The drawings shall be prepared on computer through AutoCAD Software and provided to TSERC on **pendrive**. These Drawings shall be for all aspects of work namely civil, plumbing and sewerage treatment plant (STP).

Along with the completion drawings the Contractor shall also prepare and submit to TSERC the **Standard Measurement Book (SMB) in the form of a bound book and a soft copy of the same**. SMB shall incorporate the standard measurements of the items as per the completion / as built drawings in modules finalized in consultation with the TSERC.

**8. TESTING OF INSTALLATIONS:**

All water retaining structures and the basement shall be tested as specified for the waterproof qualities, in the presence of the TSERC. The contractor shall also perform all such tests as may be necessary and required by the TSERC to ensure quality of the executed works and by local authorities to meet Municipal and other bye-laws, regulations in force. The contractor shall provide all labour, equipment, and materials etc., required for the performance of the tests.

**9. SITE INFORMATION:**

- i) All information, levels and dimensions given in the tender drawings relating to site conditions are given in good faith. The contractor shall, however, make his own independent inquiries and verify the same. Any claims for extras on account of any deviations or incorrectness of above referred information, levels etc., shall be considered as inadmissible.
- ii) The contractor shall obtain all information relating to local regulations, bye-laws and all regulations applicable to the work or applicable profession. Any claims in this regard shall be inadmissible.

**10. SITE INSTRUCTION FILE:**

The contractor shall maintain a site instruction file at the site office. All instructions received from the TSERC relating to the work shall be retained in the file.

**11. PHOTOGRAPHS:**

Besides submitting progress charts, reports, etc., the contractor shall submit progress photographs as directed by TSERC, every four weeks.

**12. PROFESSIONAL INTEGRITY AND TEAM SPIRIT:**

It is the intent of the TSERC that this project will be executed in a spirit of teamwork and full professional integrity. The contractor shall fully co-operate with all agencies concerned to fulfil this objective. In the execution of the project there will be a number of other specialist contractors appointed by TSERC such as electrical installations HVAC, lifts, interior works etc. The civil works contractor shall co-operate and coordinate the activities of other such contractors as directed by the TSERC. The civil work contractor shall also provide and arrange space for storage of materials, safety arrangements, access, scaffolding etc., as required for the works of other contractors.

**13. QUALITY ASSURANCE AND CONTROL PROGRAMME:**

The contractor shall establish an effective quality control system at the Site and implement the same through an independent team consisting of the contractor's representative and qualified and experienced engineers and technical personnel to enforce quality control on all items of the work and the Project at all stages. However, TSERC with the support of an approved third party agency will check and confirm the quality of the works/materials at a minimum of three intervals or as required at the site.

**14. CONTRACT DRAWINGS:**

Drawings forming part of the contract is enclosed with this tender document. Further supplementary drawings furnished by the TSERC from time to time shall also be deemed to form part of the Contract.

**15. ENTRY TO THE SITE:**

The TSERC, at its discretion has the right to issue passes to control the admission of the contractor, his agents, employees and work people to the site of the work or any part thereof. Passes shall be returned at any time on demand by the TSERC.

**16. FIRE PRECAUTIONS:**

The contractor shall take all precautions and preventive measures against fire hazards at the site and shall assume full responsibility for the same. In this regard, the contractor shall ensure the compliance of all the rules and regulations regarding fire safety.

**17. PERFORMANCE BANK GUARANTEE:**

The contractor shall furnish a performance bond in the form of a bank guarantee from a scheduled bank approved by the TSERC, for the value and validity as mentioned in the Schedule of Fiscal Aspects, within fifteen (15) days from the date of issue of LOA / Work Order to the contractor. The bank guarantee shall be in the approved format.

**18. DRILLING, CUTTING ETC.:**

All cutting and drilling of walls or other elements of the building for the proper entry/installation of inserts, boxes, equipment, etc. shall be carried out using electrically operated tools only. Manual drilling, cutting, chiseling, etc. shall not be permitted. No structural member shall be cut or chased without the written permission of the TSERC.



Cutting and drilling of structural members shall be carried out using vibration free diamond wire sawing and diamond drilling only with prior permission from the TSERC. The costs for procurement and using such equipment is deemed to be included in the Contract and no extra costs will be paid.

**19. APPROVAL BY STATUTORY BODIES:**

- (i). The TSERC will handle commencement certificate, No Objection Certificate and Occupation Certificate if applicable for the permanent building works under this contract.
- (ii). The contractor shall be responsible for providing required notices to authorities and to obtain and retain with him at his own cost all other approvals from the statutory bodies pertaining to works under this tender and temporary structures to be constructed at site, labour, ESI, PF, tax depts etc., and any other approval required to facilitate performance of contractor's work under the contract till completion.
- (iii). Refusal by statutory authorities to issue completion / occupation certificate or any other approvals due to the contractor's failure to construct the building in accordance with the sanctioned plans and/or specifications shall render the contractor liable for damages and in addition, render him liable to obtain such certificates at his cost.

**20. LABOUR WAGES:**

The contractor shall have no claim whatsoever, if on account of any rules and regulations or otherwise, he is required to pay wages in excess of fair wages called for under general conditions.

**21. MOBILISATION ADVANCE:**

No mobilization advance shall be paid to the contractor.

**22. TSERC'S OFFICE AND FACILITIES**

The contractor shall supply, erect and satisfactorily maintain in good repair until final completion of the project, a well-lighted temporary site office with the following facilities:

- a) An office including toilets with lockable storage for the TSERC and its representative including office furniture and conference room furniture for ten persons, display shelves and marker board.
- b) Free water, power and lighting as required for the duration of the project.
- c) Sanitation facilities for the duration of the project.
- d) A computer and a printer with necessary software and hard disk for computer drafting, correspondence and billing.

The contractor shall provide at all times for the duration of the contract survey instruments for the exclusive use of architect/TSERC/it's representative for carrying out of their duties in connection with the contract.

Such instruments which must be approved by the architect, shall include but not limited to the following:

- One theodolite & tripod capable of reading to 20 seconds
- One level with horizontal circle and tripod.
- Two metric levelling staffs not less than 3.5mtr high.
- One 100 metre rust less steel band, one 30 metre rust less steel tape & two 30 metre linen tapes.

- An adequate number of ranging rods drop arrows, wooden setting-out pegs, etc.

The contractor shall be solely responsible for all such instruments and equipment's and shall ensure that they are at all times in good repair and adjustment.

**23. TESTING FACILITIES AT SITE:**

23.1 The contractor shall provide facilities/equipment to test the quality of material being used.

23.2 The contractor shall provide the minimum but not limited to the following facilities / equipment and trained staff at site at his own cost.

- Compression Testing Machine for concrete and bricks
- Slump testing apparatus.
- Sieve sets for testing of fine and coarse aggregate balance
- Cube moulds
- Balance
- Ovens
- Weighing Machine

23.3 The contractor shall get other tests carried out at his own cost at approved laboratory as per the directions of the TSERC.

**24. REPORTS AND CHECKLISTS BY CONTRACTOR:**

24.1 The contractor shall file daily category-wise labour return. The report shall indicate scheduled requirement against actual strength.

24.2 The contractor shall prepare and submit weekly reports of planned and actual progress of the work, workforce and the subsequent week's scheduled work. These will also include material procurement status.

These reports shall be submitted to TSERC and it's representative and shall be reviewed in weekly co-ordination meeting.

24.3 The contractor shall submit monthly progress report as per standard format along with monthly bills.

24.4 Further progress charts and schedules shall be prepared by the contractor as directed by the TSERC.

24.5 The contractor shall submit a safety procedure manual or company policy on safety. The contractor shall designate a qualified person to look after safety and quality issues, complying with the SHE Plan and outlining its implementation by the Contractor and including:

- i. Quality Assurance and Control System (sample format).
- ii. Realistic construction programme/schedule.

24.6 The Contractor shall maintain and make available all the records pertaining to reports, returns and checklist to the TSERC during audits (internal as well as external) and make necessary corrections, additions and actions based upon the findings / observations of the audits.

**25. NAME BOARD:**

a. A name board shall be made and displayed by the Contractor at his own cost at the Site at some approved place. The drawing of the Name Board shall be got approved from the TSERC. The contents of the board shall be as follows:-

- i. Name of the Project.
- ii. Name of the Owner/Owners.
- iii. Architect / Consultants with their addresses.

- iv. Contracting Agency.
  - v. Other Contracting Agencies.
- b. Care should be taken to see that the height of letters especially for the Architects should not be more than 2" to abide by the code of professional conduct prescribed by the Indian Institute of Architects. The colour, texture etc., of the board shall be as per the Architect's instructions

**26. SITE BARRICADING:**

The site boundary fencing of steel posts and painted corrugated metal sheet shall be erected by the contractor at his own cost till completion of the project. The contractor shall provide the GI sheet barricading around the excavated pits and his work area for safety reasons, which shall be put in proper line and level and shall be painted as per the instructions of the TSERC. The contractor shall at his own cost provide lockable gates at all the openings in the site barricading, boundary wall, access roads that may be required from time to time during progress of work. The contractor shall be required to provide appropriate barricading within the site to ensure safety of men and material, at his own cost.

**27. NON-TENDERED / EXTRA ITEMS AND QUANTITIES EXCEEDING THE TENDERED QUANTITIES:**

The contractor shall immediately and before procurement and execution of the work obtain a written approval of the variation order from the TSERC for the non-tendered /extra items and quantities exceeding the tendered quantities. No payments will be entertained without the TSERC's written approval of the change / variation order. The onus shall be on the contractor to obtain such prior written variation order from the TSERC.

**28. WATER AND ELECTRICITY:**

- 28.1 The contractor shall make his own arrangement for electricity and water for construction purposes.
- 28.2 The contractor shall at his own cost be responsible for all connections, pumps, pipes, storage facilities and all other things necessary to distribute and use services from the bore well. If the water is not available in adequate quantities or is unsuitable for construction purposes then the contractor should make his own arrangements. The contractor shall handover the bore well in proper working condition to the satisfaction of TSERC on completion of the project.
- 28.3 The contractor shall make his own arrangement for ordering power from the authorities and shall be responsible for all connection & distribution. The contractor shall also make arrangement for alternative standby services at his own cost in the form of additional generators of adequate capacity (day & night) so that there is no delay in progress of Work as per construction schedule submitted by him and approved by the TSERC. The Contractor shall also share electricity from his generators and electric connection with other contractors, sub-contractors, vendors and TSERC etc. The contractor shall share proportionate cost (excluding the TSERC for whom the electric supply is free) with them at tariff prevalent in the market. The point of supply shall be at generator / electric supply board. The cost of energy meter shall be borne by the allied contractor. The contractor shall handover the electrical connection in proper working condition and with all dues cleared to the satisfaction of the TSERC on completion of the project.

- 28.4 The contractor shall prepare schematic distribution diagrams of distribution of electricity and water for construction purposes incorporating all safeties and get them approved by the TSERC, the distribution at site shall be in accordance to the approved schematic. The contractor shall ensure incorporation and strict implementation of all safety parameters, equipments, instruments and directions given by the TSERC from time to time in this regard.
- 28.5 All fees and miscellaneous expenses and costs for electric power and water connection for construction purposes shall be borne by the contractor. Statutory fees, payable for connection shall be initially paid by the contractor and the TSERC will reimburse the amount on production of the receipts.

### **29. ASSOCIATED CIVIL WORKS**

All civil works required for the storage of materials or the installation of equipments any other required for the contractor's functioning shall be the responsibility of the contractor.

### **30. GUARANTEE TO PERFORM**

The contractor shall carry out the work in accordance with the drawings, specifications, schedule and other documents forming part of the contract.

The contractor shall be fully responsible for the performance of the works executed by him. All waterproofing works and termite proofing works executed by the contractor, shall be guaranteed for a minimum period of two years from the date of final completion of Project. The guarantees on the approved format shall be submitted to the TSERC along with the as-built documentation at the end of the project. These guarantees will be executed & extended by the contractor and not by the sub agencies to the TSERC.

### **31. POWER REQUIREMENT**

The contractor shall submit with their tender, their requirement of power for each of their equipment along with the number of equipment proposed for use at site.

### **32. ESCALATION:**

Basis of the price quoted shall be with reference to BOQ. Price mentioned in the quotation must be firm and shall be in Indian rupees only. Hence prices mentioned in financial bid shall be firm and not subject to escalation till the execution of the complete work. TSERC has full rights to call for negotiations for further decreasing the prices or going for reverse bidding.

### **33. DEWATERING AND FLOODING CONTROL:**

- 33.1 The contractor is deemed to have been allowed for any and all temporary dewatering, during the execution of his work. Such work shall include but not limited to the safe disposal of the resulting water; removal, replacement and/or re-compaction of the water logged soils/surfaces; backfilling plugging of all temporary sumps, ditches, temporary materials and devices.
- 33.2 The contractor shall be deemed to have been allowed for all the costs however, TSERC will review the situation and take appropriate decision for any such payments for the works associated with removal of flood waters and any associated sludge debris etc. from the basement level or any other part of the building so effected in the event of flooding due to heavy rains during the construction activities and after basement, superstructure work is completed until such time as the contractor has completed and handed over all his works under the contract.

### **34. Safety of workers**

- (i). The contractor shall provide at his own expense sufficient helmets, safety boots / shoes, belts with security ropes, railings etc. for use by his own staff and staff of its sub-contractors, by the TSERC team. The contractor shall make available at all times when work is being undertaken, a vehicle suitable for the emergency evacuation of personnel from the site to a hospital staffed and equipped to receive injured personnel.
- (ii). The contractor shall provide a fulltime, experienced and suitably qualified safety officer at the site who shall be responsible for establishment, implementation and enforcement of all safety measures and requirements for maintaining safe working conditions, safety of manpower and equipment, general safety and security of site as per the various safety codes and stipulations mentioned in contract documents

### **35. Workers facilities**

The contractor shall at his expense provide and erect all necessary sanitary conveniences including septic tank and soak pits at the Site for the staff and all workmen of his own, his sub-contractors, and the TSERC. The sanitary conveniences shall be strategically located around the site to provide ready access to all site operatives and employees. The contractor shall maintain such convenience in a clean orderly condition and shall clean and deodorize the ground after their removal, and meet all statutory requirements.

### **36. Creches**

- (i). If women workers are employed on the Work, the Contractor shall provide at his expense two rooms of -reasonable dimensions plus toilet facilities for the use of their children under the age of six years. The rooms shall be built to reasonably good specifications in consultation with the TSERC. The rooms shall be well lit and well ventilated.
- (ii). The Contractor may provide dai (ayah) to look after the children in the creche. The use of the rooms earmarked as crèches shall be restricted to children, their attendants and mothers of the children.

### **37. SERVICES FOR GREEN CERTIFICATION**

- (i). The TSERC intends to obtain the highest level of performance as per a nationally and internationally accepted green certification system. For this the contractor is required to appoint an experienced officer/ consortium partner who shall oversee that all provisions of the green certification system regarding the management of site, materials of construction, demolition, waste management, hygiene and water management etc. are met. the contractor shall ensure that all aspects applicable to the contractor of the green building rating system opted by TSERC is compiled during the operational period of the contractor and at the handing over of the project.
- (ii). Quantitative records and records of receipts, organized storage and offsite disposal are also required to be maintained and submitted to the green certification agency appointed by the TSERC. Similarly, photographic evidence of all qualitative aspects and events as required for green certification shall be provided by the contractor to the green certification agency.
- (iii). Specific requirements of Green certifications are appended to these special conditions of contract.

### 38. Project milestone chart for civil and structural work

MAJOR MILESTONES	DATES
Concluding of the agreement, taking over of site	Zero day within 15 days from Issue of LOA / work order
Start of construction/ handover of site	From zero day
Contract Period	300 days from zero day
Completion of RCC works including lift machine room and overhead water storage tank.	Zero day + 150 days
Completion of work	Zero day + 300 days
Within 25% of contract period (75 days)	1/4 <sup>th</sup> progress
Within 50% of contract period (150 days)	1/2 <sup>th</sup> progress
Within 75% of contract period (225 days)	3/4 <sup>th</sup> progress
Within 100% of contract period (300 days)	Completion

Note:

- i. The agreement must be concluded within 15 days of issue of LOA
- ii. The contractor has to furnish the detailed construction programme based on the above milestones and also incorporating the activities, services, keeping in view the provisions under various clauses of contracts.

### 39. **Penalty:**

a) If the contractor fails to complete the work within the agreement period from the date of handing over of the site or if the contractor fails to adhere to the above programme of work action as per clauses 60 and 61 of APSS will be taken by the Commission Secretary or designated authority.

b) Due to what so ever reasons, if the work is extended beyond the contract period, an amount equivalent to 5% (five percent) of the running account bill will be recovered in the extended period of contract from the **running account bills and release or forfeiture of this in part or full will be dealt as per the approval of the competent authority of TSERC. This recovery will be in addition to the R.A mentioned under clause 11.2(b)**

### 40. **SUB CONTRACT/SUBLETTING:-**

- (i). No part of the contract shall be **sub-let without written permission of the Commission Secretary** nor shall transfer be made by the power of attorney authorizing others to receive payment on the contractor's behalf. Subletting will be governed by relevant clause of section - I of this tender specification.
- (ii). If a prime contractor desires to sublet a part of the work, he should submit the same at the time of filling tenders itself giving the name of the proposed sub-contractor along with details of his qualifications and experience. The tender accepting authority will verify the experience of the sub-contractor and if the sub-contractor satisfies the qualification criteria in proportion of the value of work proposed to be sublet, he may permit the same. The extent of subletting shall be added to the experience of the sub-contractor and to that extent deducted from that of the main contractor.

41. **The Commission Secretary or the designated authority reserves the right to reject any tender in full or part or all the tenders without assigning any reason there for. The quoted percentage shall be binding on the tenderer even if the Commission Secretary awards part of the work.**
42. **Preference in the selection from among the tenderers will be given, other things being equal, to those who are themselves professionally qualified or who undertake to employ qualified men at their cost to look after the work, who have got experience in similar works and enough equipment.** The tenderer should therefore state in clear terms whether they are professionally qualified or whether they undertake to employ technical staff and if so, to give their professional qualifications or of the staff to be employed and their experience etc. In case the selected tenderer is one who has undertaken to employ technical staff under him, he should see that one of the staff is always at site of the work during working hours, personally checking all items of work and paying extra attention to such works as may demand special attention.
43. A tenderer submitting a quotation which the tender accepting authority considers excessive and/or indicative of the insufficient knowledge of current prices or definite attempt at profiteering will render himself liable to be debarred permanently from tendering or for such periods as the tender accepting authority may decide. The tender percentage should be based on the controlled price for material, if any, fixed by the Government or the reasonable price permissible for the tenderer to charge a private purchaser under the provisions of clause 8 of Hoarding and Profiteering Prevention Ordinance, 1943 as amended from time to time and on similar principles in regard to labour and supervision in the construction.
44. The form of contract will be percentage rate contract.
45. **The tender shall be valid for acceptance for a period of not less than 180 days from the date of opening the tenders. Tenders giving validity of less than 180 days are liable to be rejected.**
46. **Supplemental items:** The contractor is bound to execute all supplemental items that are found essential, incidental and inevitable during execution of main works, at the rates to be worked out as detailed below:-
- i) Supplemental items directly deducible from similar items in the original agreement:-**  
The rates shall be derived by adding to or subtracting from the agreement rates of such similar items, the cost of the difference in quantity of materials or labour between the new item and the similar item in the agreement worked out with reference to the schedule of rates adopted in the sanctioned estimate with which the tenders were compared plus or minus overall tender percentage.
- ii) New Items: -**
- a) Similar items the rates of which cannot be directly deduced from the original agreement.  
b) Purely new items which do not correspond to any item in the agreement.

**The rate shall be estimate rate plus or minus overall tender percentage.**

**NOTE:-** The term estimate rate used in (i) and (ii) above means the rate in the sanctioned estimate with which the tenders were compared or if no such rate is available in the estimate, the rate derived with reference to the schedule of rates adopted in the sanctioned estimate with which tenders are compared.

**(iii) Fixation of rates for items of work in excess of quantities in Schedule 'A', Bill of quantities of tender:-**

The agreement rate prepared on the basis of estimate rate plus or minus tender percentage shall hold good for any quantity beyond quantities specified in bill of quantities with the permission of Engineer at site. However, approval of competent authority is to be obtained for execution of quantity over and above 10% of the agreement quantity.

47. The contract is liable for cancellation if either the contractor himself or any of his employee is found to be a gazetted officer of the government or TSERC, who retired from service and had not obtained the permission from the government or TSERC for accepting the contract or employment within a period of 2 years from the date of his retirement.
48. The contractor will at all times duly observe the provisions of employment of Children Act XXVI of 1938 and any re-enactment or modification of the same and will not employ or permit any persons to do any work for the purpose or under the provisions of the said act. The Contractor shall agree to indemnify the TSERC from and against all claims/penalties which may be suffered by the TSERC or any person employed by the TSERC by reason of any default on the part of the contractor in the observance and performance of the provisions of the Employment of Children Act, XXVI of 1938, or any re-enactment or modification of the same.
49. The contractor shall indemnify the TSERC against all claims which may be made under the Workmen's Compensation Act or any statutory modification thereof or rules there under or otherwise for or in respect of any damage or compensation payable in consequence of any accident or injury sustained by any workmen engaged in the performance of the business relating to this contract.

In all cases of personal injury to workmen employed by a contractor on this work for which the contractor is liable to pay compensation under the 'Workmen's Compensation Act', he shall pay the prescribed medical fee to the Medical Officer for issue of 'C' & 'D' forms as prescribed, failing which the said fee will be paid to the Medical Officer by the TSERC and recovery effected from the contractor's bills.

50. Preliminary specifications of APSS except clause 73 shall apply to all agreements entered by the contractor with TSERC and shall form an inseparable condition of the contract. The tenderer is expected to examine closely the relevant specifications of the APSS and the special specifications and ISS before submitting his tender offer. In respect of variation in quantities of different items, additions, deletions, methodology in execution, additional time required for execution that may fall beyond the powers of the Commission Secretary and any other matter, the same shall be referred to the Commission who will take a decision or refer the same to appropriate authority.
51.
  - a. Scaffolding and gangways will have to be arranged by the contractor at his own cost, whenever they are considered desirable or necessary by the Commission Secretary or designated authority of the work to facilitate the work.
  - b. Dewatering has to be done by the Contractor to suit the requirement of the work. The rates quoted in schedule - A shall be inclusive of dewatering charges and no separate payment will be made on this account.



52. The tender offer shall be based on the assumption that contractor will procure all the machinery and equipment required for the execution of the work.
53. Necessary arrangements have to be made by the contractor at his own expense towards hutting, accommodation, drinking water supply, health and sanitary arrangements and other amenities for the workers required as per the relevant rules and to the satisfaction of the Public Health authorities and the Commission Secretary or Designated Authority and land required for the purpose will have to be provided by the contractor at his cost.
54. Please note that payment of EMD is COMPULSORY. No exemptions are granted by TSERC in regard to payment of EMD. The offers without EMD will summarily be rejected.
55. TSERC reserves the right of rejecting any/all quotations without assigning any reason whatsoever
56. The successful bidder shall invariably furnish the original certificates/documents of the uploaded scanned copies to the tender inviting authority before issue of LOI either personally or through courier or post and the receipt of the same within the stipulated date shall be the responsibility of the successful bidder. The TSERC will not take any responsibility for any delay in receipt/non-receipt of original certificates/documents, from successful bidder before the stipulated time. On receipt of documents, the TSERC shall ensure the genuinity of the certificates documents uploaded by the bidder in e-procurement system in support of the qualification criteria before issue of LOI / LOA.
57. All correspondence after opening of the tender shall be made with the Commission Secretary, TSERC, 5<sup>th</sup> Floor, Singareni Bhavan, Red Hills, Lakdikapul, Hyderabad – 500 004 (TS).

### **SECTION III: Scope and description of work**

#### **BRIEF DESCRIPTION OF WORK**

- i) **Name of Work:** Construction of office building Block-A (Stilt + 5Floors) & Block-B (Stilt + 2 Floors ) for TSERC at Kalyannagar, Hyderabad as per Super ECBC Compliance and NZEB Concept as per plan enclosed.

#### **Package I – Civil Works including STP**

- ii) **Location/Land:** Kalyan Nagar, Hyderabad

<https://goo.gl/maps/e7Puk93sEBsLjCN68>

- iii) **Details of the project:** - As per tender documents and drawings.

- iv) **Total Built up area for construction including parking :** - around 71633. square feet The Tenderer should consider the above while quoting the rates.

- v) The contractor has to construct TSERC office building with NZEB concept and Super ECBC compliance Block-A (Stilt + 5 Floors) & Block-B (Stilt + 2 Floors ) for TSERC at Kalyan Nagar, Hyderabad, as per drawings, technical specifications, scope of work & other conditions and terms of contract as TSERC to achieve net zero and super ECBC compliance and LEED certification.

- vi) All items of work, part of work or work itself shown on the drawings or mentioned in the tender document are to be executed by the contractor. Non-appearance of any of the items either in the drawings or in the tender shall not vitiate the purpose for which the building shall be constructed. Any extra items shall be dealt appropriately in terms of provision of the contract.

- vii) Time for completion shall be reckoned from the date of issue of fax/ LOA/work order by TSERC and actual handing over of site/ issue of drawings/entering into agreement that is zero date, whichever is later.

## **BRIEF SCOPE OF WORK**

The brief scope of work includes the below items: -

- 1) Barricading the site area by using GI sheets supported suitably by MS structures up to 6 mts Height
- 2) Name boards for safety and site development display
- 3) Excavation and top soil preservation
- 4) Pile/pier foundation
- 5) Anti-termite Treatment
- 6) PCC and soling
- 7) Backfilling and compaction
- 8) RCC substructure and superstructure including staircase
- 9) Plinth beam and plinth area construction
- 10) Masonary in AAC blocks
- 11) Internal and external plaster
- 12) Water supply including water meters, sewage disposal system, plumbing fittings and sanitary fixtures
- 13) Waterproofing of toilets, terrace, chajjas, balconies, refuge area, and other sunk areas etc.
- 14) Flooring, bathroom and kitchen tiling
- 15) Wooden doors, windows, ventilators including locks and associated accessories
- 16) Storm water drainage
- 17) Rain water harvesting
- 18) Internal and external painting,
- 19) Lift Space with machine room as per local municipality (GHMC) norms
- 20) Underground and overhead tanks including fire water tanks with associated plumbing works
- 21) Plumbing for fire pumps, water supply pumps, panels and pump room
- 22) Landscaping, horticulture work, (external development works) etc.
- 23) Glass Reinforced Concrete (GRC) works for duct areas and external part elevation
- 24) Site office, site laboratory, temporary storeroom, construction machineries, first aid box, safety material, sanitary facilities for labour, temporary lighting for site area while executing works, water supply arrangements.
- 25) Associated works related to IGBC Green New Buildings V3.0
- 26) Obtaining all statutory NOC/approvals as applicable in the Telangana State.

Above items are only indicative and for guidance and brief description of jobs, but should not be considered limited to this list. Tenderer should refer to the detailed tender documents, BOQ, technical specifications and drawings for detailed items and scope of work included in this project. Any discrepancy in the above shall be brought to the notice of TSERC through email mentioned.

## General Scope/ Compliance for IGBC Platinum Certification

### IGBC Green New Building Rating System V3.0

The Indian Green Building Council (IGBC) has launched 'IGBC Green New Buildings rating system® to address the national priorities. This rating programme is a tool which enables the designer to apply green concepts and reduce environmental impacts that are measurable. The rating programme covers methodologies to cover diverse climatic zones and changing lifestyles

#### Certification Levels

The threshold criteria for certification/pre-certification levels are as under:

Certification Level	Owner-occupied Buildings	Tenant-occupied Buildings	Recognition
Certified	40 - 49	40 - 49	Best Practices
Silver	50 - 59	50 - 59	Outstanding Performance
Gold	60 - 74	60 - 74	National Excellence
Platinum	75 - 100	75 - 100	Global Leadership

IGBC will recognise Green New Buildings that achieve one of the rating levels with a formal letter of certification and a mountable plaque.

