



**BENGAL UNITECH UNIVERSAL INFRASTRUCTURE PVT. LTD.**

# **TENDER DOCUMENT**

**Balance Work for Civil, Structure, Finishing, MEP Works,  
External Development & External Services for AIR 1 at  
Uniworld City, Kolkata, (West Bengal)**

**Tender Document No.:  
UL/HL/KOL/Air1/2023/251**

**Issued by: M/s BENGAL UNITECH UNIVERSAL INFRASTRUCTURE PVT. LTD.**

## **MASTER DOCUMENT INDEX**

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**SECTION-1**

**Notice Inviting Tender**

**M/s BENGAL UNITECH UNIVERSAL INFRASTRUCTURE PVT. LTD.**

8/13<sup>th</sup> Floor, Tower B, Signature Tower, South City-1, Gurugram, 122001, Haryana

Date: 07 Nov 2023

**Notice Inviting Tender (NIT)**

1. **M/s BENGAL UNITECH UNIVERSAL INFRASTRUCTURE PVT. LTD.** affiliate of Unitech Limited (hereinafter referred to as the Employer), invites tenders from experienced and eligible agencies for **Execution of Balance Work for Civil, Structure, Finishing, MEP Works, External Development & External Services for AIR 1 at Uniworld City, Kolkata, (West Bengal), Uniworld City, Kolkata, (West Bengal)**, as per Schedule as under:

Sr. No.	Subject	Description
(i)	Tender Document No.	<b>UL/HL/KOL/Air1/2023/251</b>
(ii)	Bidding Process	<b>Two envelope bidding System</b> (i) To be uploaded/ filled as per the instructions given in <b>e-Tendering Procedure at Annexure - III.</b>
(iii)	Name of the Work	Balance Work for Civil, Structure, Finishing, MEP Works, External Development & External Services for