**The project is targeting the Platinum level of certification under IGBC Green New Buildings rating System**

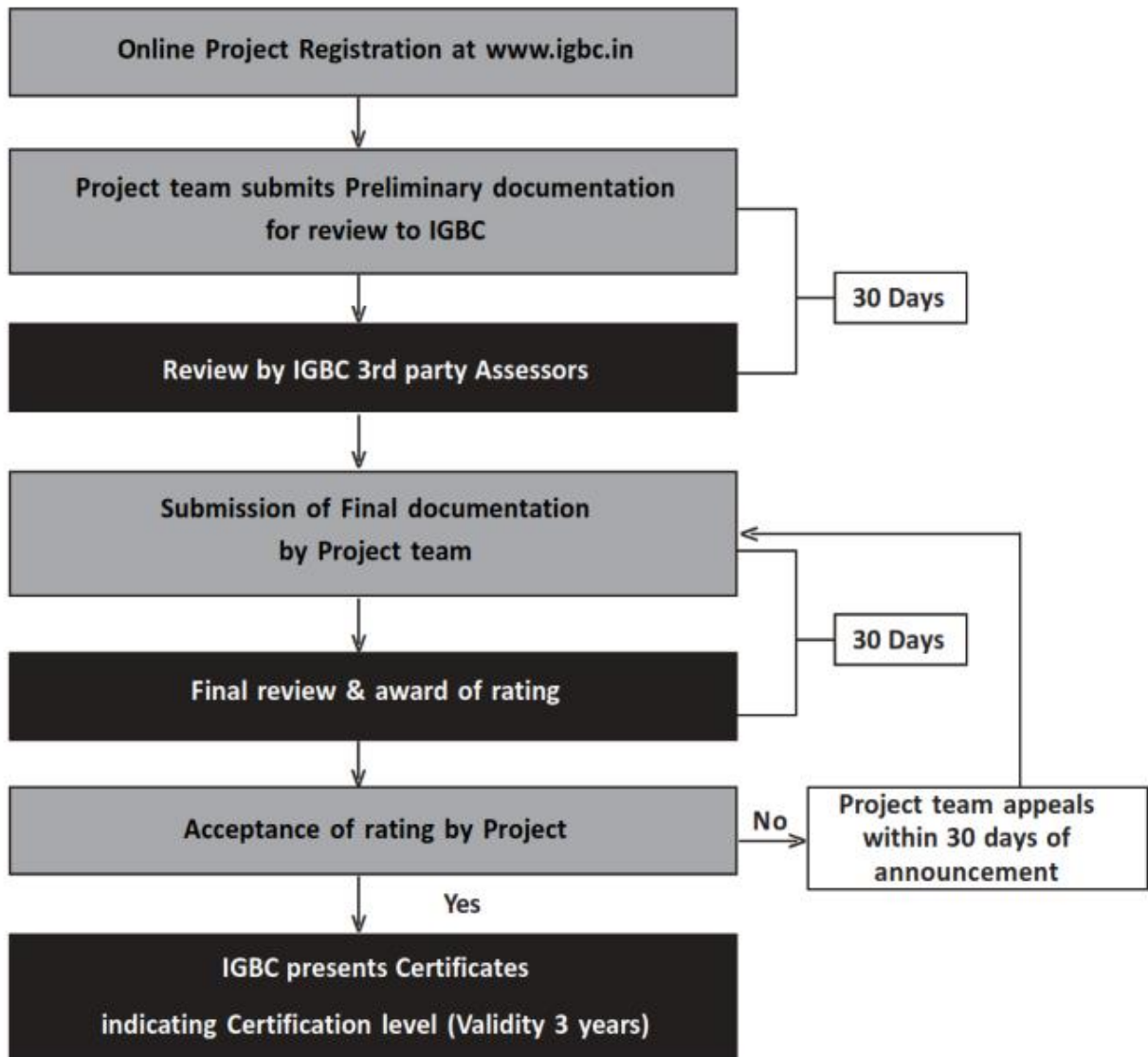
**IGBC Green New Building Rating System addresses green features under the following 7 credit categories –**

1. Sustainable Architecture and Design
2. Site Selection and Planning
3. Water Conservation
4. Energy Efficiency
5. Building Materials and Resources
6. Indoor Environmental Quality
7. Innovation and Development

The guidelines detailed under each mandatory requirement & credit enable the design and construction of new buildings of all sizes and types. Different levels of green building certification are awarded based on the total credits earned. However, every Green New Building should meet certain mandatory requirements, which are non-negotiable. A Detail scorecard is given below:

**Process –**

**Precertification Process**



**Scorecard -**

As project targeting for platinum, every credit point is crucial as we have to achieve more than 75 points out of 100. And requirements of prerequisite credits are mandatory. Please have a look at the scorecard attached below for a better idea of IGBC Green New Buildings Rating System.

IGBC Green New Buildings Rating System Checklist		Points Available	
		Owner-occupied Buildings	Tenant-occupied Buildings
<b>Modules</b>		<b>100</b>	<b>100</b>
<b>Sustainable Architecture and Design</b>		<b>5</b>	<b>5</b>
SA Credit 1	Integrated Design Approach	1	1
SA Credit 2	Site Preservation	2	2
SA Credit 3	Passive Architecture	2	2
<b>Site Selection and Planning</b>		<b>14</b>	<b>14</b>
SSP Mandatory Requirement 1	Local Building Regulations	Required	Required
SSP Mandatory Requirement 2	Soil Erosion Control	Required	Required
SSP Credit 1	Basic Amenities	1	1
SSP Credit 2	Proximity to Public Transport	1	1
SSP Credit 3	Low-emitting Vehicles	1	1
SSP Credit 4	Natural Topography or Vegetation	2	2
SSP Credit 5	Preservation or Transplantation of Trees	1	1
SSP Credit 6	Heat Island Reduction, Non-roof	2	2
SSP Credit 7	Heat Island Reduction, Roof	2	2
SSP Credit 8	Outdoor Light Pollution Reduction	1	1
SSP Credit 9	Universal Design	1	1
SSP Credit 10	Basic Facilities for Construction Workforce	1	1
SSP Credit 11	Green Building Guidelines	1	1
<b>Water Conservation</b>		<b>18</b>	<b>19</b>
WC Mandatory Requirement 1	Rainwater Harvesting, Roof & Non-roof	Required	Required
WC Mandatory Requirement 2	Water Efficient Plumbing Fixtures	Required	Required
WC Credit 1	Landscape Design	2	2
WC Credit 2	Management of Irrigation Systems	1	1
WC Credit 3	Rainwater Harvesting, Roof & Non-roof	4	4
WC Credit 4	Water Efficient Plumbing Fixtures	5	5
WC Credit 5	Wastewater Treatment and Reuse	5	5
WC Credit 6	Water Metering	1	2

Modules		Points Available	
		Owner-occupied Buildings	Tenant-occupied Buildings
<b>Energy Efficiency</b>		<b>28</b>	<b>30</b>
EE Mandatory Requirement 1	Ozone Depleting Substances	Required	Required
EE Mandatory Requirement 2	Minimum Energy Efficiency	Required	Required
EE Mandatory Requirement 3	Commissioning Plan for Building Equipment & Systems	Required	Required
EE Credit 1	Eco-friendly Refrigerants	1	1
EE Credit 2	Enhanced Energy Efficiency	15	15
EE Credit 3	On-site Renewable Energy	6	8
EE Credit 4	Off-site Renewable Energy	2	2
EE Credit 5	Commissioning, Post-installation of Equipment & Systems	2	2
EE Credit 6	Energy Metering and Management	2	2
<b>Building Materials and Resources</b>		<b>16</b>	<b>16</b>
BMR Mandatory Requirement 1	Segregation of Waste, Post-occupancy	Required	Required
BMR Credit 1	Sustainable Building Materials	8	8
BMR Credit 2	Organic Waste Management, Post-occupancy	2	2
BMR Credit 3	Handling of Waste Materials, During Construction	1	1
BMR Credit 4	Use of Certified Green Building Materials, Products & Equipment	5	5
<b>Indoor Environmental Quality</b>		<b>12</b>	<b>9</b>
IEQ Mandatory Requirement 1	Minimum Fresh Air Ventilation	Required	Required
IEQ Mandatory Requirement 2	Tobacco Smoke Control	Required	Required
IEQ Credit 1	CO <sub>2</sub> Monitoring	1	1
IEQ Credit 2	Daylighting	2	2
IEQ Credit 3	Outdoor Views	1	1

Modules		Points Available	
		Owner-occupied Buildings	Tenant-occupied Buildings
IEQ Credit 4	Minimise Indoor and Outdoor Pollutants	1	1
IEQ Credit 5	Low-emitting Materials	3	3
IEQ Credit 6	Occupant Well-being Facilities	1	-
IEQ Credit 7	Indoor Air Quality Testing, After Construction and Before Occupancy	2	-
IEQ Credit 8	Indoor Air Quality Management, During Construction	1	1
<b>Innovation and Development</b>		<b>7</b>	<b>7</b>
ID Credit 1	Innovation in Design Process	4	4
ID Credit 2	Optimisation in Structural Design	1	1
ID Credit 3	Waste Water Reuse, During Construction	1	1
ID Credit 4	IGBC Accredited Professional	1	1

The threshold criteria for certification levels are as under:

Certification Level	Owner-occupied Buildings	Tenant-occupied Buildings	Recognition
Certified	40 - 49	40 - 49	Best Practices
Silver	50 - 59	50 - 59	Outstanding Performance
Gold	60 - 74	60 - 74	National Excellence
Platinum	75 -100	75 - 100	Global Leadership



**SECTION-IV: Annexures containing details of Technical Specifications and BOQ and Financial/ Price bid etc.**

**Annexure - A: Technical Specifications**

[To be incorporated as per requirement of the work put to tender duly quoting the relevant specification number of APSS. BIS Code No. , MORT&H, etc. Standard specification No.]

These are the standard specifications; However, bidder shall consider the specifications mentioned in the BoQ for bidding.

**STANDARD SPECIFICATION FOR BUILDING WORK (AS PER APSS.)**

All the items of work shall be executed as per the Standard Specifications laid down in APSS, the relevant I.S Codes of the Special Specification as indicated in BOQ of the tender

Sl.No.	Name of the specification	Specification No.of. APSS
<b>1.</b>	<b>STANDARD SPECIFICATION FOR MATERIALS</b>	
1.01	General	101
1.02	Common Burnt Clay Brick	102
1.03	Broken Brick	103
1.04	Surki	104
1.05	Fly Ash	105-
1.06	Rough Stones for dry packed Revetments and aprons	106
1.07	Stone for Masonry	107
1.08	Broken Stone/Coarse Aggregate for Concrete	108
1.09	Marble	109
1.10	Sand	110
1.11	Lime	111
1.12	Portland Cement of not less than '43' grade	112
1.13	Lime Mortar	113
1.14	Surki Mortar	114
1.15	Cement Mortar	115
1.16	Cement Lime Mortar	116
1.17	Sebara Putty (Lime Putty)	117
1.18	Pan Tiles	118
1.19	Burnt Clay Flat Terracing Tiles	119
1.20	Clay Roofing Tiles, Mangalore pattern	120
1.21	Glazed Tiles	121
1.22	Bitumen Felts for Water Proofing and Damp Proofing	122
1.23	Cuddapah/Shahbad Slabs	123
1.24	Galvanized Steel Sheets (Plain and Corrugated)	124
1.25	Un-reinforced Corrugated Asbestos Cement sheets	125
1.26	Steel for Reinforcement	126
1.27	Steel for Structural Work	127
1.28	Asbestos Cement Flat Sheets	128
1.29	Water	129
1.30	Teak Wood	130

Sl.No.	Name of the specification	Specification No.of. APSS
1.31	Bamboos	131
1.32	Ballies	132
1.33	Steel Sheets piling Sections	133
1.34	Bitumen Emulsion for Roads (Anionic Type)	134
1.35	Cut back Bitumen	135
1.36	Paving Bitumen	136
1.37	Coal Tar Pitch	137
1.38	Morrum	138
<b>2.</b>	<b>STANDARD SPECIFICATIONS FOR CLEARING SITE, DISMANTLING BUILDING AND OTHER STRUCTURES AND BLASTING</b>	
2.01	Clearing Site	201
2.02	Dismantling of Buildings and other Structures	202
2.03	Blasting	203
<b>3.</b>	<b>STANDARD SPECIFICATIONS FOR EARTH WORK</b>	
3.01	Excavation and Forming un compacted banks	301
3.02	Embankment compacted by other than driven equipment	302
3.03	Embankment compacted by power driven equipment	303
3.04	Clay blankets	304
3.05	Filters	305
3.06	Rock-fill in toe of embankment	306
3.07	Turfing	307
3.08	Excavation of foundation	308
3.09	Filling in foundations	309
3.10	Filling in Basement	310
3.11	Well sinking for foundations	311
3.12	Well sinking for Water Supply	312
3.13	RCC Precast and Cast-in-situ pile foundations	313
<b>4.</b>	<b>STANDARD SPECIFICATIONS FOR CONCRETES</b>	
4.01	lime Concrete and surki concrete	401
4.02	Cement Concrete for plain and reinforced works.	402
4.03	Reinforced cement concrete work	403
4.04	Repair grouting to aprons and revetments with surki Concrete and pointing with surki mortar	404
4.05	Prestressed concrete work.	405
<b>5.</b>	<b>STANDARD SECIFICATIONS FOR BRICK MASONRY</b>	
5.01	Brick Masonry-General	501
5.02	Brick in Lime Mortar	502
5.03	Brick in Surki Mortar	503
5.04	Brick in Cement Mortar	504
5.05	Brick in Cement Lime Mortar	505
5.06	Brick in clay	506
5.07	Brick Arch work	507
5.08	Brick in Honey Comb work	508
5.09	Reinforced half-brick partition walls	509
5.10	Boiler Brick works	510
5.11	Honey Comb works with white washed pan tiles	511
5.12	Brick Nogging	512

Sl.No.	Name of the specification	Specification No.of. APSS
<b>6.</b>	<b>STANDARD SPECIFICATIONS FOR STONE MASONRY</b>	
6.01	Stone Masonry-General	601
6.02	Cut stone in Lime Mortar	602
6.03	Cut stone in Surki Mortar	603
6.04	Cut stone in Cement Mortar	604
6.05	Cut stone-Rock Rustic or quarry faced in mortar	605
6.06	Cut stone string course and other cornice etc. in mortar	606
6.07	Cut stone arch work	607
6.08	Rubble arching	608
6.09	Coursed Rubble in Lime Mortar (1 st sort)	609
6.10	Coursed Rubble in Surki Mortar (1 st sort)	610
6.11	Coursed Rubble in Cement Mortar (1 st sort)	611
6.12	Coursed Rubble in Mortar (2nd sort)	612
6.13	Uncoursed Rubble or random rubble in lime mortar	613
6.14	Random Rubble in surki mortar	614
6.15	Random Rubble in Cement Mortar'	615
6.16	Random Rubble in Clay	616
6.17	Dry stone masonry (for retaining wall)	617
6.18	Damp proof (or any proof) course with Shahabad stone/Cuddapah stone 50mm thick in cement mortar 1:3	618
6.19	Rough stone dry packing for aprons and revetment	619
6.20	Laterite or rough stone pitching for fiver conservancy works	620
6.21	Moorum back to rough stone dry packing and gravelling to top and side slopes of bunds 150 mm thick	621
<b>7.</b>	<b>STADARD SPECIFICATIONS FOR FLOORING GENERAL</b>	
7.01	Flooring General	701
7.02	Flooring with Shahabad/Cuddapah slabs	702
7.03	Flooring with polished Shahabad/Cuddapah slabs	703
7.04	Flooring with Cement Mortar (1 :3) 12mm thick	704
7.05	Flooring with coloured cement mortar (1 :3),12mm thick	705
7.06	Terraced flooring with brick on edge, 75mm thick broken brick aggregate concrete and 12mm thick cement plastering (1 :3) on top	706
7.07	Flooring with Glazed Tiles	707
7.08	Flooring with in-situ Terrazzo finish	708
7.09	Flooring with Cement Tiles (A) plain or coloured (B) Terrazzo (C) Chequered or embossed	709
7.10	In-situ-Granolithic concrete flooring	710
<b>8.</b>	<b>STANDARD SPECIFICATIONS FOR ROOFING AND CEILING</b>	
8.01	Roofing with pan tiles set mortar over flat tiles with lime mortar borders including reepers	801
8.02	Roofing with pan tiles and lime mortar borders including reepers	802
8.03	Roofing with Mangalore tiles set in mortar over flat tiles and including reepers	803
8.04	Roofing with Mangalore tiles including reepers	804
8.05	Roofing with Mangalore tiles over ceiling tiles with air spaces and including reepers	805

Sl.No.	Name of the specification	Specification No.of. APSS
8.06	Madras terraced roofing with brick on edge 75mm thick broken brick aggregate concrete three courses flat tiles and three coats of lime plaster to top and bottom	806
8.07	Madras terraced roofing with brick on edge, 75mm thick broken brick aggregate concrete three courses of flat tiles and three coats of lime plaster to top and one coat of 12mm thick cement plaster (1 :3) to bottom	807
8.08	Terraced roofing with brick on edge, 75mm thick broken brick aggregate concrete two courses of flat tiles to top and one coat of cement plaster (1 :3) to bottom	808
8.09	Weather proof course for reinforced cement concrete roofing with Lime broken brick aggregate concrete and two courses of flat tiles	809
8.10	Water proof course for reinforced cement concrete roofing with two courses of flat tiles	810
8.11	Complete surface repair to leaky lime plastered terrace roof	811
8.12	Water proofing of concrete and masonry (flat or sloping) roofs with Bitumen felts Normal treatment	812
8.13	Water proofing of concrete and masonry (flat or sloping) roofs with Bitumen felts Heavy treatment	813
8.14	Roofing with corrugated galvanized steel sheets	814
8.15	Roofing with corrugated asbestos cement sheets	815
8.16	Roofing with semi-corrugated asbestos cement sheets	816
8.17	False ceilings	817
<b>9.</b>	<b>STANDARD SPECIFICATION FOR PLASTERING, POINTING, WHITE WASHING, COLOUR WASHING, DISTEMPERING AND WATER PROOF CEMENT PAINTING ETC.</b>	
9.01	Plastering General	901
9.02	Plastering with lime mortar one coat, 12mm thick, including fine Rendering	902
9.03	Plastering with cement mortar, one coat 12mm or 20mm thick including fine rendering	903
9.04	Plastering with cement mortar 2 coats 20mm thick with sponge finish	904
9.05	Plastering with combination mortar, one coat 12mm thick including fine rendering	905
9.06	Pointing to masonry with cement mortar	906
9.07	Pointing to masonry with surki mortar	907
9.08	White-washing	908
9.09	Colour-washing	909
9.10	Dry distempering	910
9.11	Oil bound distempering	911
9.12	Water proof cement painting	912
<b>10.</b>	<b>STANDARD SPECIFICATIONS FOR WOOD WORK</b>	
10.1	Wood work-General	1001
10.2	Doors, windows, ventilators, ward robes and cup-boards etc.,	1002
10.3	Frame work for Roofs	1003
10.4	Wooden Partitions	1004
10.5	Wall Paneling	1005
10.6	Wooden Railing	1006
<b>11.</b>	<b>STANDARD SPECIFICATIONS FOR STRUCTURAL STEEL WORK</b>	

Sl.No.	Name of the specification	Specification No.of. APSS
11.01	Materials	1101
11.02	Steel work in single section of R.S. Joists, Flats, Tees Angles and Channels etc.	1102
11.03	Steel work Riveted and bolted in built-up sections, trusses and framed work	1103
11.04	Steel work (welded) in built-up sections trusses and Framed works	1104
11.05	Miscellaneous Steel work Collapsible steel structures	1105
11.06	M.S.Steel sliding shutters	1106
11.07	M.S. Sheet Doors	1107
11.08	Rolling Shutters	1108
11.09	Clamps for ceiling Fan	1109
<b>12.</b>	<b>STANDARD SPECIFICATIONS FOR PAINTING AND VARNISHING</b>	
12.01	Painting-General	1201
12.02	Removing old paint with patent paint remover	1202
12.03	Removing old paint with caustic soda solution	1203
12.04	Removing old paint with blow lamp	1204
12.05	Painting with wood preservative	1205
12.06	Coal tarring	1206
12.07	Painting priming coat on wood, iron or plastered surfaces	1207
12.08	Painting with ready mixed paint	1208
12.09	Painting of GI. sheets with ready mixed paint	1209
12.10	Spray painting with flat wall paint on new work including priming coat	1210
12.11	Spray painting with flat wall paint on old work	1211
12.12	Painting with synthetic enamel paint	1212
12.13	Painting with Aluminum paint	1213
12.14	Painting with acid proof paint	1214
12.15	Painting with anti-corrosive bitumanistic paint	1215
12.16	Wall painting with plastic emulsion paint	1216
12.17	Varnishing	1217
12.18	Oiling with raw linseed oil	1218
12.19	Wax polishing with ready made wax polish	1219
12.20	Painting cast iron rain water, soil waste and vent pipes and fittings including priming coal	1220
12.21	Lettering with paint	1221
12.22	French polishing.	1222
<b>16.</b>	<b>STANDARD SPECIFICATIONS FOR MISCELLANEOUS</b>	
16.01	Bamboo chicks with blue Hungary cloth pulleys, rings, ropes, hools, staples etc., complete including painting two coats.	1601
16.02	Teak wood trellis work for verandahs	1602
16.03	Forming black boards on walls	1603
16.04	Barbed wire for fencing	1604
16.05	Reinforced concrete fence posts	1605
16.06	Fencing with barbed wire or chain link mesh	1606
16.07	Protection of building and altered structures against lightning	1607
16.08	Steel doors, windows and ventilators	1608
16.09	Aluminum doors, windows and ventilators	1609
16.10	Fixing and glazing of metal (steel and aluminum) doors and	1610

## **SPECIFICATIONS**

### **1. PREAMBLE**

The technical specifications for various items of work contained herein shall be read in conjunction with the specifications mentioned for each item of work in Bill of Quantities (BOQ) and also the plans and the drawings.

### **2. GENERAL TECHNICAL SPECIFICATIONS**

The following are the general technical specifications to be adopted for construction of buildings. Each item of work shall be executed according to the relevant standard specification number as described in the “Andhra Pradesh Standard Specification” (APSS) and Indian Standard (I.S) Specifications, including Water supply, Sanitary and Electrical Installations. In the absence of any definite provisions on any particular item of work in the aforesaid specifications in A.P.S.S., reference may be made to the latest codes and specifications of Indian Standards or Indian Roads Congress (IRC in case of Roads). Where even these are silent, the construction and completion of works shall conform to sound engineering practice as approved by Commission Secretary or Designated Authority and in case of dispute arising out of the interpretation of the above, the decision of Commission Secretary or Designated Authority shall be final and binding on the contractor.

### **3. GENERAL INSTRUCTIONS**

#### **3.1. DRAWINGS, INSTRUCTIONS, MEASUREMENTS**

All works shall be done according to the detailed drawings and specifications. Figured dimensions shall be followed. Measurement shall be taken of the actual work done but shall not exceed those marked on the drawings for payments.

#### **3.2. SITE CLEARANCE AND DEMOLITION**

The site shall be cleared of all trees, stumps, roots, brush wood, bushes and other objectionable materials. Useful and saleable material shall be the property of the Owner (TSERC) and shall be stacked properly as directed by the Commission Secretary or Designated authority of the Commission. The areas to be covered with embankments shall be stripped of top soil to required depths to expose acceptable founding strata. Top soil unsuitable for use in embankment construction and other fills shall be disposed off as directed. All combustible materials shall be stacked and burnt in locations sufficiently remote to eliminate all danger of fire hazards. All old concrete, brick works and drains which interfere with construction works shall be dismantled with the approval of the Commission Secretary or Designated Authority duly taking all necessary precautions prescribed in safety specification. Top soil which is suitable for use in construction work shall be stockpiled for later use. Other objectionable materials such as trash, debris, stones, brick, broken concrete, scrap metal etc., shall be disposed off as directed by the Designated authority of the Commission. Payment for cutting and removal of trees, stumps, dismantling existing structures and stripping shall be regulated by the description in the Schedule of Items or Section 2 of A.P.S.S.

**3.3. Precision:** The works shall be set to the highest precision of dimensions, levels, grades and lines as per designs and drawings using precise scientific equipments and measuring instruments.

### **3.4. Quality of work:**

*To be the best quality:* All the materials, workmanship, articles, Equipment, tools and plants should be of high and acceptable quality conforming to the standard specifications.

All materials shall be new and of the kinds and qualities described in the contract.

### **3.5. Testing of works and materials**

**3.5.1** All materials used and works done shall be subject to approval of the Commission Secretary or Designated authority of the Commission.

**3.5.2** The contractor shall arrange sufficiently in advance to test materials and portions of works in order to prove their soundness and efficiency if required, including samples and supporting test results from the approved laboratory and other documentary evidence from the manufacturer, wherever applicable, and indicate the types of materials and their respective sources. The delivery of materials at site shall commence only after the approval of the quality, grading and sources of the materials by the Designated authority of the Commission.

**3.5.3** The quality of all materials approved shall be maintained throughout the period of construction and periodical tests shall be carried out to ensure that it is maintained. The contractor shall conduct tests at work site/approved laboratories and shall maintain test reports at site for cement, coarse aggregates, fine aggregates, water, steel, bricks and concrete as per relevant IS codes

*A Register of record of material testing and Register of daily events showing materials received, labour engaged, out turn of work etc. shall be maintained at site and shall be signed by the contractor or his authorised representative and the Commission Secretary or designated authority of the Commission*

### **3.6. Rejection of Materials/works**

**3.6.1** Any material brought to site which in the opinion of the Commission Secretary or Designated authority of the Commission is defective, sub-standard, damaged, contaminated, deteriorated or does not comply with the requirement of the specification shall be rejected. The contractor shall remove such materials from site within 4 hours of notice .

**3.6.2** If the work or portion of the work which in the opinion of the Designated authority of the Commission is found to be defective or unsound, the contractor shall pull it down and re-execute the same work at his own cost.

### **3.7. Measurement Materials**

For Design mix where site mixing is permitted shall be with concrete mixtures fitted with weigh batching scale. Materials shall be weighed and batched in mechanical weigh batchers as per the specified proportions of the approved design mix.

Materials requiring Volumetric mixing, wherever permitted, should be measured separately in boxes of appropriate size before being mixed in the specified proportions.

### **3.8. Storage of Materials**

Adequate safe, dry storage shall be provided for all materials particularly cement.

### **3.9. Codes**

- 3.9.1 Unless mentioned otherwise, current versions of all codes, specifications and standards issued by the Indian Standards Institution and Indian Roads Congress shall be fully applicable to these specifications. In the absence of appropriate publications by ISI or IRC, adoptable specification of the International Organization for Standardization shall apply.
- 3.9.2 In case of any conflict in meaning between the specifications mentioned here in and those of ISI or IRC, the provisions of these specifications shall prevail.
- 3.9.3 The following codes shall be applicable for the purpose. However, the latest revision of these codes shall only be used.



**LIST OF SPECIFICATIONS FOR THE VARIOUS ITEMS OF WORKS  
SUPPLEMENTING THOSE DESCRIBED IN BOQ BY S.S. NUMBERS**

**GENERAL SPECIFICATIONS**

Sl.No.	Short title/ Description	IS.No. and as amended from time to time
<b>A) LIST OF INDIAN STANDARDS</b>		
<b>I.</b>	<b>CEMENT</b>	
	1	Specifications for 43 Grade ordinary portland cement
	2	Methods of physical tests for hydraulic cements
	3	53 Grade cement
<b>II.</b>	<b>AGGREGATES</b>	
	1	Specifications for Coarse and Fine aggregates from Natural resources for concrete
	2	Specification for Sand for Masonry
	3	Methods of tests for aggregates for concrete. Part-1 Particle size and shape
		Estimation of deleterious materials & Organic impurities
	4	Part-III – Soundness
	5	Specification for test sieves. Part-I Wire cloth test sieves
<b>III.</b>	<b>BRICKS</b>	
	1	Specifications for Common burnt clay building bricks
	2	Methods of test for burnt clay building bricks
	3	Pulverized Fuel Ash-Lime Bricks - Specification
	4	Specification for concrete masonry units Part 3 Autoclaved cellular Aerated concrete blocks
<b>IV</b>	<b>BUILDING STONES:</b>	
	1	Method of Tests for determination of strength properties of natural building stones (compressive strength, Transverse strength, Tensile Strength, Shear Strength).
	2	Schedule of properties and availability of stones for construction purposes
	3	Quarrying stones for construction purposes, recommended practice
	4	Stone Masonry: Specifications for dressing natural building stones
<b>V.</b>	<b>STEEL</b>	
	1	Specification of Mild steel and medium tensile steel bars and hard drawn steel wires for concrete reinforcement. Part-I Mild Steel & Medium tensile steel bars

<b>Sl.No.</b>	<b>Short title/ Description</b>	<b>IS.No. and as amended from time to time</b>
2	Specifications for Cold-worked steel, High strength deformed steel bars and wires for concrete reinforcement.	<b>IS 1786:1985</b>
3	Specification for steel for General structural purposes	<b>IS 2062:1999</b>
4	Specification for structural steel (Standard quality)	<b>IS 226:1975</b>
5	Specification for steel tubes for structural purposes	<b>IS 1161:1998</b>
6	Hand Drawn Wire	<b>IS432:1953</b>
<b>VI</b>	<b>CERAMIC TILES</b>	<b>IS 13712:2006</b>
<b>VII</b>	<b>STACKING AND STORAGE OF MATERIALS</b>	
1	Recommendation of stacking and storage of construction materials and components at site	<b>IS 4082:1996</b>
<b>VIII</b>	<b>MASONRY</b>	
1	Brick Masonry	<b>IS 2212:1962</b>
2	Code of practice for construction of Stone Masonry Part-1 (Rubble stone masonry)	<b>IS 1597:1992</b>
3	Code of practice for permeability test for masonry (during and after construction)	<b>IS 11216:1985</b>
4	Code of practice for brick work	<b>IS 2212:1991</b>
5	Construction of hallow and solid concrete block masonry	<b>IS 2572:2005</b>
6	Code of practice for construction of autovlaved cellular concrete block masonry	<b>IS 6041:1985</b>
<b>IX</b>	<b>CONCRETE</b>	
1	Code of practice for Plain and reinforced concrete	<b>IS 456:2000</b>
2	Method of Sampling and analysis of concrete	<b>IS 1199:1959</b>
3	Method of test for strength of concrete	<b>IS 516:1959</b>
4	Recommended guide lines for Concrete Mix Design	<b>IS 10262:1982</b>
5	Code of practice for Ready-Mixed Concrete	<b>IS 4926:2003</b>
6	Specification for Admixtures for concrete	<b>IS 9103:1999</b>
7	Guidelines for false work for concrete structures.	<b>IS:14687:1999</b>
8	Code of practice for use of immersion vibrators for consolidating concrete	<b>IS 3558:1983</b>
9	Specifications for Pre-cast concrete coping blocks	<b>IS 5751:1984</b>
10	Laying in situ cement concrete flooring	<b>IS 2571:1970</b>
11	Code of practice for concrete structures for the storage of liquids	<b>IS 3370:1965 (Part 1 &amp; 2)</b> <b>IS 3370-1967 (Part 3 &amp; 4)</b>
12	Code of practice for concrete roads	<b>IRC: 15-2002</b>
<b>X</b>	<b>REINFORCEMENT/ STRUCTURAL STEELWORK</b>	
1	Code of Practice for Bending and fixing of bars for concrete reinforcement	<b>IS 2502:1963</b>
2	Recommendations for detailing of reinforcement in reinforced cement concrete works	<b>IS 5525:1969</b>

<b>Sl.No.</b>	<b>Short title/ Description</b>	<b>IS.No. and as amended from time to time</b>
3	Mils steel wire for General Engineering purposes	<b>IS 280:2006</b>
4	Recommendation for welding of cold worked bars for Reinforced concrete construction	<b>IS 9417:1989</b>
5	Code of practice for general construction in steel	<b>IS 800:1984</b>
6	Code of practice for use of metal arc welding for general construction in mild steel	<b>IS 816:1969</b>
7	Safety code for erection of structural steel work	<b>IS 7205:1974</b>
8	Tolerance for fabrication of steel structures	<b>IS 7215:1974</b>
<b>XI.</b>	<b>JOINERY:</b>	
1	Specifications for timber paneled and glazed door, window and ventilator shutters	<b>IS 1003-Pat 1-2003 and IS1003-Part2-1994</b>
2	Specifications for cut size timber	<b>IS 1331:1971</b>
3	Code of practice for Glazing in Buildings	<b>IS 3548:1988</b>
4	Specification for aluminium doors, windows and ventilators	<b>IS 1948:1961</b>
<b>XII</b>	<b>EARTH WORK:</b>	
1	Code of Safety for excavation works	<b>IS 3764:1966</b>
2	Safety code for piling and other deep foundations	<b>IS 5121:1969</b>
3	Code of practice for earth work on canals	<b>IS 4701:1982</b>
4	Methods of Test for soils	<b>IS 2720</b>
<b>XIII</b>	<b>OTHER SUBJECTS:</b>	
1	Code of practice for design and insulation of joints in buildings.	<b>IS 3414:1968</b>
2	Code of practice for design and construction of foundations in soils : general requirement	<b>IS 1904:1986</b>
	Colours for Ready mixed paints & enamels	<b>IS 5: 2004</b>
<b>XIV.</b>	<b>MACHINERY</b>	
1	Batch type concrete mixer	<b>IS 1791:1968</b>
2	Concrete Vibrators – Immersible type	<b>IS 2505:1980</b>
3	Specifications for moulds for use in tests of cement and concrete	<b>IS 10086:1982</b>
4	Compression testing machine used for testing of concrete and mortar	<b>IS 14858:2000</b>
5	Sheep foot roller	<b>IS 4616:1968</b>
<b>XV.</b>	<b>SAFETY</b>	
1	Code of practice for fire safety of buildings (general): Details of construction	<b>IS 1642:1989</b>
2	Criteria for earthquake resistant design of structures.	<b>IS 1893:2002 Part-1</b>
3	Code of practice for earthquake resistant design and construction of buildings.	<b>IS 4326:1993</b>
4	Safety code for scaffolds and ladders	
	Part-I – Scaffolds	<b>IS 3696:1987 (Part-I)</b>

Sl.No.	Short title/ Description		IS.No. and as amended from time to time
		Part-I – Ladders	<b>IS 3696:1991 (Part-II)</b>
<b>XVI</b>	<b>DRAWINGS:</b>		
	1	Code of practice for general engineering drawings	<b>IS 696:1972</b>
	2	Code of practice for architectural and building drawings (First revision).	<b>IS 962: 1989</b>
<b>XVII</b>	<b>MEASUREMENT</b>		
	1	Methods of measurement of building and civil engineering works.	<b>IS : 1200</b>

**Note:- The above I.S specifications mean latest over and above with amendments if any. Bidders also requested to stick with the BOQ provided along with the tender**

### **3.1.0. PERFORMANCE OF WORK**

#### **3.10.1 Execution of Works**

3.10.1.1 All the works shall be executed in strict conformity with the provisions of the contract documents, explanatory detailed drawings and specifications.

3.10.1.2 The site should be cleared of all obstructions, vegetation, loose stones and materials before start of work.

3.10.1.3 The Commission Secretary or Designated Authority will inspect the work on a Day-to-Day basis.

#### **3.10.2 Work in Monsoon**

3.10.2.1 The construction may entail working in monsoon also. The contractor must maintain a minimum labour force and execute the construction according to the prescribed schedule.

3.10.2.2 Contractor is responsible for keeping the construction work site free from water.

#### **3.10.3 Plinth Levels**

3.10.3.1 A proper level should be maintained, in terms of horizontal and vertical alignment. A minimum acceptable plinth level above road level shall be maintained. The plinth level shall be agreed with the Designated authority of the Commission representative.

### **4.0. DETAILED SPECIFICATIONS OF MATERIALS**

#### **4.1 Water (APSS No. 129)**

4.1.1 Water should be clean, fresh and free from all chemicals, oils, salts and deleterious materials and vegetable growth. Water has to meet the requirements mentioned in Cl. 5.4 of IS:456-2000. Storage for water should be sufficient and adequate for the regular consumption of works and for the use of labour on site.

## 4.2 Earth (APSS No. 309 & 310)

4.2.1 For filling, the soil shall be free from all rubbish, organic or vegetable growth including roots, weeds etc. Black cotton soil should not be used for basement filling.

## 4.3 Sand/ fine aggregate (APSS No. 110)

4.3.1 Sand to be used shall be composed of hard siliceous material and shall be clean, sharp, hard, strong and angular type. Sand shall be clean river or pit sand of approved quality and free from salts, earth, dust or other impurities. Sand for plain and reinforced concrete shall confirm to IS : 383-1970. Sand for various purposes shall confirm grading as below.

Sand for Masonry --- table 110-A of APSS No.110

Sand for Plastering --- table 110-B & 110-C of APSS No. 110

Sand for Plain and Zone I to III of table 110-D of APSS No.110

Reinforced concrete

TABLE – II				
4.3 FINE AGGREGATE (SAND)				
Percentage passing by Mass				
L.S. Sieve Designation	Grading Zone - I	Grading Zone – II	Grading Zone - III	Grading Zone – IV
10 mm	100	100	100	100
4.75 mm	90-100	90-100	90-100	95-100
2.36 mm	60-95	75-100	85-100	95-100
1.18 mm	30-70	55-90	75-100	90-100
600.00 microns	15-34	35-59	60-79	80-100
300.00 microns	5-20	8-30	12-40	15-50
150.00 microns	0-10	0-10	0-10	0-15

## 4.4 Stone for Masonry (APSS No. 107)

4.4.1 Stones used shall be strong, durable, dense, compact, close grained, homogeneous, fire resistant and shall be obtained from sources approved by Designated authority of the Commission. Stones shall additionally be hard, sound, free from cracks, decay and other flaws or weathering and shall be easily workable. Stones with round surfaces shall not be made use of.

4.4.2 Stones shall have a crushing strength of not less than 1000 Kg/cm<sup>2</sup>. Stones with lesser crushing strength may be used in works with prior approval of the Commission Secretary or Designated Authority. Stones shall be non-porous and when tested in accordance with IS: 1124-“Method of Test for Determination of Water Absorption” etc., shall show water absorption of less than 5% of its dry weight when soaked in water for 24 hours. Tests for durability and weathering shall be done in accordance with ARE: 1126 and IS: 1125 respectively. The working of stones to required sizes and their dressing shall be as per IS: 1127 “Recommendations for dimensions and workmanship of natural building stones for Masonry work” and IS: 1129 “Dressing of Natural Building Stones”. Stones especially limestones and sand stones, shall be well seasoned by exposure to air before use in construction works.

#### 4.5 Cement (APSS No. 112)

Any of the following cements may be used with prior approval of the competent authority.

S.No.	Type	Conforming to
(i)	Ordinary Portland Cement 43 Grade	IS : 8112
(ii)	Ordinary Portland Cement 53 Grade	IS : 12269
(iii)	Portland Pozzolana Cement 53 Grade	IS : 1489-Part-I
(iv)	Portland Blast Furnace Slag Cement 53 Grade	IS : 455

- 4.5.1 For concrete made with Portland Pozzolana cement, Portland Blast Furnace Slag cement or mineral admixtures, the setting time and rate of gain of strength are different from those of concrete made with OPC alone. Cognizance of such modified properties shall be taken in deciding de-shuttering time, initial time of pre-stressing, curing period and for early age loading.
- 4.5.2 Compatibility of chemical admixtures and super-plasticizers with Portland Pozzolana cement, Portland blast furnace slag cement and mineral admixtures shall be ensured by trials.
- 4.5.3 Some other properties of concrete such as modulus of elasticity, tensile strength, creep and shrinkage are not likely to be significantly different. For design purposes, it will be sufficiently accurate to take the same values as those used for concrete made with OPC.
- 4.5.4 Cement should comply with the requirements of IS:8112-1989 for making plain and reinforced concrete, mortar etc. The quality of cement shall be in conformity to the performance characteristics given in IS: 8112 - 1989.
- 4.5.5 The contractor shall procure bulk cement required for the works only from reputed cement factories (main producers) acceptable to the Designated authority of the Commission and should obtain, furnish from suppliers of cement a test certificate for every consignment of cement. The cement bag shall bear the manufacturer's name or their registered trade mark. Cement shall be tested in accordance with IS: 4031-1988 and IS: 4032-1988.
- 4.5.6 The cement should be delivered to the site in sound dry bags and shall be stored properly. Cement packed in LDPE Bags may be preferred to ensure protection from moisture and dampness.
- 4.5.7 The contractor has to make his own arrangements for the procurement of cement of required specification for works subject to the following:
- The contractor shall procure bulk cement required for the works, only from cement factories (Main producers) of approved make and brand only as approved by the Commission Secretary or Designated Authority. The contractor shall make own arrangements for adequate storage of cement.
  - The contractor shall procure cement in standard packing (50 Kg per bag) from the authorised manufacturers. The contractor shall make necessary arrangement at his own cost to the satisfaction of Designated authority of the Commission for actual weighment of random sample from the available stock and shall confirm with the specification laid down by the Bureau of Indian standards or other standard institutions as the case may

- be. Cement shall be got tested for all the tests as directed by the Designated authority of the Commission at least once in a month in advance before the use of cement bags brought and kept at site godown.
- c) Cement bags required for testing shall be supplied by the contractor at free of cost.
  - d) The contractor should store the cement of 60 days requirement at least one month in advance to ensure the quality of cement so brought to site and shall not remove the same without the written permission of the Commission Secretary or Designated Authority.
  - e) The contractor shall forthwith remove from the works area any cement that the Designated authority of the Commission may disallow for use on account of failure to meet with required quality and standard. Damaged or reclaimed or partly set cement will not be permitted to be used and shall be removed from the site.
  - f) The contractor will have to construct sheds for storing cement having capacity not less than the cement required for 90 days use at appropriate locations at the work site. The Commission Secretary or Designated Authority or the representatives shall have free access to such stores at all times.
  - g) The contractor shall further at all times satisfy the Designated authority of the Commission on demand by production of records and books or by submission of returns and other proofs as directed that the cement is being used as tested and approved by Designated authority of the Commission for the purpose and the contractor shall at all times keep his records up to date to enable the Designated authority of the Commission to apply such checks as he may desire.
  - h) Cement which has been unduly long in storage with the contractor or alternatively has deteriorated due to inadequate storage and thus become unfit for use on the work shall be rejected by the department and no claims will be entertained. The contractor shall forthwith remove from the work area any cement the Designated authority of the Commission may disallow for use on work and replace it by cement complying with the relevant Indian Standards.

#### 4.5.8 STORAGE OF CEMENT

4.5.8.1 Portland cement readily absorbs moisture not only in the form of free water but also moisture from the atmosphere or from damp material in contact with it and becomes hydrated and loses strength. Therefore, it is necessary that it should be protected from absorption of moisture before it is used if it is to fulfill its function. An absorption of one or two percent of water has not appreciable effect but further amounts of absorption, results in hardening of the cement and reduced the strength. If the absorption exceeds 5% the cement is for all ordinary purposes ruined.

4.5.8.2 American, Spanish and German experiments have shown that on average the strength of cement stress in bags is reduced.

After 3 months by 15 to 20 percent.

After 6 months by 20 to 30 percent.

After 12 months by 30 to 50 percent.

After 2 years by 40 to 50 percent.

These figures prove that special attention should be paid to the storage of cement, even when its strength is equal to or suspense's the specified normal strength.

- 4.5.8.3 As a general principle the cement must be protected as far as possible from any form of moisture prior to mixing concrete mortar.
- 4.5.8.4 The cement should be stored in a well constructed dry godown or shed. The cement store should be weather tight construction with a sound wooden or ground to ensure that it is damp proof building. The storage place required for a given quantity of cement can be calculated at the rate of 2.50 sqm for a ton of cement. Cement should not be placed directly on cement plaster flooring and other types of flooring commonly meant with which are not damp proof. A wooden platform or false floor a sheet of water proof paper should be provided.
- If none of these are possible, then floor should be covered with straw, hay, cinder or ash or such other material densely and uniformly packed to a thickness of at least one inch and over a laid worth tarpaulin of old cement. Large windows and ventilators if any should be tightly shut to prevent from circulation of air inside the stores. Drainage should be provided if necessary to prevent accumulation of water in the vicinity of the store.
- 4.5.8.5 Cement should be stored in piles arranged parallel to the walls. It is not advisable to pile bags against the walls and an allowance of at least 0.3M all round should be made between the exterior walls and piles. At least 0.6M wide should be left for each access and delivery.
- When storing the bags, the floor should be raised 30 cms. above the ground and stacked in rows not exceeding 10 bags high. The cement is to be stored in such a manner that easy access and proper inspection and counting is possible.
- Successive consignments covered with some water proof cover as a both measure of protection and prevent the free circulation of air as each lot of proper fresh air will bring in more moisture. Once the cement has been properly stored should not be disturbed until it is used. There is no advantage in moving and stacking the bags to reduce where house set as this practice only exposes fresh cement to the air resulting in loss due to the shifting of cement through the cloth mesh and in damage to the stacks.
- 4.5.8.6 Even during the dry weather and when the relative humidity of the atmosphere even in nights is low (that is to say when there is very little moisture in the air) the cement in its stock shall be protected with a tarpaulin through for the stack. When the atmosphere is damp at any time of day or night, greater care has to be taken of the cement and proper strength provided it from the damp.
- 4.5.8.7 Cement required for use immediately after delivery to the site may be stored in the open on a raised damp proof floor so long as it is fully protected by tarpaulin or either weather resisting covers. Storage under these conditions should be limited to 48 hours. The tarpaulin should be raised well above the top most Ties of bags and must be sloped for rapid drainage in case of showers.
- 4.5.8.8 Consignments should be used in the same sequences as they are delivered. To ensure the date of arrival of each consignment should be clearly indicated. This is best done by tying a piece of country twines or cord to the end bags in the bottom most tier of the days pile, tacking the two places of card up the sides and along the top of pile an tying the main the center. The date of receipt in the store being clearly written on a bin card high from the card. Dead storage where the cement remains in place for a long time which other consignments of cement come in and out should be avoided.
- 4.5.8.9 In issuing cement from a store the cement bags should be removed in vertical column of the pile and not horizontal so as to avoid dead stoppage space.



4.5.8.10 As a rule cement should not be stored longer than three months. Cement held in storage for a period of 90 days or longer shall be re-tested. Especially in the rainy season prolonged storage should be avoided. If stock is likely to be held over for more than three months anticipatory measures should be taken to use it on the works.

4.5.8.11 Cement that has become supply due to storage in damp positions due to exposure to the weather is generally useless for making concrete and should be removed from the site.

**4.6 Bricks (APSS No. 102)**

4.6.1 Bricks for masonry shall be common burnt clay building bricks having minimum crushing strength of 40 Kg/cm<sup>2</sup> and shall conform the relevant specifications of IS 1077-1992.

4.6.2 They shall be sound, hard and thoroughly well burnt, but not over-burnt, with uniform size having rectangular faces with parallel sides and sharp straight right angled edges and be of uniform colour with fine compact uniform texture. Bricks shall be of uniform deep red cherry or copper colour. They shall be free from flaws, cracks and nodules of free lime.

4.6.3 Water absorption after 24 hours immersion in cold water shall be not more than 20% by weight. They shall not absorb more than 10% by weight of water after immersion for six hours.

4.6.4 They shall emit a clear metallic ringing sound when struck by a mallet and shall not break when dropped on their face, from a height of 60 cm.

4.6.5 Fractured surface shall show homogeneous, fine grained uniform texture, free from cracks, air holes, laminations, grits, lumps of lime, efflorescence or any other defect which may impair their strength, durability, appearance and usefulness for the purpose intended. Under-burnt or vitrified bricks shall not be used.

4.6.6 Samples of bricks brought to the site shall be tested periodically for compression and other tests according to IS: 3495, Parts-I, II & III - “Method of Test for Burnt Clay Building Bricks”.

**4.7 Coarse Aggregate (APSS No. 108)**

The coarse aggregate shall be from hard granite crushed stone conforming to IS 383:1970. The pieces of aggregate shall be non porous, hard, strong durable clean and free from clay, rounded in shape and shall have granular or crystalline non powdery surfaces. The aggregate shall be well graded. Tests where required shall be carried out in accordance with IS : 2386 - 1963.

<b>I.S. 383 / 1970 Table – I</b>						
<b>4.7.1 Coarse Aggregate</b>						
I.S. Sieve designation	Percent passing for single-seized aggregate of metal size			Percentage passing for graded-aggregate of nominal size		
	40 mm	20 mm	12.50 mm	10 mm	40 mm	20 mm
Mm	(3)	(4)	(6)	(7)	(8)	(9)
80 mm	---	---	---	---	100	---
63 mm	100	---	---	---	---	---
40 mm	85-100	100	---	---	95-100	100
20 mm	0-20	85 - 100	---	---	30-70	95-100
16 mm	---	---	100	---	---	---
12.50 mm	---	---	85 - 100	100	---	---
10 mm	0-5	0-20	0-45	85 - 100	10-35	25-55

4.75 mm	---	0-5	0-10	0-20	0-5	0-10
2.36 mm	---	---	---	0-5	---	---

<b>TABLE – III</b>		
<b>ALL-IN AGGREGATE GRADING</b>		
L.S. Sieve Designation	40mm Nominal	20mm Nominal
80.00 mm	100	---
40.00 mm	95-100	100
20.00 mm	45-75	95-100
4.75 mm	25-45	30-50
600.00 microns	8-30	10-35
150.00 microns	0-6	0-6

#### **4.8 Steel Reinforcement (APSS No. 126)**

##### **STEEL**

- 4.8.1 Mild steel bars shall conform to Grade I of IS:432.
- 4.8.2 High yield steel strength deformed bars shall conform to IS:1786-1985. Binding wire shall conform to IS:280. The various types of steel shall conform to the relevant IS specification as provided in A.P.S.S. No.126.
- 4.8.3 The contractor has to make his own arrangements for procurement of tested steel required for the work. He shall also make his own arrangements for transportation and storage.
- 4.8.4 The contractor shall procure mild steel (MS) reinforcement bars, High yield strength deformed bars (HYSD) bars, rods and structural steel etc., required for the works, only from the reputed main steel manufacturing units manufacturing the steel to the prescribed specification of Bureau of Indian Standards or equivalent and licensed to affix ISI or other equivalent certifications, marks and acceptable to the Commission Secretary or Designated Authority.
- 4.8.5 The contractor should invariably obtain necessary ISI test certificates from the suppliers of steel for each and every consignment and furnish them to the Commission Secretary or Designated authority of the Commission, before use on works. Test certificates conforming to IS 1786-1985 are to be furnished. The HYSD steel (IS 1786-1985) bars should have TOR mark.

The original bills of procurement should be submitted to the Designated authority for making payment of the item. The contractor shall purchase the steel on the name of the work, number and the name of the contractor and furnish the same to the Designated authority of the Commission. The steel without the above two names will not be accepted on the works. Vendors test certificates and weighment bills are to be furnished to the Designated authority of the Commission and any quantity purchased without test certificates will not be accepted for use on the works.

If any difference is observed on carriage inwards, carriage outwards and theoretical requirement of steel for finished work, the contract will be cancelled and the contractor will be blacklisted.

The diameter and weight of steel should be as per IS 1786-1985 or relevant IS specification with subsequent revisions from time to time:

7Note: If any rods other than those diameters specified above are procured the weights shall be as per standard steel tables.

4.8.6 Quality control: The contractor shall furnish the samples for testing for each batch and consignment along with the test certificates issued by the vendors to the Commission Secretary or Designated Authority immediately after receipt of the steel in the stockyard at site of work for verification and testing.

No steel procured by the contractor shall be used in any work until the Designated authority of the Commission has given notice that the test results are satisfactory.

#### 4.8.7. STEEL STORAGE:

- a) Reinforcement steel and binding wire shall be stored above ground surface upon platform, skids or other supports protected as far as possible from surface deterioration by direct contact with undesirable elements or by exposure to conditions producing rust and corrosion. Bars shall be so supported as to avoid distortion and sagging of long lengths. All the reinforcement of same designation shall be stacked separately and distinctly marked.
- b) Steel shall be stacked and stored in accordance with IS 4082: 1996 as per Recommendations on stacking and storage of construction materials.
- c) If the reinforcing rods have to be stored for a long duration, they shall be coated with cement wash before stacking and/or be kept under cover.

4.8.8 Reinforcement shall be free from pitting due to corrosion and free from loose rust, dirt, dust, mill scale, paint, oil, grease, adhering earth etc.

4.8.9 Erected and secured reinforcement after fabrication shall be inspected and approved by the Designated authority of the Commission prior to placement of concrete.

#### 4.9 TEAK WOOD FOR JOINERY/ DOORS

The wood shall be well seasoned, uniformly coloured and shall be free from knots, cracks, shakes, splits, cross grains etc.

The wood shall be durable and of reasonably straight grains.

Moisture content of wood used shall be as near as possible to the following values:

Recommended values of moisture content in timber at the time of assembly or framing:

Type of work	Coastal area	Inland area
Frames for doors and windows	16 to 18%	14 to 15%
Shutters of doors and windows etc	15 to 16%	12 to 14%

#### 4.10 GLAZED TILES (APSS No. 121)

The tiles shall be covered by a glaze on the top and under side. The edges shall be free from glaze in order that the tiles may adhere properly to the base. The glaze shall be uniform in quality and free from welts, chips, craze, specks, crawlings, or other imperfections visible from a distance of one meter. The glazed tiles shall be white or color and size of 300mm x 200 mm with a thickness of 7mm. The tiles shall be true to shape and conform to the performance requirements of IS 13712:2006 and supplier shall submit a certificate with respect to the quality of tiles and detailed there in.

## **5.0 DETAILED SPECIFICATION OF WORKS**

### **5.1 Standard**

A high standard of workmanship in all trades will be required. The Contractor shall ensure that only skilled and experienced workmen are employed.

### **5.2 Supervision**

5.2.1 The Contractor's supervising staff shall be fully qualified and experienced in the types of work being carried out under the supervision and shall be capable of ensuring that they are done well and efficiently.

### **5.3 Temporary works**

Where required, the Contractor shall furnish such details of his temporary works as may be called for by the Designated authority of the Commission and the Contractor shall satisfy the Designated authority of the Commission as to their safety and efficiency. The Designated authority of the Commission may direct that temporary works, which he considers unsafe or insufficient, shall be removed and replaced in a satisfactory manner.

### **5.4 Codes**

5.4.1 Unless mentioned otherwise, current versions of all codes, specifications and standards issued by the Indian Standards Institution and Indian Roads Congress, wherever mentioned, shall be fully applicable to these specifications. Where standards are not yet published by the ISI or IRC, adaptable British Standards or Specifications of the International Organization for standardization shall apply.

5.4.2 In case of any conflict in meaning between the specifications mentioned herein and those of ISI or IRC, the provisions of these specifications shall prevail.

### **5.5 Base lines and bench marks**

5.5.1 The Contractor shall establish and maintain, to the satisfaction of Designated authority of the Commission, the base lines and bench marks, based on which the works are set out. Where such base lines and bench marks are provided by the Commission Secretary or Designated Authority, the Contractor shall maintain these throughout the period of construction without causing any disturbance to them.

### **5.6 Setting out**

5.6.1 The Contractor shall set out all the works to be executed by him, in line with the standard base lines, position and bench marks and truly as per drawings within the accepted tolerance limits at no extra cost to Owner. The Contractor shall be solely responsible for the correct setting out of all the works, to be executed by him and the approval of such setting out by the Designated authority of the Commission shall in no way absolve the Contractor of his responsibility for carrying the work to the true lines, levels and positions as per drawings.

### **5.7 Dewatering**

5.7.1 The Contractor shall carry out all the works, in dry and workable condition and maintain the same in dry condition till the final handing over of works at no extra cost to the Owner. For this the Contractor shall make at his cost all the necessary provisions of dewatering, wherever necessary, to the full satisfaction of the Designated authority of the Commission.

## **5.8 Safety of existing work**

5.8.1 Before taking up any construction adjoining other property or existing work, the Contractor shall take all steps necessary for the safety and protection of such property or work.

## **5.9 Protection of existing services**

5.9.1 The Contractor shall take all precautions necessary to prevent damage to or interference with under-ground or over-ground services such as cables, drains, piping or piles, whether shown on drawings or not. Equipment etc., mounted in position shall be protected against falling debris etc., by means of tarpaulin or such other material.

## **5.10 Handing over of work site**

5.10.1 On completion of work, the Contractor shall remove all rubbish, debris, surplus materials, temporary work etc., from the site. The site shall be handed over in a tidy and workmanlike manner.

## **5.11 CRS Masonry in CM (1:8) in 1st sort (APSS 107 & APSS 611)**

5.11.1 The work shall consist of a facing of selected stones hammer dressed at faces and joints with only a small proportion of smaller stones in the hearting.

5.11.2 The face stones shall be set in regular courses of uniform thickness from bottom to the top throughout. The height of the course should be uniform throughout by using stones of same height. The face stones shall be laid in headers and stretchers alternately so as to break joint by atleast 75mm and headers shall project atleast 100mm beyond stretchers. The stones shall be solidly bedded, set full in mortar with joints not exceeding 12mm in thickness and shall extend well back into the hearting.

5.11.3 Bond stones shall be placed in the wall @ interval of 2m in length and 600mm in height and shall run through the wall if the wall is not more than 600mm thick. If the wall is more than 600mm thick line of headers shall be laid from face to back each header overlapping the other by atleast 150mm.

5.11.4 The heart portion shall be filled with good flat bedded stones set as close as possible, well set in mortar.

5.11.5 The work on interior face shall be precisely the same as on the exterior face unless the work is to be plastered in which case the side joints need not be vertical.

## **5.12 Coursed Rubble Masonry in CM (1:8) 2nd sort: (APSS NO. 612)**

5.12.1 This work shall be executed similar to the specifications for C.R.S. masonry 1st sort with the exception that the hearting and backing shall conform to the standard specification for random rubble masonry and bond with the face stones being carried up continuously with the face work.

## **5.13 RRS Masonry in CM (1:8) (APSS 107 & APSS 615)**

5.13.1 The face stone be hammered dressed on the face, side and the beds to enable to come into close proximity with the neighboring stone. Face stone shall be of not less width in plan than 150mm for walls of 400mm thick, 200mm for walls of 450mm thick. The face stone shall be laid in headers and stretchers alternatively so as to break joints by at least 75mm. Care is to be taken to break joints vertically.

5.13.2 Bond stones should built in the wall at intervals of 2m in length and 600mm in height and shall run through the wall if the wall is not more than 600mm thick. The heart portion shall be filled with good flat bedded stone set as close as possible, well set in mortar.

#### **5.14 Brick Work: (APSS 102 APSS 501 & 504)**

- 5.14.1 All bricks to be used in the work shall be thoroughly soaked in water before use to prevent absorption of water from the mortar.
- 5.14.2 The bricks shall be set in cement mortar of **1:8** proportions by adopting a proper bond (preferably either English bond or a Flemish bond) throughout the wall.
- 5.14.3 The walls shall be taken up truly plumb. All courses shall be truly horizontal (level) and truly vertical. Vertical joints of consecutive courses shall not come directly over one another. Vertical joints, in alternate course shall come directly over one another. Joint's shall be fully filled with mortar and raked. Every brick shall be laid with full joints of cement mortar on its bed, ends and side in one operation. No feeding of mortar by using excess water shall be allowed.

#### **5.15 Reinforced Half Brick Partition Walls (APSS 102, 501, 504, 509)**

- 5.15.1 All bricks to be used in the work shall be thoroughly soaked in water before use to prevent absorption of water from the mortar.
- 5.15.2 The cement mortar used for reinforced brick work shall be in cm (1:4) and mortar used shall conform APSS No. 113. Reinforcement for half brick walls shall be in the form of MS Bars and shall be of specified qualities. The brick shall be constructed only in stretcher bond. The reinforcement shall be well embedded in cement mortar at every third course and half the joint thickness of mortar shall first be laid and the other half laid after the reinforcement is placed in the position. The free ends of the reinforcement where ever possible shall be pegged into the mortar joints of main brick walls.

#### **5.16 NOTES ON MASONRY**

- 5.16.1
- i) All stones, bricks etc., used in the masonry work shall be thoroughly soaked in water before use to prevent absorption of water from the mortar.
  - ii) Stones shall be laid on their broadest faces which give better opportunity to fill the faces between stones.
  - iii) To give sufficient lateral bond a stone in any course shall overlap the stone in the course below i.e. joints parallel to the pressure in two adjoining course shall not lie too closely in the same vertical line. A minimum overlap of 6" shall be maintained.
  - iv) To give sufficient transverse bond, prescribed no. of headers shall be used.
  - v) The practice of building two thin faces, tying width occasionally through stones and filling up the middle with small stones or dry packing shall be strictly guarded against.
  - vi) Jambs for door and window opening shall be formed with quoins of the full height of the course. The quoins shall be of breadth at least one and a half times the depth for the course and in length at least twice the depth.
  - vii) It is advisable to erect the door and window frames first and build the masonry around.
  - viii) Thickness of the joint should not be more than 12mm.
  - ix) Every course of the masonry shall be truly vertical. Use of plumb bob to check verticality by the mason shall be encouraged.

- x) Care should be taken to keep all corners and sides including door and window opening truly vertical.

5.16.2 Theoretical requirement of cement should be as follows: -

Cement bags of 50 kgs.

a. C.R.S. Masonry in C.M. (1:6)	1.54 bags per Cum
b. C.R.S. Masonry in C.M. (1:8)	1.15 bags per Cum
c. Brick Masonry in C.M. (1:4)	1.44 bags per Cum
d. Brick Masonry in C.M.(1:6)	0.96 bags per Cum
e. Brick Masonry in C.M. (1:8)	0.72 bags per Cum

### **5.17 Plain and Reinforced cement concrete (A.P.S.S. 402 & 403)**

5.17.1 All R.C.C. work shall be carried out in strict accordance with latest IS specification. No concrete work shall be cast in the absence of the Commission Secretary (FAC) or Designated Authority. All the materials used should be of good quality as mentioned in Sec. 4.0 above.

5.17.2 Cast-in-place concrete for the structures shall conform to the requirements of the section. The structures shall be built to the lines, grades and dimensions as per the designs and drawings.

### **5.18 Mix Proportions & Strength requirement of concrete:**

The proportions of various ingredients to be used in the concrete for different parts of the work shall be established by proper mix through design mix. The contractor shall produce concrete mix design and establish the strength of concrete with this concrete mix design for 3 days, 7 days and 21 days as per IS 456-2000. For controlled concrete, the mix design shall be so designed as to attain in preliminary tests a strength atleast 33 percent higher than that required on work tests. The design mix shall be got approved by the Commission Secretary or Designated Authority before proceeding with the concreting. The contractor is required to carryout the mix design and the design mix shall be got approved by the Designated authority of the Commission and the mix shall be within the limitations of parameters and other stipulations laid down in IS-456/2000 & IS10262-2019.

The specified characteristic compressive strength of 150 mm size cube at 28 days attained for M20, M25 and M30 grades of concrete shall be 20 N/sqmm, 25N/sqmm and 30 N/sqmm respectively. The mix shall be designed to produce the grade of concrete having the required workability and a characteristic strength at 28 days not less than the appropriate values mentioned in Table-2 of IS-456:2000 The target mean strength of the concrete mix should be equal to the characteristic strength plus 1.65 times the standard deviation.

Whenever the grade of concrete such as M25, M30 etc., is specified it shall be Contractor's responsibility to ensure the minimum crushing strength stipulated for the respective grade of concrete is obtained at works.

- In the case of M20 grade concrete minimum cement content of 320Kgs/ Cum shall be used to obtain a minimum cube strength of 20N/ mm<sup>2</sup> at 28 days age.
- In the case of M25 grade concrete minimum cement content of 360Kgs/ Cum shall be used to obtain a minimum cube strength of 30N/ mm<sup>2</sup> at 28 days age.
- In the case of M30 grade concrete minimum cement content of 380Kgs/ Cum shall be used to obtain a minimum cube strength of 30N/ mm<sup>2</sup> at 28 days age.
- In the case of M35 grade concrete minimum cement content of 400Kgs/ Cum shall be used to obtain a minimum cube strength of 35N/ mm<sup>2</sup> at 28 days age.

The contractor shall maintain the test results on regular basis as indicated in I.S.456/2000 and subsequent amendments thereon.

- In all cases, the 28 days compressive strength specified shall be the criterion for acceptance or rejection of the concrete.
- The sample of water taken for testing shall be typical of the water proposed to be used for concreting.

The contractor shall be responsible for production of controlled concrete as per design mix to ensure the required works cube strength is attained and maintained. In the designation of concrete mix, letter 'M' refers to the Mix and the number to the specified 28 days works cube compressive strength in Newton per sq.mm.

The concrete where site mixing is permitted shall be with concrete mixtures fitted with weigh batching scale. All measuring equipment shall be maintained in a clean serviceable condition and their accuracy periodically checked.

5.19.1 The proportions of cement concrete, if specified in volumetric proportions i.e., nominal mixes shall be as follows which are indication of approximate proportion of cement, fine aggregate and coarse aggregate which may have to be altered suitably at site to obtain desired strength and workability. However, the quantity of cement shall not be less than specified below.

<u>Nominal Mix</u>	<u>Cement in bags of 50 kgs / 1Cum (net) of cement concrete</u>
a) 1:3:6	4.42 bags of 50 Kgs
b) 1:4:8	3.31 bags of 50 Kgs
c) 1:5:10	2.65 bags of 50 Kgs



As per sanctioned estimate the design mix are proposed for all RCC members with the following design mix mentioned in Bill of Quantities towards the minimum cement quantity required for attaining such design which is specified below.

<u>Design Mix</u>	<u>Cement in Kgs</u>
a) M25	380 Kgs
b) M30	400 Kgs

The contractor shall ensure the tests of Design Mix from the Reputed Agencies / University or any Research Lab as approved by TSERC for ensuring the strength of Design Mix with the provided quantity of cement in the estimate.

- 5.19.2 The quantity of water shall be varied to suit the moisture content of the aggregate and shall be just sufficient in produce a dense concrete with workability. Workability should be checked at frequent intervals as per **IS: 1199**. An accurate and strict control shall be kept on the quantity of mixing water.

## **5.20 Concrete quality control measures and concrete quality Assurance Test Programme**

- a) Concrete quality control measures: The contractor shall be responsible for providing quality concrete to ensure compliance of the bid requirements.
- b) Concrete quality Assurance Programme: The concrete samples will be taken by the TSERC and its quality will be tested in any other recognized laboratory as per the relevant Indian Standard Specifications IS 516:1959 and LS. 1199-1959.

Samples shall be drawn on each day for each type of concrete.

Tests: The TSERC will obtain samples and conduct tests as specified in B.I.S. 456- 2000, I.S. 1199- 1959 and I.S. 416 - 1959.

Test Facilities : The contractor shall furnish free of cost samples of all ingredients of concrete for testing and obtain approval from the Designated authority of the Commission. He should also supply free of cost, the samples of all the ingredients of concrete for conducting the required tests.

Test results: The Designated authority of the Commission will pass the concrete if average strength of the specimens tested is not less than the strength specified. Concrete not meeting requirements of specification in all respects may be rejected by the Designated authority of the Commission in which case it shall be removed and reconstructed entirely at the expense of the contractor.

**5.21 Preparation for placing:** No concrete shall be placed until preparation of surface involved, all form work, reinforcement, installation of items to be embedded have been approved by the Designated authority of the Commission.

- 5.21.1 All surfaces, forms, embedded material shall be free from dried mortar, dirt, foreign substances, waste papers etc. Temporary openings shall be provided to facilitate inspection, especially of bottoms of columns and wall forms, to permit removal of sawdust, wood shavings, binding wire, dirt etc. Such openings/holes shall be suitably plugged later.

- 5.21.2 Foundation surface: Rock surfaces shall be free from oil, objectionable coatings, loose, semi-detached and unsound fragments. Immediately prior to placement of concrete,

surfaces of rock shall be washed with an air water jet and shall be brought to a uniform surface dry condition.

- 5.21.3 Concrete shall not be placed in standing water or on a water-covered surface. Any concrete that has been washed away by heavy rains shall be entirely removed, if there is any sign of cement and sand having been washed away from the concrete mixture.
- 5.21.4 Starters: Before proceeding with erection of form work for RCC columns, Starters shall be cast with 25 mm thick concrete with string lines placed in position as per the layout.
- 5.21.5 Slots, openings, holes, pockets etc shall be provided in the concrete work in the positions specified or required or as directed by Commission Secretary or Designated Authority.
- 5.21.6 Reinforcement and other items to be cast in concrete shall have clean surfaces that will not impair bond.
- 5.21.7 Approval by the Designated authority of the Commission of any materials and work as required herein shall not relieve the contractor from his obligation to produce finished concrete in accordance with the requirements of the specifications.

**5.22 Placing of Concrete:** The contractor shall notify the Designated authority of the Commission before batching begins. Batching, mixing and placing of concrete shall be performed only in the presence of an authorized representative of the Commission Secretary or Designated Authority.

**5.23 Weather:** Concrete shall not be placed in rain sufficiently heavy or prolonged to wash mortar from concrete.

The contractor is not entitled for any additional payment over the unit prices bid in the schedule for concrete, by reason of any limitation in placing of concrete under the above paragraphs.

**5.24 Mixing:** All cement concrete shall be machine mixed and machine vibrated.

- 5.24.1 The mixer machines should comply with IS 1971-1968 (IS specifications for batch type concrete mixers).
- 5.24.2 The mixers with other accessories shall be kept in first class working condition and so maintained throughout the construction.
- 5.24.3 Any mixer that at any time produces unsatisfactory mix, shall not be used until repaired. If repair attempts are not successful, the defective mixer shall be replaced.
- 5.24.4 The Cement and aggregates shall be mixed thoroughly in the specified proportion in a mechanical mixer until the mixture is of uniform colour. Where machine mixing is done the concrete shall be mixed, until the mixture is of uniform colour and, in no case, for less than two minutes.

**5.25 Transportation, placing and compaction of concrete:**

- 5.25.1 Equipment & methods: Equipment for conveying concrete shall be of such size and design as to ensure a practically continuous flow of concrete during depositing without segregation of materials. The entire placing programme consisting of equipment, layout, proposed

procedures and methods shall be submitted to the Designated authority of the Commission for approval

- 5.25.2 After mixing, the concrete shall be transported from the mixer to the position of placing as rapidly as possible by appropriate mean without causing separation or segregation of concrete, maintaining the required workability.
- 5.25.3 Concrete shall only be placed after the Designated authority of the Commission has inspected the shuttering and reinforcement. The concrete shall be placed and compacted before initial setting of concrete commences and should not be subsequently disturbed.
- 5.25.4 The concrete shall be deposited as nearly as practicable directly in its final position and shall not be rehandled in a manner which will cause segregation, loss of materials, displacement of reinforcement, shuttering or embedded inserts, or impair its strength. Concrete shall be placed in the shuttering by approved implements and shall not be dropped into place from a height exceeding 1 meter or handled in a manner which will cause segregation.
- 5.25.5 Concrete shall be deposited in successive horizontal layers to a compacted depth of not more than 0.45 meters. These shall be placed as rapidly practicable to prevent the formation of cold joints or planes of weakness between each succeeding layer within the pour.
- 5.25.6 When concrete is conveyed by chutes, the plant shall be of such size and design as to ensure practically continuous flow. Slope of the chute shall be so adjusted that the concrete flows without the use of any excessive quantity of water and without segregation of its ingredients. The delivery end of the chute shall be as close as possible to the point of deposit. The chute shall be thoroughly flushed with water before and after each working period and the water used for this purpose shall be discharged outside the form work.
- 5.26     **Compaction:**** All concrete shall be compacted to produce a dense homogeneous mass. Concrete after depositing should be compacted thoroughly by means of a mechanical vibration. Vibrators shall conform to IS specifications. Vibrators of the surface, form or Immersion type shall be used and the concrete shall be thoroughly worked out around the reinforcement, around embedded fixtures and into corners of form work. The hardened concrete shall be free from voids or cavities. Over vibration and under vibration of concrete are harmful and should be avoided. Use of polythene sheet is recommended above the shuttering to arrest the slurry loss through the shuttering joints while placing and compacting the concrete.
- 5.26.1 Vibrators shall be operated by experienced men. Immersion vibrators shall be inserted vertically at points not more than 45 cms apart. Immersion vibrators shall be withdrawn slowly. Blending and melding of the concrete between successive layers shall be ensured. Vibrations shall not be applied through reinforcement and where vibrators of the immersion type are used, contact with reinforcement and all inserts shall be avoided.
- 5.26.2 Prior to beginning concrete placement the contractor shall make ready sufficient number of properly operating vibrators & operators and shall have readily available additional vibrators to replace defective ones during the progress of concrete placement.
- 5.27     **Finishing :**** When the structure is in service all the surfaces shall receive no special finish except removal of fine and abrupt irregularities and clean up of loose debris. Unless varied by the Designated authority of the Commission, the type of finish for formed concrete shall be as follows. The concrete surfaces shall be consolidated, smooth screeded, and

leveled to produce even surfaces. Floating shall be done only after the screeded surface has attained a stiffness to permit finishing operations. The surface shall be uniform in texture and free from screed marks or other imperfections.

5.27.1 Concreting shall be carried out continuously up to construction joints already planned. Joint shall be kept where shear force is minimum. The work shall be resumed at the earliest by scrubbing the wet surface with wire brush and coating the surface with neat cement slurry. The prepared surface shall be approved by the designated authority of the Commission. Special care shall be taken to obtain thorough compaction and to avoid segregation of the concrete along the joint plane.

**5.28 Protection of works:** The contractor shall protect all concrete against damage until final acceptance by designated authority of the Commission. The fresh concrete shall be protected from defacements and damage due to construction operations, rain, sun and winds. The contractor shall provide protection to prevent erosion to fresh concrete whenever precipitation either periodic or sustaining is imminent or occurring. All fresh concrete surfaces shall be protected from contamination and from foot traffic until the concrete has hardened.

**5.29 Replacement of unsatisfactory concrete:** Immediately after the shuttering is removed, the surface of the concrete shall be very carefully gone over and all defective areas called to the attention of designated authority of the Commission. If reinforcement is exposed or the honey combing occurs the work may be rejected. Rejected concrete shall be removed and replaced by the contractor. Superficial honey combed surfaces and rough patches if permitted by the Commission Secretary or Designated Authority shall be made good and finished neatly as per specifications and as directed.

**5.30 Curing of concrete:** Rigid supervision shall be maintained for curing the concrete after laying for complete hydration and hardening to take place. The set concrete shall be cured by ponding with clean water. All exposed faces of concrete shall be kept continuously moist for a minimum period of 28 days by spraying water or by covering with gunny bags which shall be constantly sprinkled with water. The curing operation should be done by using stirrup pump, or by any other methods given code IS 456-1984. For curing floors, flat roofs, concrete pavements and other level surfaces the ponding method of curing shall be adopted.

### **5.31 CENTERING (FORM WORK) AND SHUTTERING**

5.31.1 **Steel Formwork:** Only steel forms of approved make (Acrow steel centering) shall be used. Forms with surface dents, bulges, undulations or holes shall not be used on the work and shall be removed from the site.

5.31.2 Form work shall be substantially and rigidly constructed of steel and shall be true to the dimensions described. Form work shall be constructed to confine and shape the concrete to the required shape, lines and dimensions described. Liners and cores shall be provided where necessary and shall be due to space and securely fixed.

5.31.3 Shuttering shall be erected true to line and securely braced, cross braced, strutted and supported to prevent deformation under the weight of pressured wet concrete and constructional loads, wind pressure and other forces.

5.31.4 The surfaces of the forms shall be clean and free encrustation of mortar, grout or other foreign materials.

- 5.31.5 The variation in thickness of RCC roof slab due to varying spans or special covering materials should not effect the general roof bed which should be uniform, unless otherwise shown in drawing or as instructed.
- 5.31.6 All joints shall be sufficiently tight and adhesive tapes applied to prevent leakage of cement slurry. All faulty joints shall be adequately caulked.
- 5.32.1 Mould Oil:** Before laying the reinforcement, all faces of shuttering and moulds in contact with wet concrete shall be treated with a coat of oil to prevent adherence to concrete. Release agent should be applied so as to provide thin uniform to the forms without coating the reinforcement.
- 5.32.2** The mould oil (The de-bonding agent) to be applied shall be standard shuttering oil, engine oil or filtered waste oil (Carbon particles and impurities should not be present).
- 5.32.3** Plumb and string lines in sufficient numbers shall be installed before and maintained during concrete placement. During concrete placement the contractor shall continuously monitor plumb, string line and form positions.
- 5.32.4** In case of columns, retaining walls and vertical structural components suitable arrangement shall be made for securing the form to the already poured concrete.
- 5.33 Reinforcement for RCC works:**
- 5.33.1 Unless shown otherwise in the drawings, the reinforcement to be used shall be of High Yield Strength Deformed (H.Y.S.D.) bars of grade Fe-415 conforming to IS 1786-1985.
- 5.33.2 Reinforcement shall be steel and shall be free from corrosion, oil, grease, paint or dirt at the time of fixing in position and subsequent concreting.
- 5.33.3 Reinforcing steel bars shall conform accurately to the sizes, dimensions and shapes given as per designs and drawings. Bars shall be bent cold to the specified shape and dimensions and the bars shall be hooked or bent accurately and placed in exact position as per designs and drawings. Bars having kinks or bends other than those required by design shall not be used.
- 5.33.4 Bars of full length shall be used. Reinforcement shall be lap jointed or spliced only if unavoidable. The overlaps shall be staggered for different bars and located at points, along the span where neither shear nor bending moment is maximum. Not more than 33% of the bars as specified in drawing shall be lapped at one section.
- 5.33.5 The reinforcement shall be securely held in position and bound together tight by annealed binding wire, and by using stays, blocks or metal chairs, spacers, metal hangers, supporting wires or other approved devices at sufficiently close intervals.
- 5.33.6 Bars shall not be allowed to sag between supports. Layers of bars shall be separated by spacer bars, pre-cast blocks or other approved devices. Binders, stirrups, links should be securely wired to the main ring.
- 5.34.1 Binding Wire:** Wire for binding reinforcement TATA make shall be soft and annealed mild steel of 16 SWG and shall conform to IS: 280-2006. Binding wire shall have tensile strength of not less than 5600 Kg/Cm<sup>2</sup> and a yield point of less than 3850 Kg/Cm<sup>2</sup>.

- 5.34.2 Proper cover shall be maintained between the reinforcement and the shuttering as per approved drawings and IS codes.
- 5.34.3 The contractor shall ensure that the bars are not displaced during concreting or any other operation over the work. The contractor shall also ensure that there is no disturbance is caused to the reinforcing bars in concrete that has already been placed.
- 5.34.4 All bars protruding from concrete and to which other bars are to be spliced and which are likely to be exposed for an indefinite period shall be protected by a thick coat of neat cement grout.

### **5.35 Measurement and payment**

#### **a. Measurement:**

Measurement for payment for the reinforcing bars will be made only on the calculated weight of the bars placed in concrete, in accordance with the drawings or as directed by the Commission Secretary or Designated Authority. The calculated weight for reinforcing bars shall be determined as follows:

- i. Reinforcement shall be measured in length separately for different diameters as actually used in the work including the lengths of hooks at ends, spacer bars; reinforcement chairs and overlaps to the extent permitted by Commission Secretary or Designated Authority.
- ii. From the length measured, weight of reinforcing bars shall be calculated on the basis of weights specified in the table in this section.
- iii. Wastage and annealed steel wire for binding shall not be measured as the cost of these items were already included in the unit rate for reinforcement.

#### **Payment rate**

The unit rate in the bill of quantities for reinforcement is inclusive of the cost of all wastage of steel and the cost of binding wire or welding materials at site of work, cover blocks and cost of all incidental and operational charges in cutting, bending, cleaning, placing, binding or welding and fixing in position as shown on the drawings and as necessary to complete the work as per specification.

### **5.36 Cover Blocks**

- a) Before concreting, cover blocks shall be fixed in all R.C.C works to separate the reinforcement from the shuttering so that when the concrete is set the reinforcement is well within the concrete section at a distance from the outer surface, with specified cover to reinforcement.
- b) Use of stone chips as cover for the reinforcement will not be accepted. Only cement mortar cover blocks of required thickness to maintain the specified cover shall be used.
- c) Normally a bottom cover of 12mm to 15mm is sufficient for slabs. For columns the cover should be about 40mm, and for beams it is 25mm.
- d) Cover blocks shall be reasonably good for using in appropriate grade of R.C.C. work. The mortar for preparing cover blocks shall at least be of proportion 1:2.

Cover blocks shall be prepared on a clean and level platform by spreading the mortar in the moulds of required size and depth. When the mortar is still green strands of tying wire shall be inserted into each block. This wire is useful for tying the block to the reinforcement. After 24 hours the blocks shall be removed from the mould and cured for about seven days.

- e) A properly made cover block does not get crushed when the reinforcement is tied over it and during the concreting work.

### 5.37

#### **Reinforcement chairs**

- a) When the reinforcement is tied there is a need to separate bottom steel from the top steel and to maintain correct effective depth.
- b) For ensuring separation to top and bottom steel and to ensure that the reinforcement work does not get disturbed due to the load or movement of workers when concrete is being laid, reinforcement spacers or chairs shall be fixed.
- c) Use of large sized stones or bricks to separate top and bottom steel will not be allowed.
- d) Reinforcement chairs shall be of slightly lesser size so as to accommodate the chair underneath the top steel and after allowing for the required covers to the top and bottom steel.
- e) The chair shall be minimum 450mm long and should have legs bent in opposite directions to ensure stability,
- f) The chairs shall be placed on a cover block so that the legs do not stick out once the shuttering is removed.

### 5.38

**Removal of Form work:** Centering and shuttering shall be removed after maturity gradually without jerking. Before removal of the shuttering the concrete shall be examined properly. Form shall not be released until the concrete has achieved strength of at least twice the stress to which the concrete may be subjected at time of removal of form work. The strength referred to shall be that of concrete using the same cement and aggregates, with the same proportions and cured under conditions of temperature and moisture similar to these existing on the work. Where possible, the form work shall be left longer as it would assist the curing.

**Stripping Time:** In normal circumstances where ordinary portland cement is used and adequate curing is done, form work may generally be removed after expiry of the following period:

<b>Type of Formwork</b>	<b>Minimum Period Before Striking Formwork</b>
a) Vertical formwork to columns, walls, beams	16-24 hours
b) Soffit formwork to slabs (Props to be refixed immediately after removal of formwork)	3 days
c) Soffit formwork to beams/ Flat slabs (Props to be refixed immediately after removal of formwork)	7 days

d) Props to slabs:		
1) Spanning up to 4.5 m		7 days
2) Spanning over 4.5 m		14 days
e) Props to beams and arches:		
1) Spanning upto 6 m		14 days
2) Spanning over 6 m		21 days

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The number of props left under the concrete element, their sizes and dispositions shall be such that they shall be able to safely carry the full dead load and live load likely to occur during further construction.

The contractor shall be liable for damage and injury caused by removing the forms or props before the concrete has gained sufficient strength.

### 5.39 Conditions on RCC slabs/ Roof Slabs

5.39.1 The R.C.C. slab laid should be leak proof for roof slab. Approved leak proofing compound shall be used for the cracks. After observing for two rainy seasons as defect liability period if the roof or floor is found to be perfectly leak proof and no moisture or dampness is seen underneath at ceiling of the slab, the contractor can ask for refund of E.M.D. or F.S.D. from the TSERC. If there are any defects noticed after laying of roof they must be attended to by the contractor at his own cost. Further the contractor must arrange to get the structure treated as per clause 21 of ISI code No.456/2000 at his own cost on the instructions of the TSERC.

When R.C.C. slab is laid, the contractor shall carry out the following tests at his own cost to prove that the slab is impervious.

- a) After the centering is removed and curing period is over the slabs shall be put to test by stagnating water of 15 cms depth for one week and watched carefully to test the leakages if any.
- b) If there are any leakages, the contractor shall immediately rectify the same at his own cost and again test the same to see that there are no leakages. No payment will be made to the contractor on this account either for testing or for rectifications thus carried out.
- c) The officer observing the leakage test shall issue a certificate to that effect before final bill is made.

5.39.2 The variation thickness of R.C.C. roof slab due to varying spans, or special covering materials should not effect the general roof bed which should be uniform unless otherwise shown in drawings or instructed.

5.39.3 For all slabs to be laid MS hooks to be provided as directed by the TSERC for fixing fans and lights etc., G.I. pipes or PVC or CPVC pipes has to be provided as directed by the TSERC in the masonry walls or concrete at the specified places for making electrical wiring.

**TABLE – IV**

For Vibrated Reinforced Concrete Items (V.R.C.C.)

**Characteristic Strength of Cube at the age of 28 days of curing**

M-35	Design mix	35 N/mm <sup>2</sup>	=	350 Kgs / cm <sup>2</sup>
M-30	Design mix	30 N/mm <sup>2</sup>	=	300 Kgs / cm <sup>2</sup>



$$M-25 \qquad \text{Design mix} \qquad 25 \text{ N/mm}^2 \qquad = \qquad 250 \text{ Kgs / cm}^2$$

**5.40 Cement Plastering in two coats CM 1:6 & CM 1:4 (APSS 901, 903 & 904)**

- 5.40.1 The surface shall be prepared by roughening of the back ground and raking the joints. The surface of the wall shall be kept wet for 2 hours before plastering.
- 5.40.2 Guides: Patches of 15cm X 15cm of required thickness at not more than 2 meters intervals horizontally and vertically shall be applied over the entire surface truly in the plane and truly plumb to serve as guides.
- 5.40.3 Plaster shall be started from the top and worked down towards plinth. The work shall be tested frequently with a plumb bob and straight edge.
- 5.40.4 The Mortar in 1:6 proportions shall be dashed and pressed over the surface and then brought to smooth and uniform surface by means of float and trowel. The plaster shall be well pressed into the joints.
- 5.40.5 After the first coat the surface is left rough to receive the second coat. The final coat shall be applied a day or two after the first coat put on has set, but the first coat shall not be allowed to dry. The final coat shall consist of 1 part of cement to 4 parts of fine sieved sand and shall be applied as in the first coat and brought to a uniform surface and then finished with a sponge to give granular appearance.
- 5.40.6 All corners, junctions and arises shall be brought truly to a line, level and plumb.
- 5.40.7 The finished surface shall be watered for a period of atleast 10 days.
- 5.40.8 Theoretical requirement of cement for plastering should be as follows :-

Cement bags of 50 kgs.

a. 12 mm plastering in C.M. (1:5)& C.M. (1:3)	1.02 bags per 10 Sqm.
b. 12 mm plastering in C.M. (1:6)& C.M. (1:4)	0.82 bags per 10 Sqm.
c. 20 mm plastering in C.M. (1:6)& C.M. (1:4)	1.15 bags per 10 Sqm.
d. 12 mm plastering in C.M. (1:4)	1.08 bags per 10 Sqm.
e. 12 mm plastering in C.M. (1:6)	0.72 bags per 10 Sqm.

**5.41 Water proof plaster over the roof**

- 5.41.1 On the clean wet surface of the concrete slab, before it has set, a layer of cement plaster shall be laid to give an average depth of 20mm over the concrete.
- 5.41.2 The Mortar to be used shall be of CM 1:3 proportions mixed thoroughly with a standard water proofing material with water repelling properties to ensure non-absorption.

- 5.41.3 Gauges should be put on the floor about ten feet apart to ensure even thickness.
- 5.41.4 Plastering must be done in squares or strips to avoid cracks. After the floor has been completed, it shall be covered with two inches of grass; sand or saw-dust and kept wet for three weeks.

#### **5.42 Pointing: (APSS - 906)**

- 5.42.1 Cement mortar for pointing shall conform to SS:115 and shall be of 1:3 proportions.
- 5.42.2 The joints in the masonry shall be raked out to a depth not less than the width of the joint, when the mortar is green. Joints are to be brushed clean of dust and loose particles with a stiff brush. The area shall then be washed and the joints thoroughly wetted before pointing is commenced.
- 5.42.3 The mortar shall be pressed into the raked out joints according to the type of joint required. The mortar shall not be spread over the corners, edges or surface of the masonry. The pointing shall then be finished with proper tool. The superfluous mortar shall be cut off from the edges of the line and the surface of the masonry shall be cleaned of all mortar.
- 5.42.4 Pointing could be either flush pointing, or groove pointing.

#### **5.43 Notes on Pointing**

- i) Flush pointing with a groove or a line appears neat and does not spoil the look of the stone or brick masonry.
- ii) As far as possible a minimum amount of mortar shall be used to avoid wastage.
- iii) The edges shall be neatly trimmed with a trowel and a straight edge.
- iv) While mortar is green a groove shall be formed by running a tool along the center lines of the joints. This operation shall be continued till a smooth and hard surface is obtained.
- v) Even the vertical joints shall be finished in a similar fashion.
- vi) Even when the job is done carefully, there is always an amount of superfluous mortar sticking to the masonry. This should be wiped off with a wet cloth.
- vii) After the work is set and dry i.e., after one or two days the stones shall be cleaned with a strong acid so as to remove the cement stains.
- viii) After cleaning with acid the stones shall be cleaned with soap water to ensure natural colour of the stones.
- ix) If care is taken as shown above the pointing work will look attractive and neat, and the natural appearance of the stone masonry is retained.

#### **5.44 Flooring: (APSS 701 & 702)**

##### **5.44.1 Granite Flooring:**

Flooring shall be with high polished colour granite stone slabs 18 to 20 mm thick of size not less than 2.40 mts length, laid over existing RCC slab or CC bed.

All the stones in one room shall be preferably of same width and shade. The width of all the slabs in one row must be uniform with longitudinal joints parallel to each other.

The joint width shall be kept minimum and the sides of the slab shall be chisel dressed to ensure a correct joint.

##### **5.44.2 Granolithic concrete flooring (APSS No. 701 & 710)**

The mix proportions for the Granolithic concrete floor topping shall be (1:2:4) (Cement : F.A. : C.A) by volume. The minimum amount of water which will give necessary workability for adequate compaction shall be added. The grading of the course aggregate for Granolithic concrete shall be from 6mm to 12mm. The finished thickness of flooring shall be 50mm thick or as specified in the approved drawings and the panels into which the floor is divided for laying the Granolithic concrete shall not have any panel dimensions in excess of 5.0m.

#### **5.45 Joinery :**

For all wood/iron/ Aluminium work a sample of each item i.e., frame with shutters complete should be prepared and got approved by the Designated authority of the Commission before they are manufactured in full quantities and fixed in position.

The furniture and fixtures and wind appliances for wood work should be of best quality available in the market, and should be got approved by the Designated authority of the Commission before fixing.

#### **5.46 Door Frame :**

##### **Wooden Doors & Windows:**

The wood shall be of Best Sal wood/Best Teak wood as specified in Bill of quantities for frames and shutters.

The wood shall be well seasoned, uniformly coloured and shall be free from knots, cracks, shakes, splits, cross grains etc.

The wood shall be durable and of reasonably straight grains.

Moisture content of the wood used shall be as near as possible to the following values:

Recommended **values of moisture content** in timber at the time of assembly or framing.

<b>Type of work</b>	<b>Coastal area</b>	<b>Land area</b>
Frames of windows	16 to 18%	14 to 15%
Shutters of windows etc.	15 to 16%	12 to 14%

### **Construction and fixing**

Frames shall have dovetail, tenon or mortise joints.

Before fixing in position, the frames shall be inspected and passed by the Commission Secretary or Designated Authority. A coat of primer shall be applied before the frames are fixed in position. All portions of untreated timber abutting against masonry or concrete shall be painted with boiling coal tar or approved preservative, before placed in position.

The frames shall be erected in position and held plumb with strong supports from both sides.

Hold fasts shall be embedded in C.C. beds as specified.

Frames shall have dovetail, tenon or mortise joints.

Frames without sills shall be provided with temporary wooden bracings between the styles at sill level which can be withdrawn after the frame is firmly set.

### **5.47 Flush shutters for doors :**

5.47.1 **Flush shutters (Double/Single) :** should be factory made ISI marked confirming to IS 2202-1991 (part-I), 35mm thick with bond wood solid block board type core having cross bonds and face veneers hot pressed bonded with water proof phenol formaldehyde synthetic resin, with lipping on all sides.

5.48 **Construction :**The block board core shall confirm to the requirements specified in clause 7.1.1. of IS 2202 (Part I) : 1991. The frame constructed of stiles and rails shall be provided for holding the core. The width of the frame including internal lipping shall not be less than 45 mm and not more than 75 mm.

### **5.49 Plywood**

5.49.1 **Plywood :**used in flush door shutter shall confirm to IS 710 : 1976 with surface requirements confirming to type AB of IS 303 : 1989.

5.49.2 Cross-bands used in flush door shutter shall confirm to the requirements laid down in IS 710:1976.

### **5.50 Face Veneers:**

5.50.1 Face Veneers used in flush door shutters shall confirm to the requirements laid down for veneer for BWP grade plywood in IS 710:1976.

5.50.2 All Plywood, cross – boards and veneer used shall be treated in accordance with clause 6.1.5.1. of IS 2202 (Part I) : 1991.

- 5.50.3** Adhesive used for bonding plywood or cross bond and face veneer to core shall be phenol formaldehyde synthetic resin adhesive conforming to BWP grade specified in IS 949:1974.
- 5.50.4** Internal lipping shall be of Teak wood and shall have a total depth not less than 25mm. It may be provided separately, when it is of species different from that of backing or as one piece with the style, designated as frame-cum-lipping, when internal lipping and backing are of the same species.
- 5.50.5** External lipping shall be of teak wood and shall be solid and shall measure at least 6mm on the face of the door. It shall be provided all round the shutter in case of single shutter and on three sides in case of double shutter.
- 5.50.6** In case of double leaved shutters, the sheeting of the stiles shall be rebated by 8mm to 10mm. The rebating shall be either splayed or square type as per clause 7.7 of IS 2202 (Part – I) : 1991. The depth of lipping at the meeting of stiles shall not be less than 30mm.
- 5.50.7** Shutter shall be shop prepared for taking mortise locks or latches as may be ordered.
- 5.50.8** Workmanship and the finish of the face panels shall be in conformity with those specified in IS 303:1989
- 5.51 Tests :**Knife test, glue Adhesion test, End Immersion test, slamming test shall be carried out as per clause 10 of IS 2202 (Part – I) 1991. The sampling and criteria for conformity, making etc. shall also be as per IS 2202 (Part – I) : 1991.

## **5.52 Windows**

### **5.52.1 Seccolar Systems**

#### **Windows / Ventilators**

Windows / Ventilators fabricated from pre painted Steel Sections, made out of cold rolled steel as per ISD 513 of 0.6mm thick 'D' quality, galvanized as per IS 277 with zinc of 120 gm/sq.mtr. Primer Coat of Epoxy Primer of 7 microns thick, finish paint with a modified polyester paint of thickness between 13 – 20 microns, and back coat with Alkyd/Polyester of 7-12 microns. The size of profiles is approximately 56 x 46mm for internal shutter frames and 46 x 52mm for External shutter frames. Shutter in fitted with 4mm thick plain/pinheaded glass fixed with EPDM gaskets in the groove provided in the profile.

### **5.53 ALLUMINUM DOORS, WINDOW & VENTILATORS:**

- (i) Aluminium doors, windows and ventilators: All extruded aluminium section to be used for fabrication shall be hollow aluminium alloy extrusions conforming to designation 63400 of IS: 1285. Aluminium Doors, Windows and Ventilators shall confirm to IS 1948:1961
- (ii) All extruded aluminium sections and fixtures shall be coated with natural colour anodic coating in accordance with IS 1868.
- (iii) The mortice locks shall be provided in accordance with IS 2209.

- (i) The floors springs (hydraulically regulated) shall be in accordance with IS 6315:1992.

**5.54 Q.C. Clearance:** The doors & windows (both frames & shutters) and ventilators should be got cleared by the Commission Secretary or Designated Authority / Quality Control agency authorised by the Designated authority of the Commission. The tests will be conducted at the manufacturer's place and Q.C. clearance certificate will be issued for the lot before supply to site for use in construction. All the arrangements for testing at the manufacturer's place should be made by the contractor at his cost. No door, window or ventilator should be fixed without clearance of Designated authority / Q.C. agency. The contractor should inform the Designated authority /Q.C. agency for testing and clearing at least 7 days in advance.

## **6.0 ADDITIONAL SPECIFICATIONS:**

### **6.1 Anti Termite Treatment**

If the site is infected with white ants, all the ant hills shall be dug out completely and queen ants destroyed. Anti-termite treatment, before construction in foundation and basement where required shall be done as per I.S. code 6313 Part II 2001.

Chemicals used, the relevant I.S. specifications for the same and their usual concentrations as water emulsions for soil treatment shall be as given in table 201.9 of S.S. 201 APSS.

### **6.2 Structural Glazing:**

The structural glazing shall be made up of electro colour anodized (having 15 micron anodic coating) aluminium structural sections of not less than 101.5 x 57 x 2 mm box sections for all mullions and not less than 63 x 57 x 2 mm box section for all transoms of structural glazing system and sub frame of 26.5 x 20 x 1.8 mm size. The members shall be fixed in grid pattern mechanically joined with Aluminium cleats and GI metal screws. The frame shall be fixed to the beam / slab/ soffit with GI brackets and fasteners. Glazed panels shall be made using 5 mm thick heat strengthened reflective glass of St.Gobain / Glaverbel / Equivalent make as approved by the designated authority fixed to the sub frame with 6 x 12mm spacer tapes of Norton make or equivalent and structural silicone bonding using G.E. SILICONE (SSG 4000) or DOW CORNING (795). The gaps between glazed panels shall be sealed with suitable Bakor rod and Silicon weather sealant of GE / DOW CORNING are to be applied to provide water tightness of glazing frame. Necessary masking tapes are to be used to prevent spreading of sealant over glass panels.

### **6.3 ACP Cladding:**

The Aluminium wall cladding shall be fabricated with a minimum of 4mm thick Aluminium composite panel of approved make comprising of thermoplastic resin core sandwiched between two skins of 0.25mm thick aluminium alloy. The panel shall be PVDF coated to minimum 35 micron thickness of approved metallic colour. The resin content of PVDF shall be 75% to 80%. The back of the panel shall be chromatised 3 - 4 microns. The Aluminium composite panel shall be mounted on frames made of 50 x 25 x 1.5 mm aluminium extruded tubes fixed to the column / beams / walls with Anchor bolts, screws and GI brackets and fasteners wherever required.

#### **6.4 Aluminium Louvers:**

Supply and fixing of powder coated (approved shade) Aluminium Louvers, using 63 x 37 x 1.5mm, Aluminium box section for main frame, the aluminium louver blades of size 103 x 50 x 1.5 mm thick shall be fixed to the main frame using G.I sheet metal screw as shown in the drawing. The spacing between the each louver blade shall be 75 mm.

#### **6.5 a) Expansion Joints**

Structures in which marked changes in plan dimension take place abruptly shall be provided with expansion joint at the section where such changes occur. Expansion joint shall be so provided that the necessary movement occurs with a minimum resistance at the joint. The structures adjacent should preferably supported on separate columns of walls but not necessarily on separate foundations reinforcement shall not extend across an expansion joint and the break between the sections shall be complete. The details as to the length of a structure where expansion joints have to be provided can be determined after taking into consideration various factors such as temperature exposure to weather etc. For the purpose of general guidance however it is recommended that structure exceeding 45M in level to shall be decided by one or more expansion joints (SS No. 403.8 & IS 456).

#### **b) Construction Joints**

Vertical joints in floor and roof slabs shall be provided in the case of long building of more than 30M in length specially when the width or depth of such buildings are less than 15M and when narrow corridors connect blocks of relatively greater width. The most suitable position for such vertical joints are where the corridors take off from inner blocks. On soils such as black cotton, such joints are more essential shall be invariably provided at the places shown in the drawing or as directed by the Commission Secretary or Designated Authority. Construction joints when necessary shall be located as follows.

In the main beam over the centre of support. No vertical joint shall be permitted in case of main beams. In other cases they shall be provided if necessary in the following location.

- i) In subsidiary beams at mid span.
- ii) In the case of slabs the joints wherever possible shall be parallel to main reinforcement. In the case of one way reinforced slabs and over the centre of supporting beams or walls in other cases. In general the joints shall not be provided in locations of considerable shear or under concentrated loads.

Suitable water stops as specified shall be provided in the case of water retain structures (SS No. 403.7).

#### **6.6 Bearings of R.C.C. Slabs & Beams**

- a) Where supports are not monolithic with the beam or slab the bearing surface shall be plastered with cement mortar 1:3 with the craft paper laid over the plaster, before laying the concrete.

- b) The vertical face of the masonry rebate at bearings shall be plastered smooth with CM 1:3. For beams the craft paper shall be continued to the sides by folding the paper neatly to the plastered vertical face of the masonry opening.

## **6.7 Load testing of structures**

Load testing of structures shall conform to SS No. 403 APSS. Load tests on completed structures shall be made of required by the specifications or condition of contract or by the Commission Secretary or Designated Authority in the event of reasonable doubt as to the adequacy of the strength of the structure. Such tests shall be carried out after expiry of 56 days of effective hardening of the concrete test loading of structures, allowable deflections, recovery of deflection etc., shall be as per clause 17.6 of IS: 456-2000.

## **6.8 OVERHEAD TANKS**

6.8.1 The tenderer shall be solely responsible for handing over a watertight structure. Failing which, he will not be entitled to final payment under this contract. The period of guarantee required for the contract, before which he will not be entitled to final payment under this contract, shall be two years after completion of the reservoir and putting in into commission and-during this period the structure under full working head of water shall neither develop any defects which will endanger its stability nor shall it show signs of leakage. The above guarantee period of two years shall commence from the date of first filling of the reservoir with water upto the maximum water level.

6.8.2 Cash security to the value of 5 (five) percent of each bill will be recovered from payments due to be made to the contractor and credited to deposits. These deposits together with earnest money and security deposit required under the terms of the contract will be retained till the expiry of the guarantee period and until a certificate of soundness of the structure is furnished by the designated authority. The whole of the above sum together with any recovery, from the payment already made, as may be assessed by the designated authority shall be forfeited to the TSERC if the reservoir developed leaks. The above percentage recovery shall be exclusive of the amount withheld under Clause 68 of Preliminary Specifications to the APSS.

6.8.3 The work shall be executed according to the standard specifications for the reinforced concrete given in APSS and relevant Indian Standard No. IS:3370 parts I, II and IV and also the notes on reinforced concrete, contained therein, subject however to the modifications indicated hereunder. All concrete shall be mixed in power or diesel driven concrete mixers and placed in such a manner so as to prevent segregation of heavy aggregate. It is absolutely essential that most careful attention is to be paid by the contractor in preparation, mixing and placing to secure a dense concrete necessary for water tight structure. Special care is necessary at expansion joints, where 6" wide Rubber water stopper is to be inserted and all construction joints shall be treated as stipulated in IS:3370 part I to ensure water tightness. The amount of water required to produce the least shrinkage effects should be carefully gauged. The clear cover of reinforcement rods shall conform to those specified in IS:3370 Part II.

6.8.4 The contractor should be prepared to arrange on his own responsibility sufficient number of concrete mixers and vibrators as may be required. Test cubes' should be taken and got tested periodically at the expense of the contractor and the results shall confirm to IS:456-1964. No patent water proofing compound shall be mixed in concrete, nor applied to the surface nor shall plastering be done to the interior of the reservoir as those are liable to give defective results on the life and water tightness of the reservoir.



6.8.5 All faces of the reservoir interior, and sub-structures shall be free from honey-combing and shall present a smooth dense surface and shall be free from work ridges and shall be given cement wash to improve the appearance. If any honey combing is seen on the finished surface of the concrete, it shall be rectified by gunting at the contractor's expense.

6.8.6 Testing and Inspection of Tanks:

After the tank is constructed, it shall be filled gradually with potable water. During testing, lime or sodium silicate or any other chemical shall be added to the water. After filling the water upto full supply level (Le. MWL) of the tank, it is maintained for seven days initially. After this initial period, the fall in the water level shall be obtained at every 24 hours interval for a further period of seven days.

The average loss of water in 24 hours shall not exceed the following:

- a) 0.1% of the capacity of tank
- b) 5mm fall in the level
- c) 2 Litres per Sq. Metre of the water contact area.

6.8.7 Additional allowance upto 0.5mm fall in level may be made for high exported loss in summer depending upon the local conditions. Records shall be kept of leaks, if any, at different levels of water.

6.8.8 If the water tightness test is still found to be not satisfactory the contractor shall be required to carryout tests to localise the leakages at his cost.

The contractor shall then be required to take such measures as the designated authority of the Commission specify to make the structure water tight to the extent described. Entire rectification work shall be at the contractor's cost. All the arrangements required for testing shall be at the contractor's cost. Payment will be made at the quoted rate only after conducting water tightness test successfully however subject to operation of condition.

**7.0 Safety Specification:**

7.1 All the necessary safety appliances as per IS: 4130 shall be issued to the workers and their use explained. It shall be ensured that the workers are using all the safety appliances while at work.

7.2 Walkways and passageways shall be provided for the use of the workman who shall be instructed to use them and all such walkways and passageways shall be kept adequately lighted, free from debris and other materials.

7.3 During night, red lights shall be placed on or about all the barricades.

7.4 All the roads and open area adjacent to the work site shall either be closed or suitably protected.

7.5 All nails in any kind of lumber shall be withdrawn, hammered or bent over as soon as such lumber is removed from the structure and placed in pipes for future cleaning or burning.

- 7.6** No electric cable or apparatus which is liable to be a source of danger or a cable or apparatus used by the operator shall remain electricity charged.
- 7.7** Where in any work of demolition it is imperative, because of danger existing to ensure that no unauthorized person shall enter the site of demolition outside working hours, a watchman should be employed. In addition to watching the site, he shall also be responsible for maintaining all notices, lights and barricades.
- 7.8** On every demolition job, danger signs shall be conspicuously posted all-round the structure and all door openings giving access to structure shall be barricaded or marked except during the movement of actual workmen or equipment. However provision shall be made for at least two independent exits for escape of workmen during any emergency.
- 7.9** The removal of a member may weaken the side wall of an adjoining structure and to prevent possible damage, these walls shall be supported until such time as permanent protection is provided. In case any danger is anticipated to the adjoining structure the same shall be got vacated to avoid any danger to human life.
- 7.10** The power on all electrical service lines shall be shut off and all such lines cut or disconnected at or outside the property line, before the demolition work is started. Prior to cutting of such lines the necessary approval shall be obtained from the electrical authorities concerned for demolition work itself.
- 7.11** All gas, water, steam and other service lines shall be shut off and capped or otherwise controlled at or outside the building line, before demolition work is started.
- 7.12** All the mains and meters of the building shall be removed or protected from damage.
- 7.13** If a structure to be demolished has been partially wrecked by fire, explosion or other catastrophe, the walls and damaged roofs shall be shored or braced suitably.
- 7.14** All practical steps shall be taken to prevent danger to persons employed from risk of fire or explosion or flooding. No floor, roof or other part of the building shall be so overloaded with debris

## Codes and Standards

### SCHEDULE - A

#### LIST OF SPECIFICATIONS FOR THE VARIOUS ITEMS OF WORKS SUPPLEMENTING THOSE DESCRIBED IN BOQ BY S.S. NUMBERS GENERAL SPECIFICATIONS

Sl.No.	Description	IS.No. and as amended from time to time
<b>A) LIST OF INDIAN STANDARDS</b>		
<b>I.</b>	<b>PIPES &amp; FITTINGS FOR SANITARY, PLUMBING, DRAINAGE</b>	
1	Lead Pipe	IS 404:1993
2	Lead sheet	IS 405:1992

Sl.No.	Description	IS.No. and as amended from time to time
3	Pre-cast Concrete pipes with or without reinforcement – Specifications	IS 458:2003
4	Specification for Salt-glazed stone ware pipe and fittings	IS 651:1992
5	Method of test for concrete pipes.	IS 3597:1998
6	Specification for Caulking lead.	IS 782:1978
7	Centrifugally cast (spun) iron pressure pipes for water, gas and sewage.	IS 1536:2001
8	Vertically cast iron pressure pipes for water, gas and sewage.	IS 1537:1976
9	Cast iron fittings for pressure pipes for water, gas and sewage	IS 1538:1993
10	Specifications for Centrifugally Cast (Spun) Ductile Iron Pipes for Water, Gas and Sewage	IS 8329:2000
11	Specification for high density polyethylene pipes for potable water supplies.	IS 4984:1995
12	Mild steel tubes and tubulars.	IS 1239
13	Specification for Chemically resistant salt-glazed stone ware pipe and fittings.	IS 3006:1979
<b>II</b>	<b>WATER SUPPLY FITTINGS</b>	
1	Specification for Pillar taps for water supply purpose	IS 1795:1982
2	Specification for Plug cocks for water supply	IS 3004:1979
3	Washers for use with fittings for cold water services.	IS 4346:1982
4	Specification for Self closing taps for water supply	IS 1711:1984
5	Specification for cast copper alloy screw down bib taps and stop valves for water services.	IS 781:1984
6	Water meter boxes domestic type.	IS 2104:1981
7	Water fittings - Copper alloy float valves (horizontal plunger type) - Specification	IS 1703:2000
8	Specification for copper alloy gate, globe and check valves for water works purposes.	IS 778-1984
<b>III</b>	<b>SANITARY FITTINGS</b>	
1	Vitreous sanitary appliances (Vitreous china)	IS:2556
2	Specification for Glazed fire clay sanitary appliances.	IS 771: 1979
3	Flushing cistern for water closets and urinals.	IS 774:2004
4	Brackets and supports for wash basins and sinks	IS 775:1970
5	Wooden water closet seats and covers.	IS 776:1962
6	Plastic seats and covers for water closets	IS 2548:1996
7	Waste plug and its accessories for sinks and wash basins.	IS 3311:1979
8	Non ferrous waste fittings for wash basin and sink.	IS 2963:1979
<b>IV</b>	<b>LAYING OF PIPES</b>	
1	Code of practice for water supply in buildings.	IS 2065:1983
2	Code of practice for building drainage.	IS 1742:1983
3	Code of practice for laying of cast iron pipes.	IS 3114:1994
4	Code of practice for laying of glazed stone-ware pipes.	IS 4127:1983
5	Laying and jointing of polyethylene pipes and PVC pipes parts- I to III	IS 7634:

Sl.No.	Description	IS.No. and as amended from time to time
6	Laying of D.I pipes	IS 3114:1965
7	Code of practice for laying concrete pipes.	IS 783 :1985
<b>V</b>	<b>ROOF DRAINAGE SYSTEM</b>	
1	Cast iron rain water pipes and fittings.	IS:1230:1979
2	Specification for Asbestos cement building pipes, gutters and fittings (spigot and socket type )	IS 1626:1994
3	Cast iron/Ductile iron drainage pipes and fittings	IS 1729:2002
3	Specification for Centrifugally cast (spun) iron spigot and socket soil, waste and ventilating pipes, fittings and accessories.	IS 3989:1984
4	Code of practice for fixing rainwater gutters and down pipes for drainage.	IS 2527:1984
5	Code of practice for building drainage.	IS 1742:1983
<b>VI</b>	<b>TANKS/ MANHOLE COVERS / MISC.</b>	
1	Rectangular pressed steel tanks.	IS 804 :1967
2	Code of practice for design and construction of septic tank	IS 2470:1985
3	Specifications for Cast iron manhole covers and frames	IS 1726:1991

**Note:- The above I.S specifications mean latest over and above with amendments if any.**

- 8.0. **Materials:** Materials, fittings and appliances for sanitary and plumbing work, used in the work shall be as specified in the Bill of quantities. The contractor shall submit to the Commission Secretary or Designated Authority, samples of all materials, fittings and appliances for approval well in advance before starting the work. All materials, fittings and appliances used in the work shall confirm to the approved samples.
- 8.1. **Galvanised pipes and fittings:** -Galvanised steel pipe, fittings and accessories shall be of tested quality and shall confirm to IS: 1239 - (Part-I) 1968.
- 8.2. **Lead Pipe:-** Lead pipes shall confirm to IS:404 Weight and thickness of pipes shall be indicated in the drawings or in the Bill of quantities.
- 8.3. **Lead sheets:** Sheet lead for finishing shall weight at least 30 Kgs. per sq.m. unless specified otherwise and shall confirm IS:405.
- Bottle trap shall be of approved quality heavy brass chromium plated trap and made particularly smooth on the inside and shall have minimum 50 mm water seal and cleaning screw at bottom.
- 8.4. **Lead trap;** Lead traps shall be of the same weight and thickness for lead pipes. Lead traps wherever provided shall have minimum 50 mm water seal and cleaning screw at bottom. Traps shall be connected to wasted pipes with brass cap and lining of required sizes and wiped solder joints.

- 8.5. **High density polythelene pipes and fittings:** High density polythelene pipes and fittings shall be of tested quality and shall confirm to IS:4984-1972 and IS: 8008
- 8.6. **Cast iron pipes and accessories:** Cast iron pipes with sockets spigots ends shall confirm to IS:1230 and IS:1729.
- 8.7. IS:8008 : Specification for injection moulded HDPE (Part I to IV) fittings for potable water supplies.
- 8.8. **Manhole covers:** Manhole covers shall confirm to IS: 1726.
- 8.9. **Concrete pipes:** Concrete pipes shall be non-pressure type and shall confirm to IS: 458 and the type of joints shall be as indicated in the drawings.
- 8.10. **Salt-glazed stoneware pipe:** Salt glazed pipe shall conform to IS: 651 and IS: 4006.
- 8.11. **Sanitary appliances and non-ferrous fittings:** All sanitary appliances and non-ferrous fittings shall be of tested quality and shall confirm to the relevant Indian Standards.
- 8.12. **Joints**
- 8.13. **Cast iron Pipes:** The type of jointing for CI pipes confirming to IS: 1729 shall be socket and spigot either with molten lead wool and gasket confirming to IS: 782.

If the joints used are spigot and socket types, the spigot shall be careful centered in the socket by one or more pieces of clean white hemp/spun yarn with about 25mm overlap; sufficient yarn only shall be forced into the socket to leave a correct depth for lead caulking. The pipe shall then be examined again for line and level and the proper depth of each joint shall be tested before running the molten lead. For pouring of molten lead of ring of hemp rope shall be wrapped round the pipe at the end of the socket and the joint shall be covered with stiff damp clay. The rope shall then be removed carefully leaving V shaped large hole at the top of the joint to pour the molten lead. Lead shall be poured in one operation only. After a section of convenient length of pipe has been laid, lead shall be caulked sufficiently with caulking tools and hand hammer till the excess lead is removed and the joint shall be made neat and clean.

The type of jointing CI pipes conforming to IS: 1230 shall be socket and spigot with cement and sand. mortar (1 : 1) and gasket yarn.

The spigot shall be carefully inserted and centered in the socket by and or more pieces of thick clean hemp/spun yarn and shall be forced into the socket to leave a correct depth of 30 mm around for cement mortar. The pipe shall then be examined again for line and level and the proper depth of each joint shall be tested before inserting the cement mortar. The joints shall then be adequately carefully filled with stiff cement and sand mortar (1: 1) and the joints shall be levelled to the edge of the socket. Each joint shall be adequately cured by covering with wet clothes and pouring water at frequent intervals.

The parking ring or washer for the flanged joints shall be rubbed for the full diameter of the flange with proper pipe hole and the holes cut out suitably. The packing shall be smeared with graphite paste or a mixture of red lead and white lead and shall be

introduced between the flanges of both the pipes and nuts tight in opposite pairs keeping the longitudinal axes adjoining pipe lines in exactly the same straight line. Lead washers shall be provided along with bolt, to prevent any leakage through bolt holes.

- 8.14. **Stoneware pipes:** The type of jointing for stoneware pipes shall be socket and spigot as indicated on the drawings. The inside of the socket shall be first painted with a layer of cement mortar (1 :2) and a gasket of yarn dipped in cement slurry shall be inserted in the socket of the pipe with in wooden caulking tool and wooden mallet in such a way that the gasket shall fully encircle the spigot with a slight overlap. When the spigot end received the gasket, it shall be wrapped round with two or three turns of treated spun yarn its end before being inserted into the sockets. The rest of the joint shall be then completely filled with cement sand mortar (1 : 1) having very little water and the joint shall be leveled to form a smooth splayed; filled at the angle of 45 degree. All excess of cement mortar left inside the pipe joint shall be neatly cleaned off and the joint shall be adequately cured by covering with gunny bags and pouring water at frequent intervals. In jointing stoneware pipes, care shall be taken that the pipes and kept concentric and the socket especially on the under side, shall be completely filled with cement mortar. Where settlement of earth is envisaged, the joint shall be made with bitumenastic filler or any other materials as approved by the Commission Secretary or Designated Authority.

- 8.15. **Concrete Pipes:** The type of jointing for concrete pipes shall be with loose concrete collars and the joints shall be packed from other side with spun yarn dipped in cement slurry as specified for jointing stoneware pipes; stiff cement mortar (1: 1) shall be filled from both sides and splayed at an angle of 45 degree on both side, the joints shall be adequately cured as specified for joints in stoneware pipes.

## 9.0. **9.Laying of pipes :**

- 9.1. **Cast iron pipes:** The laying of cast iron pipe lines shall commence only after the bottom of the trench at various points have been levelled and aligned in accordance with the drawings. The sides of the trenches shall be vertical as far as possible and the width of the bottom shall be 300 mm wider than the diameter of the pipe. Where joints are made, the trench shall be widened suitable to provide room for caulking joints. Shorting and Timbering shall not be used without prior approval of the Commission Secretary or Designated Authority. For pipes buried in the ground, the Contractor shall take care to maintain always the minimum cushion of earth over the pipes as indicated in the drawings. All pipes, Water mains, cables etc met within the course of excavation shall be carefully protected and supported. All pipes and fittings shall be sounded with a light hammer and checked properly to detect any crack or blow holes before laying. The excavated materials shall be thrown on one side of the trench and the pipes stacked on the other side.
- 9.2. The inside of the socket and the outside of spigot shall be thoroughly cleaned of all foreign matter before laying. The pipes shall be laid with their socket ends facing the directions of the flow. The pipes shall then be lowered in the trenches by a method as approved by the Commission Secretary or Designated Authority. The pipes shall then be jointed by caulking as specified in clause 8.01.15. After each section of the pipeline has been laid it shall be tested for water tightness before back filling the trench. On successful completion of testing, the trench shall be backfilled with the excavated earth in layer of 200 mm and shall be watered and rammed. Any subsidence accruing in the line of branches after backfilling shall be repaired by the contractor at his own cost. Where the pipe lines cross roads, the sides of the trenches shall be suitably shored.

- 9.3. **Concrete pipes:** The laying of concrete pipelines shall conform to clause 9 of IS:783. Pipes shall be laid true to line and grade. Laying of pipes shall always proceed upgrade of a slope.
- 9.4. **Stoneware pipes:** The laying of stoneware pipeline shall commence only after the bottom of the trench at various points have been levelled as shown in the drawings. The centre line of the trench shall be first marked out on the ground and shall be excavated correct to depth, slope and width at all points. The pipes shall be carefully laid to the alignment, levels and gradients as shown on the drawings. The trench shall be excavated wide enough under the sockets to allow hands to pass for making joints. The pipes between manholes shall be laid truly in straight lines and without any vertical or horizontal deviations on a bed of concrete as shown in the drawings. While laying pipes, portion of concrete under each socket shall be dug and taken off so that the barrel of the pipe gets full support on the concrete bed. Pipes shall be launched with concrete tangentially upto the crown of the diameter of the pipe as shown on the drawing. When it crosses under a road, the pipes shall be fully encased in concrete as shown on drawings. The contractor shall take precautions to maintain always a minimum cushion of earth over the pipes as indicated in the drawings. All pipes shall be carefully examined with a light hammer for soundness before laying. After each section of the pipeline has been laid, the joints shall be allowed to sit properly and shall be inspected and carried out only after approval of the Commission Secretary or Designated Authority. After testing, the trench shall be back filled with selected earth in layers of 200 mm and shall be watered and thoroughly rammed all pipes, water mains, cables etc. met within the course of excavation shall be carefully protected and supported.

When the pipelines cross roads, the trenches shall have vertical sides with suitable shoring. Any subsidence in the line of trenches after backfilling shall be repaired by the contractor at his own cost.

9.5. **Cast iron rain water pipes:**

Cast iron rainwater pipes shall conform to IS:1230 and IS: 1729 and shall be installed as shown in the drawings.

Cast iron rainwater pipes fixed exposed to external walls shall conform to IS: 1230 and shall be blocked out at least 20 mm from the plastered surface by means of cast iron bobbing. The rain water pipes at the roof level shall be fitted with a cast iron band with a masonry bell mouth of suitable size fitted with a cast iron grating. The bottom of the down pipe shall be fitted with a shoe fixed 150mm above ground / apron level of the building as shown on the drawings. The sockets spigots of pipes and fittings shall be joined as per relevant clause specified in clause 8.01.15.

Cast iron rainwater pipes embedded in concrete or masonry shall conform to IS: 1729 and shall be securely fixed to wall with wooden plugs and nails. Joints of the sockets and spigots of pipes and fittings shall be as per relevant clause.

9.6. **Inspection pits and trap pits:**

Construction of pits shall commence only after the pipes have been laid in position to true line and levels as shown on the drawings to the satisfaction of the Commission Secretary or Designated Authority.

**Inspection Pits:** Inspection pits shall be constructed as indicated in the drawings/bill of quantities. Unless otherwise specified, all inspection pits shall be constructed with rubble masonry in cement mortar (1 :4). Half round channels of size suitable for the inlet and outlet

pipe diameter shall be formed on the floor of the pit with M-10. The floor on the pit shall be haunched towards the channel as shown in the drawings. Inside pits shall be finished with cement sand plaster as specified in the specification and finished smooth with cement punning. Care shall be taken to avoid invert level after finishing and shall be as shown in drawings and/or as directed by the Commission Secretary or Designated Authority.

**Inspection/master trap pits:** The pits for the glazed stoneware master trap shall be constructed as indicated in the drawings/bill of quantities. The construction and finishing of the pit shall be haunched towards the interception/master trap pits. Gully trap pits shall be constructed as indicated in the drawings/bills of quantities. The construction and finishing of the pit shall be as described in specification for inspection pit. The cast iron grating shall be set flush with the finished ground/ apron level.

#### 9.7. **Testing of Cast Iron Soil and Waste Pipelines:**

On completion of laying the cast iron soil waste and ventilation pipeline shall be tested by the contractor at his own cost and to detect leakage and any other defects in the pipe line.

Test shall be conducted using proper apparatus with attachments for smoke making machine for applying smoke to the pipelines under pressure, jute cotton waste or brown paper soaked in creosote oil shall be used and fixed to obtain dense and pungent smoke. While conducting smoke test top of soil waste and ventilation pipes shall be kept open till smoke starts coming out of openings. The opening shall then be surely plugged with expanding rubber, traps and other openings for connecting sanitary fixtures shall be sealed with water or other approved plugs. The entire pipeline shall be tested in suitable sections as directed by the Commission Secretary or Designated Authority. The entire length of the pipelines including all joints under test shall be closely observed for any sign of smoke leakage. All leakage and defects shall be rectified by the contractor to the satisfaction of the Commission Secretary or Designated Authority.

#### 9.8. **Testing of underground Sewer lines:**

The drainage system shall be tested in accordance with the provisions of IS: 1742. All defects and deficiencies detected during the watch shall be promptly rectified by the contractor to the satisfaction of the Commission Secretary or Designated Authority.

#### 10.0. **WATER SUPPLY:**

##### 10.1. **Jointing and laying of galvanised steel water supply pipes:**

**10.1.1** Screwed galvanised steel pipes, conforming to IS: 1239 shall be jointed with screwed socket joints and screwed fittings of the same materials as that of the pipes. Any burrs remaining on the pipes and after the threads are cut shall be removed. An approved jointing compound together with a grumet of a few strands of fine yarn shall be used for jointing pipes and fittings. Any pipe threads exposed after jointing shall be painted with white synthetic enamel paint and in the case of underground piping, thickly coated with approved bituminous compound to prevent corrosion.

**10.1.2** The depth at which the underground water supply pipe is to be laid shall be as shown in the drawings. The service pipe passing into or beneath the building shall be laid at least 200mm below the ground floor level and accommodate in a previously laid sleeve in the structure where it enters the building. The space between the sleeve and the pipe as its entry into the exit from the building shall be filled with bituminous materials for a minimum of 150mm at



both ends. Piping shall not be buried in walls or floors as far as possible. However when unavoidable, piping shall be buried for the shortest distance necessary and adequate protection shall be provided against damage.

**10.1.3** Galvanised steel piping shall be secured by iron or steel clamps and hooks when fixed on walls. All pipe work shall be completely water tight and the joints shall be such that there are no projections of jointing materials or the like in the interior of pipes. Before the pipeline is commissioned, all piping and fittings shall be flushed clean.

**10.1.4 Testing:** After the laying and fixing of all galvanised steel water supply pipes and fittings are completed the line shall be slowly and carefully charged with water to a test pressure of 5 Kg. per Sq.cm. or the specified working pressure plus 50% as may be prescribed by the Commission Secretary or Designated Authority. Care shall be taken that air in pipelines is completely exhausted while filling the pipelines with water. This pressure shall be maintained for at least one hour, unless otherwise specified. The pipes and fittings shall be inspected for any leakage of water. Defects in pipes and fittings, if detected, shall be remedied by the Contractor at his own cost.

10.2. **Jointing and laying of high density polythelene water supply pipes:**

10.3. All higher density polythelene pipes shall have screwed ends and shall be jointed with screwed fittings of the same materials of the pipes. Any burrs remaining on the pipe ends after cutting threads shall be removed if necessary and approved jointing compound with a few strands of fine yarn may be used for jointing pipes and fittings. All exposed high density polyethelene pipes shall be installed with PVC saddles Screwed on 25mm thick wooden blocks securely fixed on walls, at suitable intervals, not exceeding 1m. Pipes wherever installed on wall, clamps shall be fixed as in the case of galvanised steel pipes. **Jointing of lead pipes:** Jointing in lead pipes shall be wiped solder joints. Joints shall be wiped in a continuous circular motion in one direction so as to leave a neatly formed elliptical shaped joints free from tears, burns, dropping etc. All exposed lead pipes, exceeding 25mm in diameter shall be secured to walls by iron clips or lead ears. The spacing of the clips shall not exceed 900mm.

10.4. **Storage water tanks :**All tanks for storage of water shall be as indicated in the drawings and bill of quantities and shall be completely and properly covered with dust, light and mosquito proof cover of approved type as shown on the drawings or as described in the bill of quantities. They shall be fitted with a ball valve of approved type, securely fixed to the tank independent of the inlet pipe. A mosquito proof overflow pipe shall be fixed to the tank with the pipe invert about 25mm above the top of water line.

Approved type of stop valve shall be provided for every outlet pipe. All outlet and inlet pipes shall be fixed as shown in the drawings. Support of the tanks shall be 'as indicated in drawings. Inside surface of galvanised steel tanks shall be painted with anti-corrosive drinking water paints as indicated in bill of quantities.

10.5. **Cleaning and disinfection:** All storage tanks water supply fittings and pipes before being put into commission, shall be disinfected with liquid chlorine by the Contractor as his own cost.

**11.0. INSTALLATION OF SANITARY APPLIANCES:**

All sanitary appliances shall be fixed in position rigidly on floor and walls as indicated in the drawings/ bill of quantities or as directed by the Commission Secretary or Designated Authority.

**11.1. Water closet-Squatting type:** Squatting type water closet shall be fitted with specified trap and shall be jointed with gasket yarn and cement mortar. Rim of the pan shall be levelled properly and set flush with the finished floor. The pan shall be connected to flushing cistern of capacity as indicated in the bill of quantities. The flushing cistern shall be supported on pair of CI cantilever brackets firmly embedded in the wall in cement mortar (1:4) or screwed to wall

suitable plugs. Heights of the bracket from the top of pan shall be as shown in the drawings. The flush pipe from the cistern shall be 32 mm of specified tested quality and connected to the pan inlet by means of hemp and putty joint.

**11.2. Water closet-pedestal type:** Pedestal type water closet shall be rigidly fixed on the finished floor by means of 75mm long brass screw with suitable plugs. The flushing cistern shall be porcelain or PVC or cast iron low level push down cistern of capacity as indicated in the bill of quantities. The cistern shall be supported on pair of cast iron or rolled steel cantilever brackets firmly fixed on wall with brass screws and suitable plugs. The flush pipe from the cistern shall be 40mm dia chromium plated. Brass bend fitted to the closet by means of rubber adopter. The closet shall be provided with double plastic seat cover conforming to IS:2548 and chromium plated hinges.

**11.3. Urinals:** Flat back type urinals shall be firmly fitted. on finished wall by means of 50mm long brass screws and suitable plugs. Height of the lip from the standing point shall be as shown in the drawings. Urinals shall be fitted with specified type of automatic flushing cistern of capacity as described in the bill of quantities and as shown on the drawings. Flushing pipes shall be of galvanized steel pipes of required sizes and connected to the Urinal with 15mm dia. PVC connector fitted with brass cap and lining at one end. The joint to the inlet of urinal shall be neatly finished with putty joints.

**SENSOR FITTED URINALS** Flat back urinals shall be fitted with sensors for automatic flushing shall be firmly fitted on finished wall by means of 50mm long brass screws and suitable plugs. height of the lip from the standing point shall be as shown in the drawings.

The arrangement of waste pipes and discharge to the floor trap shall be as shown on the drawings or as directed by Engineer. For single urinal, the discharge may be direct to the floor trap through a 40mm dia waste pipe. For range of urinals the discharge may be collected to the common discharge pipe by 40mm dia pipe shall be led to the 100mm SWG half round channel laid on the floor leading to the floor trap.

**12.0. Wash hand basin**

Wash hand basin shall be fitted in position to true level on a pair of cast iron brackets rigidly fixed on wall with 50mm long brass screws and suitable plugs. The type of waste pipes and their connection shall be as shown on the drawings or as Commission Secretary or Designated Authority.

**13.0. Porcelain sink** of size as indicated in the bill of quantities shall be levelled properly and fitted in position on a pair of cast iron cantilever brackets firmly embedded in the wall in cement mortar (1 :4) The sink shall be fitted with chromium plated brass waste fittings of standard size. The type of waste pipes and their connections shall be as shown on drawings. or as Commission Secretary or Designated Authority.

**14.0. Other miscellaneous fittings** (e.g. Mirror, towel rails, soap cases etc.)

All such fittings shall be of type and sizes prescribed in the bill of quantities and shall be fitted in position true to line, level, and plane as shown on the drawings or as Commission Secretary or Designated Authority.

**15.0. LIST OF APPROVED BRANDS/ NAMES OF APPROVED MANUFACTURERS/ SUPPLIERS**

At the outset it is implied that, in line with the NZEB and IGBC Green Building rating system, TSERC would prefer and recommend materials and equipment which are manufactured within 400

kilometers of the project site. But at least 50% of materials and equipment by cost must be procured within 400 kilometers of the project site.

In line with the same, the contractor may also procure materials that are certified by CII under Green Product Certification Programme (GreenPro) or by third party agency approved by IGBC can be used by the contractor to show compliance. However the final decisions lies with the Designated authority,

**The List of Green Pro-certified products is enclosed as Annexure E to this document.**

**NOTE: ALL MATERIALS TO BE USED FOR CIVIL WORKS SHOULD BE FIRST QUALITY AND AS PER THE STANDARDS OF BIS.**

**Important Note: if the materials mentioned in BOQ are other than above, may refer APSS if not available CPWD, even not available market prices may be referred**

## ANNEXURE-B: Bill of Quantities

### PREAMBLE

1. The Bill of Quantities shall be read in conjunction with the instructions to Tenderers, General and Special conditions of Contract Technical Specifications and Drawings.
2. The quantities given in the Bill of Quantities are estimated and provisional and are given to provide common basis for tendering. *The quantities given here are those upon which the lump-sum tender cost of the work is based but they are subject to alterations, omissions, deductions or additions as provided for in the conditions of this contract and do not necessarily show the actual quantities of work to be done.* The basis of payment will be actual quantities of work ordered and carried out as measured by the Contractor and verified by the Designated authority of the Commission and valued at the estimate rate plus or minus tender percentage quoted in the Bill of Quantities where applicable, and otherwise at such rates and prices as the Designated authority of the Commission may fix within the terms of Contract.
3. The estimate rates in the Bill of Quantities shall, except in so-far as it is otherwise provided under the Contract include cost of all constructional material, labour, machinery, transportation, erection, maintenance, profit, taxes and duties except GST together with all general risks, liabilities and obligations set out or implied in the Contract.
4. The plans enclosed with the tender are liable to be altered during execution of work as per necessity of site conditions. The Tender percentage quoted by the tenderer shall hold good for execution of work even with altered plans.
5. The whole cost of complying with the provisions of the Contract shall be included in the estimated rates for items provided in the Bill of Quantities and where no items are provided in the Bill of Quantities, their cost shall be deemed to be distributed among the estimate rates entered for the related items of work.
6. General directions and descriptions of work and materials are not necessarily repeated nor summarised in the Bill of Quantities. References to the relevant sections of the Contract documentation shall be made before entering estimate rate against each item in the Bill of Quantities.
7. The method of measurements of completed work for payment shall be in accordance with the relevant B.I.S. Codes & A. P. S. Specifications.
8. All items of work are to be executed as per the drawings / specifications supplied with the contract documents.
9. If there is any contradiction between the drawings and the text of the specifications, the later shall prevail.
10. The Tenderer should inspect and select the quarries of his choice before he quotes the tender percentage in the Schedule of Bill of Quantities and satisfy himself about the availability of required quantum of materials.

11. The actual mix proportion by weight to be adopted during execution will be got designed in the laboratories to suit the grade of concrete and mortar to be used. It will be the responsibility of the contractor to manufacture concrete and mortar of required strength.
12. The quantum of measurement for all items of earthwork involving conveyance manually or by machinery shall be as assessed by level measurement. The measurements for the embankment will be for the consolidated banks only.
13. Wherever bailing out of water is involved either for excavation or for foundations or for constructions, the percentage quoted shall take into account the de-watering charges necessary. No separate payment will be made for de-watering.
14. Wherever embankment work is involved, useful soils approved by the TSERC from the cutting reaches and diversion drains shall be taken and used for forming nearby embankments soils used for constructions will be at free of cost.
15. The quoted tender percentage shall also include the work of any kind necessary for the due and satisfactory construction, completion and maintenance of the works according to the drawings and these specifications and further drawings and orders that may be issued by the Designated authority of the Commission from time to time. The quoted tender percentage shall include compliance by the Contractor with all the general conditions of contract, whether specifically mentioned or not in the various clauses of these specifications, all materials, machinery, plant, equipment, tools, fuel, water, strutting, timbering, transport, offices, stores, workshop staff, labour and the provision of proper and sufficient protective works, diversions, temporary fencing and lighting. It shall also include safety of workers, first aid equipment suitable accommodation for the staff and workmen, with adequate sanitary arrangements, the effecting and maintenance of all insurance, the payment of all wages, salaries, fees, royalties / Taxes duties or other charges except GST, arising out of the execution of works and the regular clearance of rubbish, reinstatement and clearing-up of the site as may be required on completion of works safety of the public and protection of the works and adjoining land. The work of Building in quality control / assurance shall be deemed to be covered in the quoted percentage.
16. The Contractor shall ensure that, the quoted tender percentage shall cover all stages of work such as setting out, selection of materials, selection of construction methods, selection of equipment and plant, deployment of personnel and supervisory staff, quality control testing etc. The work quality assurance shall be deemed to be covered in the tender percentage.
17. The special attention of the tenderer is drawn to the conditions in the tender notices wherein reference has been made to the Andhra Pradesh Standard Specifications [APSS] and the Standard preliminary specifications containing therein. These preliminary specifications shall apply to the agreement to be entered into between the contractor and the Government of Telangana and shall form an in-separable condition of the contract along with the estimate. All these documents taken together shall be deemed to form one contract and shall be complimentary to another.
18. The tenderer shall examine, closely the A.P.S.S. / MOST and also the standard preliminary specifications contained therein and sign the Commission Secretary's office copy of the APSS / MOST and its addenda volume in token of such study before submitting his overall tender percentage which shall be for finished work in-situ. He shall also carefully study the drawings and additional specifications and all the documents, which form part of the agreement to be entered into by the successful tenderer. The APSS / MOST and other

documents connected with contract such as estimate plans, specifications, can be seen on all working days in the office of the Commission Secretary, TSERC, Hyderabad

19. The tenderers attention is directed to requirements for materials under the clause 'materials and workmanship' in the preliminary specifications of APSS. Materials conforming to the Bureau of Indian Standards specifications, APSS etc., shall be used on the work and the tenderers shall quote his overall tender percentage accordingly.
20. The tenderer has to do his own testing of materials and satisfy himself that they conform to the specifications of respective I.S.I. Codes before tendering.
21. The contractor shall himself procure the required construction materials of approved quality including the earth for formation of embankment and water from quarries / sources of his choice. All such quarries / sources of materials required for the work shall be got approved by the Engineer-in-Charge in writing well before their use of the work.
22. The contractor shall himself procure the steel, cement, Bitumen, Blasting materials, sand, metal, soils, etc., and such other materials required for the work well in advance. The contractor has to bear the cost of materials for conveyance. The TSERC will not take any responsibility for fluctuations in market in cost of the materials, transportation and for loss of materials etc.
23. Inspection of site and quarries by the tenderer: Every tenderer is expected before quoting his overall tender percentage, to inspect the site of proposed work. He should also inspect the quarries and satisfy himself about the quality, and availability of materials. The best class of materials to be obtained from quarries, or other sources shall be used on the work. In every case the materials must comply with the relevant standard specifications. Samples of materials as called for in the standard specifications or in this tender notice, or as required by the Project Director, in any case, shall be submitted for the Project Director's approval before the supply to site of work is begun.
24. The tenderer's particular attention is drawn to the sections and clauses in the A.P. standard specification dealing with
  - a) Test, inspection and rejection of defective materials and work.
  - b) Carriage
  - c) Construction plant
  - d) Water and lighting
  - e) Cleaning up during the progress and for delivery.
  - f) Accidents
  - g) Delays
  - h) Particulars of payments.

The contractor should closely peruse all the specification clauses, which govern the overall tender percentage he is tendering.

25. The defect liability period of contract in terms of GO Ms.No.8, T,R&B Dept., dt:8.1.2003 is twenty four months.
26. The estimate rates for items shown in the BOQ include all construction materials. No escalation in rates will be paid unless specified in the tender document. The tenderer has to quote an overall tender percentage considering all the aspects of the tender to complete the

finished item of work as per the APSS / MOST / B.I.S. specifications, the special specifications appended, Drawings etc.

27. If there is any contradiction between APSS / MOST and B.I.S. specifications, listed and detailed technical specifications, the latter shall prevail.
28. In case of a job for which specifications are not available with the Schedule or in APSS / MORT&H or B.I.S. code and are required to be prescribed, such work shall be carried out in accordance with the written instructions of the Engineer-in-charge.
29. The contractor should use the excavated useful soils and stone for construction purpose. Soils used for construction either for homogeneous section in hearting or in casing zone based on the suitability will be at free of cost and the cost of stone used for construction purpose will be recovered from the contractor's bill.

The contractor should quote his tender percentage keeping in view of the above aspects.

30. Additions and alternations by the Tenderer in the Schedule of quantities will disqualify the tender.
31. In the case of discrepancies between the written description of the item in the BOQ and the detailed description in the specification of the same item, the latter shall be adopted.
32. The Unit rates noted below are those governing payment of extras or deductions for omissions according to the conditions or the contract as set-forth in the preliminary specifications of the A.P. standard specifications and other conditions of specification of this contract.
33. It is to be expressly understood that the measured work is to be taken according to the actual quantities when in place and finished according to the drawings or as may be ordered from time to time by the Designated authority and the cost calculated by measurement or weight at their respective rates without any additional charge for any necessary or contingent works connected works connected herewith. The Percentage Excess or less on ECV quoted are for works in situ and complete in every respect.
34. For all items of work in excess of the quantities indicated the rates payable for such excess quantities will be tendered rates i.e., estimate rates plus or minus tender percentage.
35. For all items of work, intermediate payment will be made provisionally as per relevant clause. Full-accepted agreement rates will be paid only after all the items of works are completed.
36. The contractor is bound to execute all supplemental works that are found essential incidental and inevitable during execution of main work.
37. The payment of rates for supplement items of work will be regulated as under.

Supplemental items directly deductible from similar items in the original agreement.

The rates shall be derived by adding to or subtracting from the agreement rate of such similar item the cost of the difference in the quantity of materials labour between the new items and similar items in the agreement worked out with reference to the schedule of rates adopted in the sanctioned estimate with which the tenders are compared.

- a) Similar items but the rates of which cannot be directly deducted from the original agreement.
- b) Purely new items which do not correspond to any item in the agreement.  
The rate of all such items shall be estimated rates plus or minus overall tender percentage.

**38. ENTRUSTMENT OF ADDITIONAL ITEMS.**

- a) Where ever additional items not contingent on the main work and outside the scope of original agreement are to be entrusted to the original contractor dispensing with tenders and if the value of such items exceeds the limits up to which the officer is empowered to entrust works initially to contractor without calling for tenders approval of next higher authority shall be obtained. Entrustment of all such items on nomination shall be rates not exceeding the estimate rates.
- b) Entrustment of supplement items contingent on the main work will be authorised by the officers up to the monetary limits up to which they themselves are competent to accept items in the original agreement so long as the total amounts up to which they are competent to accept in an original agreement rates for such items shall be worked in accordance with the procedure prescribed in GO Ms.No.1493 PWD, dated: 25-10-1971 and as amended in Govt. Memo number 544 cod 72-22 dated: 06-07-1973.
- c) Entrustment of either the additional supplemental items shall be further subject to the provisions under para 176(b) of APWD Code Viz., the items shall not be ordered by an officer on his own responsibility if the revised estimate or deviation statement providing for the same requires the sanction of higher authority.

**Note:** It may be noted that the term estimate rate used above means the rate in the sanctioned estimate with which the tender’s compared or if no such rate is available in the estimate the rate derived will be with reference to the schedule of rates adopted in the sanctioned estimate with which tenders are compared.

**BILL OF QUANTITIES**

[Part-I]

**Name of the Work:**

Sl.No	Qty	Description of work	Rate	Unit(In words)	Amount (inRs.)

**BILL OF QUANTITIES**

**(PART- II)**

**Details of Maximum amount Reimbursable to the contractor.**

**“The rates mentioned in “BOQ” are including overhead charges and contractors profit, excluding GST The overhead charges include engaging technical persons by the contractor and work insurance etc., Hence, the contractor quoted rates is inclusive of engaging technical persons and work insurance and no reimbursement for these will be made separately”.**

**The contract price is inclusive of all overhead charges and include the following elements:**



- i. Site accommodation, setting up plant, access road, water supply, electricity and general site arrangements.
- ii. Office furniture, equipment and communications.
- iii. Expenditure on:
  - a) Corporate office of contractor.
  - b) Technical agents for site supervision. (Reimbursement to the technical agents provision is dispensed with where 'over heads and contractor's profit' provision is included in the data rates)
  - c) Documentation and "as built" drawings.
  - d) Mobilization/ de-mobilization of resources.
  - e) Labour camps with minimum amenities and transportation to work sites.
  - f) Light vehicles for site supervision including administrative and managerial requirements.
  - g) Laboratory equipment and quality control including field and laboratory testing. (For all the works costing more than Rs.2.00 Crores contractors have to establish Quality Control laboratory)
  - h) Minor T & P and survey instruments and setting outworks, including verification of line, dimensions, etc.
  - i) Watch and ward.
  - j) Traffic management/ Safety management during construction.
  - k) Expenditure on safeguarding environment.
- iv. Sundries.
- v. Financing Expenditure.
- vi. The rates adopted in this SoR basic costs and are exclusive of all taxes.
- vii. Work Insurance/ compensation - Works insurance is dispensed with vide G.O. Ms. No: 61 Irrigation & CAD (PW: Reforms) Department Dt. 25-06-2013.

## FOOT NOTE TO BOQ

1. All the items of work will have to be executed as per standard specifications laid down in APSS and the special specifications and general features of design attached herewith. The quoted offer shall include all operations described in the specifications and general features.
2. All the rates quoted in the BOQ shall be through rates in rupees and paise for completed item of work as per APDSS inclusive of all charges such as leads, lifts, classifications and incidental charges, all taxes and royalties etc., except GST.
3. The quantities given here are those upon which the lumpsum cost of the work is based, but they are subjected to alternation, omission, deduction, or addition as provided for in the condition of the contract and not necessarily shown the actual quantities of work to be done.
4. It is to be expressly understood that the measured work is to be taken net (not withstanding any custom or practice to the contrary) according to the actual quantities placed and finished according to the drawing or as may be ordered from time to time by the Engineer-In-Charge and the cost calculated by measurement or weight at the respective prices without any additional charge for any necessary or contingent works, connected therewith. The rate shown is for the works in situ and complete in every respect.
5. All items of work will have to be executed as per standard specification laid down in A.P.S.S. the special specification and general features of design attached herewith. The quoted offer shall include all operation described in the said specification and general features and shall be inclusive of all charges such as leads, lifts, classification, incidental charges, all taxes royalties, hire and operational charges of all T & P, security measures etc., except GST Complete.
6. Vernacular signature should be translated into English.
7. Addition and alternation in schedule or condition will disqualify the tender.
8. Steel centering should be used for all members involving the use of centering.
9. The tenderer should inspect the site & checkup the possible water source for carrying out work though out the year, monsoons or non-monsoons irrespective of the quantum of rainfall and quote their offer accordingly. No subsequent claims for extra water leads will be entertained under any circumstances.
10. The contractor will not be entitled to claim any interest on arrears which he may be get on the final settlement of accounts.
11. The contractor shall make his own arrangement for the acquisition of stone and other quarries etc.
12. Metal and chips of the specified gauges will have to be stacked separately in the standard size after screening as per specifications before using on work.

**ANNEXURE-C: Price/Financial Bid format**

(\*Below format shall be filled, duly signed & stamped and to be uploaded in e-tender portal)

**Name of the Work:** Construction of office building Block-A (Stilt + 5Floors) & Block-B (Stilt + 2Floors) for TSERC at Kalyannagar, Hyderabad as per Super ECBC Compliance and Net Zero Energy Building Concept

**Package I – Civil works including STP**

**Tender No.** TSERC/OB/NZEB/2022-23/1/e-tender Package 1 dated 28.11.2022.

ESTIMATE CONTRACT VALUE (in figures & words): Rs 18,77,02,415 (Rupees Eighteen Crores Seventy Seven Lakhs Two Thousand Four Hundred and Fifteen Only)

I/We Sri / Smt. / M/s. .... do hereby express my / our willingness to execute the aforesaid work as per the conditions, standards, specifications, rules, regulations, etc., stipulated in the tender documents.

- a) At an overall tender percentage of ..... (In figures)  
..... (In words) **Excess / Less** over estimated value.
- OR**
- b) At par Estimate Value.

SIGNATURE, NAME OF THE TENDERER / AUTHORISED SIGNATORY

Note: The bidders are requested to quote the price with reference to the BOQ which is uploaded along with the tender document.

**ANNEXURE D: Previous Project experience details**

<b>S.No</b>	<b>Name and location of the project</b>	<b>address of the client with, contact name and phone no</b>	<b>Type of building</b>	<b>Total Built up area in (sq.m)</b>	<b>Compliance of green building concept</b>	<b>Work Order value in INR. Along with copy of work order</b>	<b>Duration of the project with Date of commencement and completion</b>	<b>Name of the Project Incharge &amp; Names of the staff involved</b>	<b>Salient features / concept of the Project</b>

**ANNEXURE E : List of GreenPro Ecolabelled Products – May 2019**

S No	Manufacturer	Category	Product Title	Contact	Email	Phone
1	AB Ceramic Services	Smart SRI Tile	Smart SRI Tile	G.Arivazhagan	<a href="mailto:abc@abceramic.in">abc@abceramic.in</a>	+91 9047573230
2	ACC Limited	Cement	ACC Concrete+ Xtra Strong	Rajiv Kumar Bimalchand	<a href="mailto:rajivkumar.bimalchand@acclimited.com">rajivkumar.bimalchand@acclimited.com</a>	+91 9970011802
			ACC Suraksha Power			
			ACC Gold Water Shield			
			ACC F2R Superfast			
			ACC HPC Long Life			
3	Aeropure	IAQ Solution	WATMIZER UVGI	Avinash	<a href="mailto:dradk@hotmail.com">dradk@hotmail.com</a>	+91 9822022921
			DUCT ZAPPER			
4	Akzo Nobel	Paints & Coatings	Dulux Professional Solitaire A 1000	Varun Chhabra	<a href="mailto:varun.chhabra@akzonobel.com">varun.chhabra@akzonobel.com</a>	+91 9962985266
			Dulux Professional Solitaire StainResist			
			Dulux Professional Weathershield E1000			
			Dulux Professional Weathershield Elastomeric			
			Dulux Professional Weathershield Express			

			Dulux Professional Weathershield Flexx			
			Dulux Professional Exterior E900			
			Dulux Professional Weathershield UltraClean			
			Dulux Stay Bright Satin			
			Dulux SuperClean			
			Dulux SuperCover Sheen			
			Duwel Acrylic Emulsion			
			Dulux Velvet Touch Diamond Glo			
			Dulux Velvet Touch Pearl Glo			
			Dulux Velvet Touch Platinum Glo			
			Dulux Weathershield Max			
			Dulux Weathershield Powerflexx			
			Dulux Weathershield Protect			
	Akzo Nobel	Paints & Coatings		Varun Chhabra	<a href="mailto:varun.chhabra@akzonobel.com">varun.chhabra@akzonobel.com</a>	+91 9962985266

			Dulux Promise Interior			
			Dulux Promise Exterior			
			Dulux Alkali Bloc Primer			
			Dulux Exterior Acrylic Primer			
			Dulux Professional Exterior E700			
			Dulux Professional Exterior Sealer E900			
	Akzo Nobel	Paints & Coatings	Dulux Professional Interior A700	Varun Chhabra	<a href="mailto:varun.chhabra@akzonobel.com">varun.chhabra@akzonobel.com</a>	+91 9962985266
			Dulux Professional Interior Sealer A500			
			Dulux Professional Interior Sealer A700			
			Dulux Professional WS Sealer E1000			
			Dulux Quick Drying Primer			
			Dulux Stay Bright Gloss			
			Dulux SuperCover			
			Dulux Water Borne Cement Primer			
			Duvel Interior Acrylic Primer			
			Dulux Promise Primer			

	Akzo Nobel	Paints & Coatings	Dulux Weathershield Flash Dulux Weathershield Tile Dulux Aquatech Crack Filler 20MM Dulux Aquatech Crack Filler 5MM Dulux Aquatech Exterior BaseCoat Dulux Aquatech Flexible BaseCoat Dulux Aquatech Crack Filler 10MM Interior Acrylic Distemper Magik Distemper Dulux Professional Interior A900 Dulux Professional Weathershield Creation Stontex Dulux Weathershield Creation Sandtex Duwel Polyputti	Varun Chhabra	<a href="mailto:varun.chhabra@akzonobel.com">varun.chhabra@akzonobel.com</a>	+91 9962985266
5	Aquatron International AB	Innovative Product	Aquatron® Solid-Liquid Separator	Raita Mocherla	<a href="mailto:Raita.mocherla@pangaea.co.in">Raita.mocherla@pangaea.co.in</a>	+91 9885921703



6	Armstrong World Industries	Ceiling Tiles - Mineral Fibre Ceiling Tiles	Ultima RH99	Abhinay Vyavhare	<a href="mailto:avyavahare@armstrongceilings.com">avyavahare@armstrongceilings.com</a>	+91 9867454996
			Suprema RH99			
			Dune Max RH99			
			Dune RH 99			
			Dune Supreme			
			Fine Fissured HI NRC			
			Fine Fissured RH99			
			Classic Max RH99			
			Classic Lite RH99			
			ANF RH95			
			Beauti Sky RH90			
			Perla OP			
			BioGuard Acoustic			
			Sierra			
			BioGuard Plain			
New Lotus RH90						
7	Asahi India Glass	Glass	Meadow SN (56/48)	Hema Mulchandani	<a href="mailto:hema.mulchandani@aisglass.com">hema.mulchandani@aisglass.com</a>	+91 8828187120
			Aura SC (48/46)			
			Marine SH (38/37)			
			Meadow SN (49/38)			
			Coral SN (39/34)			
			Lime SN (27/26)			

			Aura SC (45/42)			
			Marine SH (36/33)			
			Bay SH (30/29)			
			Meadow SN (47/34)			
			Coral SN (37/29)			
			Clear Brook Plus LC (33/22)			
			Clear Brook Plus LC (31/22)			
			Clearvision LC (39/29)			
	Asahi India Glass	Glass	Grenvision LN (34/22)	Hema Mulchandani	hema.mulchandani@aisglass.com	+91 8828187120
			Clearvision LC (36/28)			
			Grenvision LN (31/21)			
			Clearlite Plus LC (54/37)			
			Bluelite Plus LH (38/27)			
			Greenlite Plus LN (47/28)			

			Clearlite Plus LC (52/35)			
			Bluelite Plus LH (36/26)			
	Asahi India Glass	Glass	Greenlite Plus LN (45/27)	Hema Mulchandani	<a href="mailto:hema.mulchandani@aisglass.com">hema.mulchandani@aisglass.com</a>	+91 8828187120
			Clear Radiance Plus LC (49/32)			
			Blue Radiance Plus LH (34/24)			
			Green Radiance Plus LN (42/24)			
			Clear Radiance Plus LC (46/31)			
			Blue Radiance Plus LH (32/22)			
			Green Radiance Plus LN (39/22)			
			Blue Essence EH (46/35)			
			Green Essence EN (58/35)			
			Clear Pearl DC (41/23)			
			BLue Pearl DH (27/19)			

			Green Pearl DN (34/20)			
			Clear Sparkle DC (46/25)			
	Asahi India Glass	Glass	Blue Sparkle DH (31/20)	Hema Mulchandani	<a href="mailto:hema.mulchandani@aisglass.com">hema.mulchandani@aisglass.com</a>	+91 8828187120
			Green Sparkle DN (41/22)			
			Opal Cool Green (41/42)			
			Natura Plus TC (40/33)			
			Electra Plus TH (27/25)			
			Chroma Plus TN (35/23)			
			Clear Platina LC (27/21)			
8	Berger Becker Coatings (P)Limited	Coil Coatings and Industrial Paints	BeckryTherm SDP	Umesh Vishwakarma	<a href="mailto:Umesh.Vishwakarma@beckersgroup.com">Umesh.Vishwakarma@beckersgroup.com</a>	+91 9999164970
			BeckryTherm PVDF			
9	Berger Paints	Paints & Coatings	Bison Acrylic Distemper	Sudipto	<a href="mailto:sudiptomukherjee@bergerindia.com">sudiptomukherjee@bergerindia.com</a>	+91 9038098326
			Bison Acrylic Emulsion			
			BP White Primer W/T			

			BP Cement Primer W/T	Mukherjee			
			Easy clean				
			Rangoli Total Care				
			Seal-O-Prime W/T				
			Silk				

			Silk Illusion	Sudipto Mukherjee	<a href="mailto:sudiptomukherjee@bergerindia.com">sudiptomukherjee@bergerindia.com</a>	+91 9038098326
			Walmasta			
			Weathercoat AllGuard			
			Weathercoat Exterior Primer			
			Weathercoat Hi-build			
			Weathercoat Kool and Seal			
			Weathercoat Long Life			
Berger Paints	Paints & Coatings		Weathercoat Smooth			
			Weathercoat Tartaruga			
			Weathercoat Texture			
			Weathercoat Tile Protektor			

			BP Cement Primer(ST)			
			BP white Primer(ST)			
			Butterfly GP Synthetic Enamel			
			Luxol High Gloss Enamel			
	Berger Paints	Paints & Coatings	Luxol Lustre Enamel	Sudipto Mukherjee	<a href="mailto:sudiptomukherjee@bergerindia.com">sudiptomukherjee@bergerindia.com</a>	+91 9038098326
			Luxol Satin Enamel			
			Melamine Sealer			
			Melamine Fin			
			Parrot Wood Primer			
			Red Oxide Primer			
			Woodkeeper			
10	British Paints	Paint	MASTE BLASTER WHITE, W14248	Ranjit Singh	<a href="mailto:rs@britishpaints.in">rs@britishpaints.in</a>	+91 9822393769
			BRITISH INT EMUL-WHITE, T18555			
			GLAMOUR PREMIUM WHITE, T18962			
			SATIN MAX WHITE, T10851			
			SHEER CLASS INT EMUL WHITE, T19655			

			SHINGAR MAX WHITE, T19032			
			SHINGAR EXT EMUL WHITE, T19138			
			EXPA COOL EXT. EMUL WHITE, T18504			
			EXPA 7 RADIANT WHITE, T11093			

11	Bonphul Air Products Private Limited	IAQ Solution	OxyMax (Oxygen Optimizer)	Narendra Bisht	narendra.bisht@bonphulapl.com	+91 9999884886
12	Chakr Innovation	Innovation	Chakr Shield	Bharti Singhla	bharti.singhla@chakr.in	+91 8447407349
13	Dalmia Cement	Cement	Dalmia Vajram - Portland Pozzolana Cement (PPC)	R.Rajamohan	<a href="mailto:r.rajamohan@dalmiacement.com">r.rajamohan@dalmiacement.com</a>	+91 9842994067
14	Deeya Panels	Construction Panels & Boards	Alpha	Subhash Khadse	deeyapanel@gmail.com	+91 9724440005
			Delta			
			Theeta			
			Sigma			
15	EcoRain Systems India Pvt Ltd	Rainwater Harvesting and water management	EcoRain Water Harvesting Modular Tank System	Vikas Rane	vikas@vikasindus.com	+91 9821036215
			EcoRain Drain Cells			
16	Eden Innovations India Pvt. Ltd.	Innovation	Optiblend System	Manish Dixit	<a href="mailto:mdixit@edenenergyindia.com">mdixit@edenenergyindia.com</a>	+91 9898069956
			Surface Care			

17	Ekam Eco Solutions	Cleaning Chemicals	Stain Care	Uttam Bannerjee	<a href="mailto:uttam@ecoekam.com">uttam@ecoekam.com</a>	+91 9999807207
			Drain Care Restroom			
			Drain Care Kitchen			
			Sewage Care Aerobic			
			Sewage Care Anaerobic			
			Odo Care Fresh			
			Odo Care RTU			
			Odo Care Concentrate			

18	Emerson Commercial & Residential Solutions	Innovative Solutions	Emerson Heat Pumps	Sandeep Srikanti	<a href="mailto:Sandeep.Srikanti@Emerson.com">Sandeep.Srikanti@Emerson.com</a>	+91 8390071157
			Emerson InSinkErator® Floor Waste Disposer	Sambit Satpathy	<a href="mailto:Sambit.Satpathy@Emerson.com">Sambit.Satpathy@Emerson.com</a>	+91 9971234229
19	Furaat Earth Pvt Ltd	Rainwater Harvesting Solution	Modular Step Well	Habil Attarwala	<a href="mailto:habil@furaat.com">habil@furaat.com</a>	+91 9099944055
20	Fytorem Pvt Ltd	IAQ Solution	Plant Air Purifier	Ann Scaria	<a href="mailto:fytoempl@gmail.com">fytoempl@gmail.com</a>	+91 8005824578
21	Godrej & Boyce – Construction Division	Construction Block	Recycled Concrete Block, Tuff Blocks (AAC Blocks)	Shweta Bhoyar	<a href="mailto:shwetab@godrej.com">shwetab@godrej.com</a>	+91 8806111668
22	Godrej & Boyce – Construction Division	Ready Mix Concrete (RMC)	Easy Tuff - Self-Compacting Concrete	Shweta Bhoyar	<a href="mailto:shwetab@godrej.com">shwetab@godrej.com</a>	+91 8806111668
			Xtra Tuff - High Strength Concrete			



			Enviro Tuff - Concrete with SCM			
23	Godrej & Boyce – Electrical Division	Industrial Innovative Solution	ControlAir™IFC	Kiron Pande	<a href="mailto:kcp@godrej.com">kcp@godrej.com</a>	+91 9820348824
24	Godrej & Boyce Mfg.Co.Ltd. - Godrej Interio Division	Furniture	Wish	Vinay Sarode	<a href="mailto:interiogreen@godrej.com">interiogreen@godrej.com</a> , <a href="mailto:vinaygs@godrej.com">vinaygs@godrej.com</a>	+91 8898291336
			Linea			
			Enhanced Spacio Plus			
			Upbeat			
			Dfine			
			Spacio Plus			
			Stallion Plus			
	Godrej & Boyce Mfg.Co.Ltd. - Godrej Interio Division	Furniture	Wish Habitat	Vinay Sarode	<a href="mailto:interiogreen@godrej.com">interiogreen@godrej.com</a> , <a href="mailto:vinaygs@godrej.com">vinaygs@godrej.com</a>	+91 8898291336
			Wall (Full Height Partition)			
			Ace			
			Motion			
			Le Sede			
			Marvel			
			Kubix			
			Bravo			
			Gallop Cushion			
			Gallop Net			
			Oxbo			
			Pulse			

			Scintilla			
			Unwind			
			Versa Cushion			
			Versa Net			
			Versa Neo			
			Versa Canvas			
			Genii			
			Reason			
25	Green Build Products (I) Pvt Ltd.	Construction Chemicals	Build Fast	Shilpa Joshi	shilpa.joshi@greenbuildproduct.com	+91 9552580896
			Green Grout			
			Eco Render			
			Green Repair			
			Green Seal			
26			SunGuard High Performance Gold 31			
			SunGuard High Performance Silver 35			
			SunGuard High Performance Neutral 40			
			SunGuard High Performance Royal Blue 40			

Gujarat Guardian Ltd	High Performance Glass	SunGuard High Performance Silver 40	Vivek Buch	<a href="mailto:vbuch@guardian.com">vbuch@guardian.com</a>	+91 7043483007
		SunGuard High Performance Neutral Plus 50			
		SunGuard High Performance Neutral 60			
		SunGuard High Performance Neutral 70			
		SunGuard High Performance Green 35			
		SunGuard High Performance Green 40			

		SunGuard High Performance Aquamarine 40			
		SunGuard High Performance GreenPlus 50			
		SunGuard High Performance Green 60			

	Gujarat Guardian Ltd	High Performance Glass	SunGuard High Performance Green 70 SunGuard DS 30 SunGuard DS 40 SunGuard DS 50 SunGuard Solar Silver Grey 32 SunGuard Solar Neutral 34 SunGuard Solar Light Blue 52 SunGuard Solar Neutral 67 SunGuard Solar Green 32 SunGuard Solar Green 34	Vivek Buch	<a href="mailto:vbuch@guardian.com">vbuch@guardian.com</a>	+91 7043483007
			SunGuard Solar Green 52 SunGuard Solar Green 67 SunGuard Solar HD Green SunGuard Solar Silver Grey 32			

Gujarat Guardian Ltd	High Performance Glass	SunGuard Solar Neutral 34	Vivek Buch	<a href="mailto:vbuch@guardian.com">vbuch@guardian.com</a>	+91 7043483007
		SunGuard Solar Light Blue 52			
		SunGuard Solar Neutral 67			
		SunGuard Solar Green 32			
		SunGuard Solar Green 34			
		SunGuard Solar Green 52			
		SunGuard Solar Green 67			
		SunGuard Solar Silver Grey 32			
		SunGuard Solar Neutral 34			
Gujarat Guardian Ltd	High Performance Glass	SunGuard Solar Green 32	Vivek Buch	<a href="mailto:vbuch@guardian.com">vbuch@guardian.com</a>	+91 7043483007
		SunGuard Solar Green 34			
		SunGuard Solar Green 52			
		SunGuard Solar Green 67			

			SunGuard HD Colours HD Blue			
			SunGuard HD Colours HD Green			
27	Hafele India Private Limited	Movable Wall Systems	Palace 110	Pratheek Agarwal	<a href="mailto:pratheek.agarwal@hafeleindia.com">pratheek.agarwal@hafeleindia.com</a>	+91 8655929594
			Palace 90			
			Palace 80			
			President System			
28	Haylide Chemicals Pvt. Ltd.	Cleaning Chemicals	APC-F Green	Nitin Bhatnagar	<a href="mailto:nitinbhatnagar@haylide.com">nitinbhatnagar@haylide.com</a>	+91 9826159995
			Sterix A Super Green			
			WC Green			
			Laundrokleen Green			
			Laundro Mulse E Green			
			Fresh Hannds LQ Green			
29	Herbocare	Cleaning Solutions	Carpet Care	Tejveer Sharma	<a href="mailto:herbocleanz@gmail.com">herbocleanz@gmail.com</a>	+91 9690777885
			Dish Wash			
			Bathroom Cleaner			
			Green Wash			
			Floor Cleaner			
			Floor Cleaner Premium			

			Glass Cleaner			
			Natural Toilet Cleaner			
			Steel Feeting Cleaner			
30	Hindcon Chemicals	Construction Chemicals	Hind Block Fix	Satyajit Dey	satyajit@hindcon.com	+91 9836855567
			Hind Fix TA			
			Hind Sealant PS			
			Hind Anti Rust			
			Hind Crete Plus – WPM			
			Hind Hydraproof Ceramic			
Hind Plasto Guard						
31	Honeywell	IAQ Solution	Electronic Air Cleaner F58G1016	Gaurav NS	Gaurav.NS@Honeywell.com	+91 9686567126
			Electronic Air Cleaner F58H1006			
			Electronic Air Cleaner F57A1101RC			
			Electronic Air Cleaner F57B1075RC			
32			Linear			
			Tile ceilings			
			Cell ceilings			
			Screen ceilings			

Hunter Douglas India Private Limited	Architectural Ceilings, Cladding, Facades, Sun Control Systems	Wide panel (300c) ceilings	Sundaram	<a href="mailto:sundar@hunterdouglas.in">sundar@hunterdouglas.in</a>	+91 9840582176
		XL panel ceilings			
		Techstyle			
		U-Baffle ceilings			
		Torsion spring			
		Hook-on ceilings			
		Custom ceilings			
		Ventilated facades			
		Quadroclad			
		NBK Architectural Terracotta			
		Multiple panel facades			
		Mini wave			
		Screen façade			
		Custom façade			

	Architectural Ceilings,	Sandwich wall cladding	Sundaram	<a href="mailto:sundar@hunterdouglas.in">sundar@hunterdouglas.in</a>	+91 9840582176
		Aerobrise			



	Hunter Douglas India Private Limited	Cladding, Facades, Sun Control Systems	Aeroscreen Motorization Linear 84R Linear 70S/132S			
33	India Gypsum Pvt Ltd	Ceiling Tile System & Plaster	Minerotex® ET900+ Gypsum plaster Minerotex® Stucco Gypsum plaster IGPL® Gypbond® IGPL® Jointing powder IGPL® Gypsum powder IGPL® GYPSUM ULTRA MATIC® STEEL CEILING SYSTEM, , IGPL® GYPMATIC® ACOSTOTEX® Big Board	Amitesh Agarwal	<a href="mailto:mail@indiagypsum.in">mail@indiagypsum.in</a>	+91 9987367099
			IGPL® GYPSUM ULTRA METAL GYPCELIO® STEEL CEILING SYSTEM			

India Gypsum Pvt Ltd	Ceiling Tile System & Plaster	IGPL® GYPMATIC® Gypsum panel,	Amitesh Agarwal	<a href="mailto:mail@indiagypsum.in">mail@indiagypsum.in</a>	+91 9987367099
		72 mm IGPL® GYPWALL® System			
		50 mm IGPL® GYPWALL® System			
		IGPL® GYPMATIC® STEEL CEILING SYSTEM			
		IGPL® GYPSUM SERRATION GYPCELIO® STEEL CEILING SYSTEM			
		IGPL® GYPSUM TRUE METAMATIC® STEEL CEILING SYSTEM			
		IGPL®Gypsum Plain Tiles			
		IGPL® PEBLO®STAR			

		IGPL® PEBLO®PIN			
		IGPL® PEBLO®DANCE			

	India Gypsum Pvt Ltd	Ceiling Tile System & Plaster	IGPL® Dew Drop Tile IGPL® Granular Tile IGPL® PEBLO®MEDIPLANO IGPL® ACOSTOTEX® IGPL® GYPWALL®Acoustic insulating Tiles MINEROTEX® PIN, MINEROTEX® Fine fissure MINEROTEX® Sand. IGPL® METAMATIC® GI ClipIn Tile Plain IGPL® METAMATIC® PPGI LayIn Tile Perf T15	Amitesh Agarwal	<a href="mailto:mail@indiagypsum.in">mail@indiagypsum.in</a>	+91 9987367099
			IGPL® METAMATIC®PPGI LayIn Tile Perf T24			

	India Gypsum Pvt Ltd	Ceiling Tile System & Plaster	IGPL® METAMATIC® PPGI ClipIn Tile Plain <hr/> IGPL® METAMATIC® PPGI ClipIn Tile Perf <hr/> IGPL® METAMATIC® LayIn Tile Perf T15/T24 <hr/> IGPL® METAMATIC® LayIn Tile Plain T/15/T24 <hr/> IGPL® METAMATIC® LayIn Tile Perf T15/T24 <hr/> IGPL® METAMATIC® ClipIn Tile Plain <hr/> IGPL® METAMATIC® ClipIn Tile Perforated <hr/> IGPL® ULTRA MATIC® -32 FUT BLACKLINE GRID	Amitesh Agarwal	<a href="mailto:mail@indiagypsum.in">mail@indiagypsum.in</a>	+91 9987367099
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India Gypsum Pvt Ltd	Ceiling Tile System & Plaster	IGPL® ULTRA MATIC® GRID MT	Amitesh Agarwal	<a href="mailto:mail@indiagypsum.in">mail@indiagypsum.in</a>	+91 9987367099
		IGPL® ULTRA MATIC® GRID CT			
		IGPL® ULTRA MATIC® GRID WA			
		IGPL® ULTRA MATIC® BLACK/WHITE SILLOUTH GRID MT			
		IGPL® ULTRA MATIC®sandwich wall			
		IGPL® ULTRA MATIC® hook-on ceiling			
		IGPL® ULTRA MATIC® U-Baffle ceiling			
		IGPL® ULTRA MATIC® SCREEN			
		IGPL® ULTRA MATIC® CELL			
		IGPL® ULTRA MATIC® LINEAR			

34	Indian Insulation & Engineering	SRI Paint	COOLROOF® Heat Reflective Paint	Rakesh Koul	<a href="mailto:indianenggs@gmail.com">indianenggs@gmail.com</a>	+91 9915080488
35	Indian Metals & Ferro Alloys	Construction Aggregate	Low Density Aggregate	Ashok Behera	<a href="mailto:mail@imfa.in">mail@imfa.in</a>	+91 9937288066
36	IQUBX Pvt Ltd	Aluminium Interior Products	Aluminium Access Ceiling Trap Doors (TD- JB022, TD- JB022H, TD- JB023,TD-JB023H)	Amit Garg	<a href="mailto:amit@creativewizards.in">amit@creativewizards.in</a>	+91 9811204811, +91 9310488831
			Aluminium Modular Floor Raceway (RW011, RW022)			
			Aluminium Skirting (SK031)			
			Aluminium Chair Rail (SK031CR)			
			Aluminium Glazed Partition System (GP2510, GP1510)			
			Baffle Ceiling System 1			
			Baffle Ceiling System 2			
			Baffle Ceiling System 12			

CTR & CDR

	IQUBX Pvt Ltd	Aluminium Interior Products	<p>Electrical Panel (IEP001)</p> <p>Electrical Floor Box Outlet (FB022, FB023)</p> <p>Flexible Panelling System for Straight &amp; Curved Walls (WP03)</p> <p>Interlocking Aluminium Curved Profile Wall Panelling (WP075)</p> <p>Modular Floor Box (FB001)</p> <p>Baffle Ceiling System 2 (BFC02)</p> <p>Modular Floor Junction Box (JB022, JB022D, JB022H, JB023, JB023D, JB023H)</p> <p>Modular Aluminum Post and Rail frame Demountable Panel System (WP01)</p>	Amit Garg	<a href="mailto:amit@creativewizards.in">amit@creativewizards.in</a>	+91 9811204811, +91 9310488831
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	IQUBX Pvt Ltd	Aluminium Interior Products	Modular Aluminium Post and Rail Frame Demountable Partition System (WP01P)	Amit Garg	<a href="mailto:amit@creativewizards.in">amit@creativewizards.in</a>	+91 9811204811, +91 9310488831
			New Ceiling Trap Door (TD-024H)			
			Partition Using Versatile Universal Aluminium Snap Fit Panelling System (WP02P)			
			Rolling Shutter (RSH001)			
			Server Rack (ISR001)			
			Versatile Universal Aluminium Snap Fit Paneling System (WP02)			
37	JK Lakshmi Cement Ltd	AAC Blocks	JK Smart Blox	Sujeet Jha	<a href="mailto:Sujeet.jha@jkmail.com">Sujeet.jha@jkmail.com</a>	+91 9717100163
38	JK Lakshmi Cement Ltd	Cement	PPC	Dr. Mukesh Kumar	<a href="mailto:mukeshkumar@lc.jkmail.com">mukeshkumar@lc.jkmail.com</a>	+91 8059777258
			PRO+			
			Sixer			
			HDP			
			PHDP			
			Platinum			
			PSC			
			COC			



39	JSW Cement Limited	Cement	Portland Slag Cement	Lopamudra Sengupta	lopamudra.sengupta@jsw.in	022-42863017
		Ground Granulated Blast Furnace Slag ( GGBS )	Ground Granulated Blast Furnace Slag (GGBS)			
40	JVS Comatsco Industries Pvt. Ltd.	AAC Blocks	Ecolite AAC Blocks	Vipul V Patel	<a href="mailto:jigneshpatel@jvscomatsco.com">jigneshpatel@jvscomatsco.com</a>	02551227700 / 09 / 30456511
41	Kesoram Industries Industries Limited	Cement	Birla Shakti PPC	Chandrabhan	chandrabhan@vasavadattacement.com	+91 9618906665
			Birla Shakti +			
42	KD Infra (Brikolite)	AAC Blocks	Brikolite AAC Blocks	Manoj Bihani	projects@brikolite.com	+91 9401412000
43	Lemmens Shardlow India Pvt Ltd	Cleaning Chemicals	Freshin™	Dhvani Lakhani	dhvani_26@hotmail.com	+91 8023610009
			Greezgard™			
			Multikleen			
			Portakleen™			
			Septikleen™			
44	Magneto Environmental Groupe	IAQ Solution	Magneto Central Air Cleaner (MCAC)	Himanshu Aggarwal	<a href="mailto:ceo@magneto.in">ceo@magneto.in</a>	+91 9810066504
45	Natural Insulation Co Ltd	Insulation	Envirospray 300 – Sprayed Cellulose Insulation	R Manjunath	<a href="mailto:manjunath.r@inframart.com">manjunath.r@inframart.com</a>	+91 9886345066
46	Nippon Paint India	Paints & Coatings	Weatherbond Advance - All Weather Protection White	Mahesh Anand	<a href="mailto:mahesh@nipponpaint.co.in">mahesh@nipponpaint.co.in</a>	+91 9176550031

			Durafresh - High Performance Exterior Emulsion White			
	Nippon Paint India	Paints & Coatings	Sumo Xtra - Durable Exterior Emulsion White	Mahesh Anand	<a href="mailto:mahesh@nipponpaint.co.in">mahesh@nipponpaint.co.in</a>	+91 9176550031
			Samurai - Super Acrylic Exterior Emulsion White			
			Shogun - Exterior Emulsion White			
			Roof Coating - High Performance Emulsion for Roof Tiles White			
			Odourless Aircare - Formaldehyde Abatement Interior Emulsion White			
			3 in 1 Medifresh Antibacterial Formula White			
			Satinglo+ - Luxury Interior Wall Finish White			
			Spotless - Acrylic Emulsion White			
			Matex Gold - Premium Acrylic Emulsion White			

Nippon Paint India	Paints & Coatings	Vinilex - Washable Interior Emulsion White	Mahesh Anand	<a href="mailto:mahesh@nipponpaint.co.in">mahesh@nipponpaint.co.in</a>	+91 9176550031
		Breeze - Interior Emulsion White			
		Prof. Touch PX6052 White			
		Prof. Touch PX6020 White			
		Prof. Touch PI4032 White			
		Prof. Touch PI4032 White			
		Satinglo - Luxury Interior Wall Finish			
		White			
		Ode Fresh White			
		Indy Tex Exterior Textured Coating			
		Aqua Bodelac			
		Aqua Bodelac - Satin Finish			
		Hydro Wood - Glossy (Non Flat)			
		Hydro Wood Matt			
		Satinglo Dzine Metallic			
Satinglo Dzine Clear					

Nippon Paint India	Paints & Coatings	Samurai - Foundation Jet Black	Mahesh Anand	<a href="mailto:mahesh@nipponpaint.co.in">mahesh@nipponpaint.co.in</a>	+91 9176550031
		Nippon Real Gold			
		Nippon Paver Block			
		Ceiling Paint			
		Easy Coat			
		Interior Wall Primer			
		Exterior Wall Primer			
		Multipurpose Wall Sealer			
		Latex Interior Primer			
		Latex Exterior Primer			
		Prof. Touch Interior Primer PI1010			
		Prof. Touch Exterior Primer PX1030			
		Silky Walls Cement Based Putty			
		Acrylic Wall Putty			
		Expresskote Interior / Exterior Water			
		Based Sealer			
		Nippon Elastometric Undercoat			
Hydro Wood Sealer					
Aqua Anti Corrosive Primer					

Nippon Paint India	Paints & Coatings	Dr Bond Efflorescence Resistant Sealer	Mahesh Anand	<a href="mailto:maresh@nipponpaint.co.in">maresh@nipponpaint.co.in</a>	+91 9176550031
		PX 6040			
		Durafresh Xpert – High Performance Exterior Emulsion			
		Spotless NXT - Stain repellent emulsion			
		PI4045			
		Easy Coat			
		Easycoat 2.0			
		PI4010			
		Atom 2 in 1 – Multipurpose Emulsion			
		Satin glo Aura – Royal Interior Wall Finish			
		Momento Dzine - MD1 – Special Effect Paint			
		Momento Dzine Silver - Special Effect Paint			
		Momento Dzine Gold - Special Effect Paint			

			Hydroshield Water proof exterior emulsion			
	Nippon Paint India	Paints & Coatings	WeatherBond Pro – High Durable Exterior Emulsion Satin glo Prime – Luxury Interior Emulsion Nippon Paint Floor Guard Aqua Bodelac Semi glossy Enamel Hydroshield Dampproof – Elastomeric Exterior Waterproof coating Walltron Enhancer – Multipurpose Polymer Hydroshield Sealer Walltron +D398:D406Wall + - Universal Repair Polymer Aqua RO Primer	Mahesh Anand	<a href="mailto:mahesh@nipponpaint.co.in">mahesh@nipponpaint.co.in</a>	+91 9176550031

			Weatherbond Pro Base coat			
			Weatherbond Pro Base coat			
47	NITCO Limited	Tiles	Duracottura Tiles	Dipten Bhandopadhyay	<a href="mailto:diptenb@nitco.in">diptenb@nitco.in</a> , <a href="mailto:marketing@nitco.in">marketing@nitco.in</a>	+91 9987795286
			Dura-Digi Tiles			
			Ceramic Tiles			
			Wall Tiles			
			GVT Tiles			
			Naturoc Tiles			
			Trulife Tiles			
			Magnified Tiles			
48	Orient Cement Limited	Cement	Birla.A1 Premium Cement	Tripti Jain	<a href="mailto:Tripti.jain@orientcement.com">Tripti.jain@orientcement.com</a>	+91 9010409111
49	Panache Greentech Solutions Pvt. Ltd.	Paints & Coatings	Cool Roof Classic	Neetu Jain	<a href="mailto:panachegreen@gmail.com">panachegreen@gmail.com</a>	+91 9825135651
			Cool Roof Premium			
			Cool Guard (Cool Roof Coating)			
			Cool Top (Cool Roof Coating)			
			Transeal (Cool Roof Coating)			
			Cool Wrap (Cool Wall Coating)			

			Solar Coat (Cool Driveways/ Pavers Coatings)			
			Solar Crete (Cool Driveways/ Paver Screed)			

50	Ramco Industries Limited	Panels, Boards & Roofing	Ramco Hilux	Preston Davis	cpd@ril.co.in	+91 8838118563
			Ramco Hicem			
			Ramco Greencor			
51	Richie Raffle Biotech (P) Limited	Cleaning Chemicals	Biorico – Biological Effluent Treatment	P. Chandrashekar Reddy	chandra@richieraffle.com	+91 9652255959
			Biorico – Biological Wastewater Treatment			
			Biorico – Biological Washroom Cleaner			
			Biorico – Biological Poultry Treatment			
			Biorico – Biological Kitchen Treatment			
52	Rockwool India	Insulation	RockInsul	Kevin Pereira	kpereira@rockwoolindia.com	040-30408650
			Tuffinsul			
53	ROXUL ROCKWOOL Insulation India Pvt. Ltd.	Insulation	Cool 'n' Comfort	Vimal Paul	<a href="mailto:vimal.paul@rockwool.com">vimal.paul@rockwool.com</a>	+91 9167200811
			Conrock			
			Hardrock			
			ProRox			



			SeaRox			
			Safe 'n' Silent			
			Thermalrock			
54	RUR GreenLife Pvt. Ltd.	Biocomposter	GreenGold Organic BioComposter	Monisha Narke	<a href="mailto:monishanarke@gmail.com">monishanarke@gmail.com</a>	+91 9820136101

55	Saint-Gobain India Private Limited - Glass Business	High Performance Glass	ET 135 SGU Glass	Murali N	<a href="mailto:murali.n@saint-gobain-glass.com">murali.n@saint-gobain-glass.com</a>	044-45936066, +91 9600008399
			ET 150 II SGU Glass			
			ET 135 Neurals DGU			
			ET 150 II DGU Glass			
			KB 140 II DGU Glass			
			KN 130 II DGU Glass			
			KT 140 DGU Glass			
			KT 155 DGU Glass			
			KT 164 DGU Glass			
			KS 138 II DGU Glass			
			KS 146 II DGU Glass			
			SKN 144 II DGU Glass			

			SKN 154 II DGU Glass SKN 165 II DGU Glass 60/28 DGU Glass 50/22 DGU Glass ET 435 SGU Glass ET 450 II SGU Glass ST 467 SGU Glass ET 450 II DGU Glass			
	Saint-Gobain India Private Limited - Glass Business	High Performance Glass	KT 440 DGU Glass KT 455 DGU Glass KT 464 DGU Glass KS 438 II DGU Glass KS 446 II DGU Glass PLT TG DGU Glass ST 436 DGU Glass ST 450 DGU Glass ST 467 DGU Glass SKN 444 II DGU Glass	Murali N	<a href="mailto:murali.n@saint-gobain-glass.com">murali.n@saint-gobain-glass.com</a>	044-45936066, +91 9600008399

			SKN 454 II DGU Glass		
			SKN 465 II DGU Glass		
			ST 436 DGU Glass		
			ST 450 DGU Glass		
			ET 750 II DGU Glass		
			KT 755 DGU Glass		
			KT 764 DGU Glass		
			KS 746 II DGU Glass		
			PLT TB DGU Glass		
			ST 750 DGU Glass		

	Saint-Gobain India Private Limited - Glass Business	High Performance Glass	ST 767 DGU Glass	Murali N	<a href="mailto:murali.n@saint-gobain-glass.com">murali.n@saint-gobain-glass.com</a>	044-45936066, +91 9600008399
			SKN 754 II DGU Glass			
			SKN 765 II DGU Glass			
56			Gyproc® Plain Board (Gyproc Plasterboard)			
			Gyproc® Fireline Board			
			Gyproc® Fireline MR Board			

Saint Gobain India Pvt Ltd – Gyproc	Partition Boards	Gyproc® Moisture Resistant Board	Niharika Gujar	<a href="mailto:Niharika.Gujar@saint-gobain.com">Niharika.Gujar@saint-gobain.com</a>	+91 9867260445
		Gyproc® Duraline Board			
		Gyproc Habito™ Board			
		Gyproc® SoundBloc			
		Gyproc® Activ' Air			
		Gyproc® Core Board			
		Gyproc Elite-90 One Coat Gypsum Plaster			
		Gyproc Elite MR One Coat Gypsum Plaster			

Saint Gobain India Pvt Ltd – Gyproc	Partition Boards	Gyproc Elite Machine Spray One Coat Gypsum Plaster	Niharika Gujar	<a href="mailto:Niharika.Gujar@saint-gobain.com">Niharika.Gujar@saint-gobain.com</a>	+91 9867260445	
		Gyproc Supreme-68 One Coat Gypsum Plaster				
		Gyproc Xpert Stucco Gypsum Plaster				
57	Shakti Hormann Pvt Ltd	Steel Products	Hollow Metal Door	Vikram Manthana	<a href="mailto:vikram.manthana@shaktihormann.com">vikram.manthana@shaktihormann.com</a>	+91 9866077407
58	Shree Ram Equitech Pvt. Ltd.	Insulation Products	Lightly Resin Bonded Rockwool Mattresses	P Srivastava	<a href="mailto:psrivastava@shreeramequitech.com">psrivastava@shreeramequitech.com</a>	+91 9329636514

			Resin Bonded Rockwool Slabs			
			Resin Bonded Rockwool Rolls			
			Resin Bonded Rockwool Lamella			
			Rockwool Pipe Section			
59	Shubh Composites	Wood Polymer Composite Products	Benches	Paresh Bhimani	info@shubhwood.com	+91 9925200723
			Pergola			
			Gazebo			
			Flower Pots			
			Decking Solution – Outdoor Flooring			
			Wall Cladding – Interior and Exterior			
			Railing			
60	Sinicon Controls (P) Limited	Construction Aggregate	‘SINICON PP’ Heatproofing plaster	Revindran	revi@sinicon.net, marketing@sinicon.net	+91 9497112211
61	Soujanya Color Pvt Ltd	Paints & Coatings	CCD Machine Colorants	Amol Mulajkar	<a href="mailto:amol@soujanya.com">amol@soujanya.com</a>	+91 8828405124
62	Spacewood Furnishers	Wooden Doors	Sumai Pre-Hung Doors	Shirish Bhatt	shirishbhatt@spacewood.in	+91 9168133388
63	Spacewood Office Solutions	Office Furniture	Slide Sixty	Aniket Deshpande	aniket@spacewood.in	+91 8007778973
			Lineo			
			Stretch			
			Annd			

			Ascent			
			Motion			
			Radio			
64	Srikar Enterprises Private Limited	AAC Blocks	Fusion AAC Blocks	Suresh Babu	<a href="mailto:drsuresh@fusionblock.com">drsuresh@fusionblock.com</a> , <a href="mailto:salesfusionblock.com">salesfusionblock.com</a>	+91 7032992034
65	Star Wadding	Insulation	Polyester Wadding	Sudarshan v s	starwadding@gmail.com	+91 9945275995
			Absorb Wadding			
66	Sterling & Wilson Pvt. Ltd.	IAQ Solution	IAQURE & Analyzer	Sean Menezes	<a href="mailto:seanmenezes@sterlingwilson.com">seanmenezes@sterlingwilson.com</a>	+91 9892288888
67	Surfa Coats	Paints & Coatings	Surfa Galaxy Luxury Emulsion	Sudarshan	surfamarketing@gmail.com	+91 9448283526
			Surfa Classic Luxury Emulsion			
			Surfex Premium Acrylic Exterior Emulsion Paint			
68	Tata BlueScope Steel Pvt. Ltd.	Steel Products	COLORBOND® Steel	Swapnil Dandi	swapnil.dandi@tatabluescopesteel.com	+91 7875550253
			ZINCALUME® Steel			
69	Tata Steel Limited	Ground Granulated Blast Furnace Slag	Ground Granulated Blast Furnace Slag (GGBS)	Amit Kumar Mahato	amitkumar.mahato@tatasteel.com	+91 8092086463
70	Tata Steel - Pravesh Doors & Windows	Steel Products	Tata Pravesh Doors	Alok Kumar	<a href="mailto:alok3@tatasteel.com">alok3@tatasteel.com</a>	+91 8092086419
			Tata Pravesh Windows			
71	TATA Steel - TATA Structura	Steel Products	TATA Structura	V Murali Krishna	<a href="mailto:vmurali.krishna@tatasteel.com">vmurali.krishna@tatasteel.com</a>	+91 8885512530
			TATA Pipes			

72	The Ramco Cements Limited	Cement	Ramco Supergrade PPC	M. Srinivasan	<a href="mailto:ms@ramcocements.co.in">ms@ramcocements.co.in</a>	+91 9841080493
73	The Supreme Industries Limited (PPD)	Insulation Products	INSUSound XLO	Atul Khanna	<a href="mailto:atul_khanna@supreme.co.in">atul_khanna@supreme.co.in</a>	+91 9810676116 , 020-6660060
			INSUSound BN			
			INSUSound B CAP			
			INSU Reflector			
			INSUShield			
			INSUShield Tubing			
			INSUFlex Hose&Sheet			
			INSU BXL			
			INSUTape			
			INSU MELAFoam			
74	ThinkPhi	Innovative Product	UltraChaata	Priya Vakil	<a href="mailto:priya@thinkphi.com">priya@thinkphi.com</a>	+91 9819512105
75	TurboTech Precision Engineering Pvt Ltd	Innovative Product	Energy Conservation Turbine	Giridhar Hegde	<a href="mailto:giridhar@turbotechindia.com">giridhar@turbotechindia.com</a>	+91 944 899 2684
76	U.P.Twiga Fiberglass Limited	Insulation	Fiberglass Insulation	Biswajit Roy	<a href="mailto:biswajit@twigafiber.com">biswajit@twigafiber.com</a>	+91 9873436527
77	UAL Industries	AAC Blocks	KON_CRETE - AAC blocks	J Das	<a href="mailto:jdas_kgp@ualind.com">jdas_kgp@ualind.com</a>	+91 8584897592
78	Ugam Chemicals	Paints & Coatings	UGAM INSULMIX	Nitin Shah	<a href="mailto:ugamchem@hotmail.com">ugamchem@hotmail.com</a>	+91 8600100275
			UGAMCOAT F R SYSTEM			
			UGAM INTERIOR EMULSIONS			

79	UltraTech Cement Ltd	AAC Blocks	Xtralite - AAC Blocks	H.N. Gorakshanath	halubai.gorakshanath@adityabirla.com	+91 8498053611
80	UltraTech Cement Ltd – RMC Division	Ready Mix Concrete (RMC)	UltraTech Free Flow	Devendra Pandey	<a href="mailto:Devendra.Pandey@adityabirla.com">Devendra.Pandey@adityabirla.com</a>	+91 9702001387
			UltraTech Plus			
			UltraTech Hypercon			
			UltraTech Duracon			
			UltraTech Flow fill			
			UltraTech Litecon			
81	UltraTech Cement Ltd – Unit Birla White	Construction Chemicals	Birla White Wallcare Putty	Kalyan Chakravarty	kalyan.c@adityabirla.com	+91 8494937668
			Birla White PreCote			
			Birla White Textura			
			Birla White Repaint Putty			
			Birla White UltraPaint			
			Birla White Extocare			
			Birla White Level Plast			
			Birla White Excel Putty			
			Birla White Water Seal Putty			
82	Visaka Industries Limited	Panels and Boards	V Board	Archana Chaurasia	<a href="mailto:archana.chaurasia@visaka.in">archana.chaurasia@visaka.in</a>	+91 8886786398
			V Designer board			
			V Oceanic			
			V Panel			



			V teak			
			V Plank			
			V Premium			
83	Zuari Cement Limited	Cement	Zuari - Portland Pozzolana Cement (PPC)	Rajesh Vasudev	V.RAJESH@zcltd.com	+91 9741151178

**SECTION-V: Forms & Procedures**  
**BID FORM (on Company Letter Head)**

**ATTACHMENT –1**

To,

Commission Secretary,  
Telangana State Electricity Regulatory Commission (TSERC),  
5<sup>th</sup> Floor, Singareni Bhavan, Redhills,  
Lakdikapul, Hyderabad - 500 004.  
Telangana State, India

Sir,

**Sub.:-** Construction of office building Block-A (Stilt + 5Floors) & Block-B (Stilt + 2Floors)for TSERC at Kalyan Nagar, Hyderabad as per Super ECBC Compliance and Net Zero Energy Building Concept/ Package I – Civil works including STP– submission of tender -reg

**Ref:** Tender No. TSERC/OB/NZEB/2022-23/1/e-tender Package 1 dated 28.11.2022

Dear Sir,

With Reference to the subjected Tender, we are pleased to submit our bid through online of e-tender and uploading all the relevant support documents for this tender.

We confirm that we have quoted as per instructions and terms and conditions of tender documents and BOQ. We have submitted all the attachments as stated in this tender document.

We undertake, if our bid is accepted, we shall commence the work **immediately** upon your Letter of Award to us to achieve completion of work within the time specified in the bidding documents.

If our bid is accepted, we undertake to provide contract performance securities in the form and amounts and within the time specified in the bidding documents.

We agree to abide by this bid for a period as mentioned in Bid Information Sheet as stipulated in the bidding documents and it shall remain binding upon us and may be accepted by you at any time before the expiration of that period.

Until a formal contract is prepared and executed between us, this bid, together with your written acceptance thereof in the form of your Letter of Award shall constitute a binding contract between us.

We, hereby, declare that only the persons or firms interested in this proposal as principals are named here and that no other persons or firms other than those mentioned herein have any interest in this proposal or in the contract to be entered into, if the award is made on us, that this proposal is made without any connection with any other person, firm or party likewise submitting a proposal, is in all respects for and in good faith, without collusion or fraud.

We declare that, we are not bankrupted/ blacklisted by any state / central Government agencies/departments

Date \_\_\_\_\_

Company SEAL

NAME/S & AUTHORISED SIGNATORIES:

ADDRESS:

MOBILE NO.:

LAND LINE NO.:

Our correspondence details are:

1	Name of the bidder	
2	Address of the bidder	
3	Name of the contact person to whom all references shall be made regarding this tender	
4	Designation of the person to whom all references shall be made regarding this tender	
5	Address of the person to whom all references shall be made regarding this tender	
6	Telephone (with STD code), Mobile Number	
7	E-Mail of the contact person	
8	Fax No.(with STD code)	
9	Details of the of the employees working in the firm with designation	
10	Details of in-house machinery available with the firm/company/organisation	

**Tender No. TSERC/OB/NZEB/2022-23/1/e-tender Package 1 dated 28.11.2022**  
**POWEROFATTORNEY**

**BIDDER TO ATTACH THE POWER OF ATTORNEY IN THEIR OWN FORMAT**

**ATTACHMENT - 3**

**(CERTIFICATE REGARDING ACCEPTANCE OF IMPORTANT CONDITIONS)**  
**(On Company Letter Head)**

To  
Commission Secretary,  
Telangana State Electricity Regulatory Commission (TSERC),  
5<sup>th</sup> Floor, Singareni Bhavan, Redhills,  
Lakdikapul, Hyderabad - 500 004.  
Telangana State, India  
040-23311125,26

Sir,

**Sub:** Construction of office building Block-A (Stilt + 5Floors) & Block-B (Stilt + 2Floors) for TSERC at Kalyannagar, Hyderabad as per Super ECBC Compliance and Net Zero Energy Building Concept/ Package I – Civil works including STP– acceptance of important conditions –reg.

**Ref:** TSERC/ OB/NZEB/2022-23/1/e-tender Package 1 dated 22.11.2022

With the reference cited above, we hereby confirm that we have read all the provisions of the tender document and further confirm that notwithstanding anything stated elsewhere to the contrary, the stipulation of all the clauses are acceptable to us and we have not taken any deviation to all the clauses mentioned in the tender document.

We further confirm that any deviation to the above clauses found anywhere in our bid proposal, implicit or explicit, shall stand unconditionally withdrawn, without any implication to TSERC.

Date:

Signature:

Place:

Printed Name:

Designation:

Company Seal

(On Non – Judicial Stamp Paper of appropriate value and purchased in the name of executing Bank)

**PROFORMA OF BANK GUARANTEE FOR CONTRACT PERFORMANCE**

**This PBG format is only for an idea to the bidder. However, Original PBG format will be provided to the successful bidder at the time of entering the agreement/issuing of LoA**

**Ref: Tender No.** TSERC/OB/NZEB/2022-23/1/e-tender Package 1 dated 28.11.2022

Bank Guarantee No..... Date.....

To,  
Commission Secretary,  
Telangana State Electricity Regulatory Commission (TSERC),  
5<sup>th</sup> Floor, Singareni Bhavan, Redhills,  
Lakdikapul, Hyderabad - 500 004.  
Telangana State, India  
Ph: 040-23311125, 26  
Email: tsercnetzerobuilding@gmail.com

Dear Sirs,

In consideration of the TSERC, (hereinafter referred to as the ‘Owner,’ which expression shall unless repugnant to the context or meaning thereof include its successors, administrators and assigns) having awarded to M/s.....with its Registered / Head Office at .....( hereinafter referred to as the 'Contractor', which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators and assigns ), a Contract by issue of Owner’s Letter of Award No.....dated .....and the same having been unequivocally accepted by the Contractor and the contractor ( Scope of Contract ) having agreed to provide a Contract Performance Guarantee for the faithful performance of the entire Contract equivalent to \*..... % (percent) of the said value of the Contract to the Owner.

We .....(Name & address) having its Head Office at .....(hereinafter referred to as the ‘Bank’, which expression shall, unless repugnant to the context or meaning thereof, include its successors administrators, executors and assigns ) do hereby guarantee and undertake to pay the Owner, on demand any all money payable by the Contractor to the extent of .....as aforesaid at any time up to.....(days/months/year) without any demur, reservation, contest, recourse or protest and / or without any reference to the Contractor. Any such demand made by the Owner on the Bank shall be conclusive and binding notwithstanding any difference between the Owner and the Contractor or any dispute pending before any court, tribunal, Arbitrator or any other authority. The Bank undertakes not to revoke this guarantee during its currency without previous consent of the Owner and further agrees that the guarantee herein contained shall continue to be enforceable till the owner discharges this guarantee.

The owner shall have the fullest liberty without affecting in any way the liability of the Bank under this guarantee from time to time to extent the time for performance of the Contract by the Contractor. The owner shall have the fullest liberty, without affecting this guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they to enforce or to forbear

to enforce any covenants, contained or implied, in the Contract between the owner and Contractor or any other course of or remedy or security available to the owner. The Bank shall not be released of its obligations under these presents by any exercise by the owner of its liberty with reference to the matters aforesaid on any of other indulgence shown by the owner or by any other matter or thing whatsoever which under law would, but for this provision, have the effect of relieving the Bank.

The Bank also agree that the Owner at its option shall be entitled to enforce this Guarantee against the Bank as a Principal debtor, in the first instance without proceeding against the Contractor and not withstanding any security or other guarantee that the owner may have in relation to the Contractor's liabilities.

Notwithstanding anything contained herein above our liability under this guarantee is restricted to \_\_\_\_\_ and it shall remain in force upto and including\*\* \_\_\_\_\_ and shall be extended from time to time for such period (not exceeding one year) as may be desired by M/s \_\_\_\_\_ on whose behalf this guarantee has been given.

Witness

Dated this .....day of.....at.....

Witness

.....

Signature

.....

.....

Name

.....

Official Address

.....

Signature

Bank's Rubber Stamp

Name

Designation with Bank Stamp

Attorney as per power of Attorney

No.....dated.....

...

Note: \*\* Validity of Bank Guarantee should be 90 days in excess of the period for which it is required.

## BANK GUARANTEE CHECK LIST

1	Bank Guarantee No.	
2	Issuing Bank	
3	Nature of BG & No .of Pages	
4	Validity of BG	
5	Package Description	
6	Party & Contracts ref.	Name ,Address, Tel , email
7	Bank Reference	

S.No.	Details of Checks	YES/NO
1	Is the BG on non-judicial Stamp Paper of appropriate value ,as per Stamp Act?	
2	Whether date, purpose of purchase of stamp paper and name of the purchaser are indicated on the back of Stamp paper under the Signature of Stamp vendor?(The date of purchase of stamp paper should be not later than the date of execution of BG and the stamp paper should be purchased either in the name of the executing Bank or the party on whose behalf the BG has been issued. Also the Stamp Paper should not be older than six months from the date of execution of BG)	
3	In case the BG has been executed on Letter Head of the Bank, whether adhesive Stamp of appropriate value has been affixed thereon?	
4	Has the executing Officer of BG indicated the name, designation and Power of Attorney No./Signing Power no. etc., on the BG?	
5	Is each page of BG duly signed / initiated by executants and whether stamp of Bank is affixed thereon ?Whether the last page is signed with full particulars including two witnesses under seal of Bank as required in the prescribed proforma?	
6	Does the Bank Guarantees compare verbatim with the Proforma prescribed in the Bid Documents?	
7	In case of any changes in contents of text, whether changes are of minor /clerical nature (which in no way limits the right of TSERC in any manner)?	
8	In case of deviations in text of BG, which materially affect the right of TSERC, whether the changes have been agreed based on the opinion by Legal Department or BGI considered acceptable on the basis of opinion of law Department already available on the similar issue.	
9	Are the factual details such as Bid Document No .NOA /LOA/ Contact No., Contract Price, Percentage of Advance, Amount of BG and Validity of BG correctly mentioned in the BG?	
10	Whether over writing/cutting if any on the BG have been properly authenticated under signature and seal of executant?	
11	Whether BG has been issued by a Bank in line with the provisions of Bid/Contract documents?	
12	In case BG has been issued by a Bank other than those specified of Bid / Contract Documents, is the BG confirmed by a Bank in India acceptable as per Bid / Contract documents	



**PROFORMA OF LETTER OF UNDERTAKING**  
(TO BE FURNISHED ON NON-JUDICIAL STAMP PAPER OF APPROPRIATE VALUE)

[To be executed by the Holding Company Supported by Board Resolution and submitted by the Bidder along with the Bid, in case financial support is being extended by the Holding Company to the Bidder for meeting the stipulated Financial Qualifying criteria]

**Ref : Tender No.:** TSERC/OB/NZEB/2022-23/1/e-tender Package 1 dated 28.11.2022.

From: Name and Address of the bidder

To,  
Commission Secretary,  
Telangana State Electricity Regulatory Commission (TSERC),  
5<sup>th</sup> Floor, Singareni Bhavan, Redhills,  
Lakdikapul, Hyderabad - 500 004.  
Telangana State, India

Dear Sir,

- 1 We, M/s..... (Name of the Holding Company) declare that we are the holding company of M/s..... (Name of the Bidder) and have controlling interest therein. M/s..... (Name of the Bidder) proposes to submit the bid for the tender..... (Name of the tender) under tender no..... dated ..... and have sought financial strength and support from us for meeting the stipulated Financial Qualifying Requirement as per the Tender.
- 2 We hereby undertake that we pledge our unconditional & irrevocable financial support for the execution of the said package to M/s..... (Name of the Bidder), for the execution of the Contract, in case they are awarded the Contract for the said package at the end of the bidding process. We further agree that this undertaking shall be without prejudice to the various liabilities that M/s..... (Name of Bidder) would be required to undertake in terms of the Contract including the Performance Security as well as other obligations of M/s \_\_\_\_\_
- 3 This undertaking is irrevocable and unconditional, and shall remain in force till the successful execution and performance of the entire contract and/or till it is discharged by TSERC.
- 4 We are herewith enclosing a copy of the Board Resolution in support of this undertaking

Witness

(Signature of Authorized Signatory)  
on behalf of the Holding Company

Yours faithfully,

Name & Designation .....  
Name of the Holding Company .....  
(Seal of Holding Company)

**Covering letter format  
(on Company letterhead)**

Date:

To  
Commission Secretary,  
Telangana State Electricity Regulatory Commission (TSERC),  
5<sup>th</sup> Floor, Singareni Bhavan, Redhills,  
Lakdikapul, Hyderabad - 500 004.  
Telangana State, India

Sir,

**Sub:** Construction of office building Block-A (Stilt + 5Floors) & Block-B (Stilt + 2Floors) for TSERC at Kalyannagar, Hyderabad as per Super ECBC Compliance and Net Zero Energy Building Concept/ Package I – Civil works including STP– Submission of tender -Reg.

**Ref:** TSERC/OB/NZEB/2022-23/1/e-tender Package 1 dated 28.11.2022...

I \_\_\_\_\_, herewith submitting the tender as per the scope of work for Construction of building\_\_\_\_\_.

1. I, the undersigned having read and examined in detail the tender document and do hereby express my interest to provide the services as specified in the tender.
2. I have read the provisions of tender document and confirm that these are acceptable to me.
3. I have not indulged in any corrupt or fraudulent practices in preparing this tender document.
4. I shall bear all costs incurred in connection with the preparation and submission of the tender.
5. I am enclosing all the relevant documents mentioned in the tender document which are meeting the tender requirements.

I hereby declare that all the information and statements made in this proposal are true and accept that any misinterpretation contained in it may lead to my disqualification.

Thanking you,

Yours faithfully

Sign & Seal

## DRAFT ARTICLES OF AGREEMENT

**Articles of Agreement** made this \_\_\_\_\_ day of \_\_\_\_\_ 2022 between the **Commission Secretary**, Telangana State Electricity Regulatory Commission (here-in-after called the **Commission Secretary** which expression shall, where the context so admits include his successors in Office and assignees) of one part and \_\_\_\_\_ (here-in-after called the Contractor which expression shall where the context so admits include his heirs, executors, administrators and legal representatives) of the other part.

**WHEREAS** the TSERC, Hyderabad, (herein after called the **Commission**) are desirous of

\_\_\_\_\_ and have caused an estimate of probable quantities contained in **BOQ**, drawings and specifications describing the work to be done.

**AND** whereas the said **BOQ**, drawings numbered serially from \_\_\_\_\_ and the specifications have been signed by the parties hereto.

And whereas the contractor has agreed to the Retention by the Commission, the PBG of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only) vide PBG No : \_\_\_\_\_ paid by him as security for the due fulfillment of the contract to the satisfaction of the Commission Secretary, TSERC.

**AND** whereas the contractor has also signed the copy of the **AP Standard Specifications** and addenda Volume thereto maintained by the authority who registered him/them in the appropriate class in acknowledgement of being bound by all conditions of the clauses of the **Standard Preliminary Specifications** for items of work described by a **Standard Specification Number** in **BOQ** in addition to having signed the “Tenderers” and Contractor certificate in acknowledgement of being bound by all the conditions of the Standard Preliminary Specifications and all the Standard Specifications for item of work, described by the Standard Specification Number in **BOQ**.

**AND** whereas the contractor has agreed to execute upon and subject to the conditions set forth in the preliminary specification of the **Andhra Pradesh Detailed Standard Specifications** and such other conditions as are contained in all the specifications forming part of this contract (herein after referred to as the said conditions) the works shown upon the drawings and described in the said specifications and set forth in **BOQ** as the “Probable quantities” and comply with the rate of progress noted at the end of this Articles of Agreement for a sum of Rs \_\_\_\_\_ (Rupees \_\_\_\_\_ only) or such other sum as may be arrived at under the Clauses of the Standard Preliminary Specifications relating to payment on lump sum basis or by final measurement at unit prices.

## NOW IT IS HEREBY AGREED AS FOLLOWS

In consideration of the payment of the said sum of Rs \_\_\_\_\_ or such other sum as may be arrived at under the clauses of the Standard Preliminary Specifications relating to payment on lump sum basis or by final measurement at unit price, the contractor will upon and subject to the said

conditions execute and complete the works shown upon the said drawings and described in the said specifications and to the extent of probable quantities shown in the **BOQ** with such variations by way of alterations additions to, or deductions from the said works and method of payment there for as are provided for the said conditions.

The term Designated authority in the said conditions shall mean the officer of the Corporation in charge of the **Section** having jurisdiction for the time being over the work, who shall be competent to exercise all the powers and privileges reserved herein in favour of the Commission with the previous sanction of or subject to ratification by the **Commission Secretary** of the Commission in cases where such sanctions or ratification may be necessary.

The plans, agreement and documents above mentioned shall form the basis of this contract and the decision of the said Designated authority as to the materials, workmanship and to the intended interpretation of clauses of the Agreement or any other document attached here to shall be final and binding on both parties.

The said contract comprises of the building work above-mentioned and all subsidiary works connected there with within the same site as may be ordered to be done from time to time by the said Designated authority, even though such works may not be shown on the drawing or described in the said specifications of the priced schedule of quantities.

The Commission Secretary through the Project Director reserves to himself the right of altering the drawings and nature of the work and adding or omitting any items of work or of having portions of the same carried out departmentally or otherwise and such alterations or variations shall be carried out without prejudice to this contract.

If at any time after the commencement of the work, the **Commission Secretary** for any reason whatsoever does not require part thereof as specified in the tender to be carried out the Project Secretary/JD(TAFA) shall give notice in writing of the fact of the Contractor who shall have no claim to any payment of compensation whatsoever on account of any profit or advantage which he might have derived from the execution of the work in full but which he did not derive in consequences of the full amount of the work not having been carried out, neither shall he have any claim for compensation by reason of any alterations having been made in the original specifications, drawings designs and instructions which shall involve any curtailment of the work as originally contemplated.

Time shall be considered as essence of the Agreement and the contractor hereby agrees to commence the work as soon as his Agreement is accepted by the **Commission Secretary** and the site (or premises) is handed over to him as provided for in the said conditions and agrees to complete the work within the period of **10 Months** from the date of such handing over of the site (or premises) and to show progress as defined in the tabular statement Rate of progress, subject nevertheless to the provisions for extension of time as per the Clause 34 of the Section II.

The Arbitrator for fulfilling the duties set forth in the arbitration clauses of 37 to 39 which is enclosed to the contract.

The said conditions shall be read and construed as forming part of the agreement and the parties have to respectively abide by and submit themselves to the conditions and stipulations and perform the agreement in their parties respectively.

Upon the terms and conditions of this agreement being fulfilled and performed to the satisfaction of the Commission, the balance amount including any deposit of the contractor shall be returned after the expiry of liability period i.e. 24 months + defects correction period whichever is later after virtual completion of work as per drawings and tender conditions.

Payment will be made to the contractor under the certificate to be issued at reasonably frequent intervals by the Designated authority / Competent Authority. Intermediate payments will be made by the Designated authority / Competent Authority of a sum equal to 92 ½ percent of the value of work as so certified and the balance of 7 ½ percent will be with held and retained as a security for the due fulfillment of the contract. Under the certificate to be issued by the Designated authority / **Competent Authority** on the completion of the entire work, the contractor will receive final payment of all the money due or payable to him under or by virtue of the contract except PBG as security and a sum equal to 2 ½ percent of the total value of the work done provided there is no recovery from or forfeiture to be made under clause 60 of the PS to APSS. The amount with held from the final bill will be retained under "Deposits" and paid to the contractor together with the EMD retained as security after a period of 24 months after all defects shall have been made good according to the true intent and meaning thereof.

Under provisions of sections 194 (c) in the Income Tax Act under the Finance Bill, Income Tax as prescribed by the Government from time to time, on each and every payment made to the contractor will be deducted at source and will be credited to the Income Tax Department and necessary certificates will be issued to the contractor.

All disputes arising out or in any way connected with this agreement shall be deemed to have arisen in Hyderabad and only the courts in Hyderabad city shall have jurisdiction to determine the same.

In witness whereof the Contractor \_\_\_\_\_ has here into set his hands and **Commission Secretary** TSERC on behalf of and by the order and direction of the Commission has here up to set his hand the day and year first above written.

Signature of the Contractor \_\_\_\_\_

Address:

### Checklist

S.No	Particulars
1	Copy of Company Incorporation certificate/ partnership firm/ proprietor ship firm documents
2	GST Registration Certificate
3	Copy of PAN Card
4	Consortium Agreement (in case of consortium)
5	Proof of work completion certificate as per 2.1 a
6	Proof of Documentary evidence as per 2.1 b
7	A copy of certificate of LEED AP/ IGBC AP/ GRIHA CP as proof for 2.1 c
8	Declaration letter as per 2.1c
9	Annexure D
10	Annexure E
11	Annual turnover certificate as per 2.2 a
12	Profit and Loss A/c and Balance sheet as per 2.2 b
13	Attachment 1 - Bid Form on company letter head
14	Attachment 2 - Power of Attorney
15	Attachment 3 - Certificate regarding Acceptance of important conditions on company letter head
16	Attachment 4 Performa Bank Guarantee for contract performance
17	Attachment 5 - Letter of undertaking on company letterhead
18	Attachment 6 - Covering letter format on company letter head mentioning the submission of Bid addressed to the Secretary - TSERC
19	One complete set of tender document and subsequent amendments (if any), duly signed and stamped on each page along with related support documents
20	If any documents in support to the bid which are not mentioned in checklist, if any, to be uploaded here

tseprocsupport@vupadhi.com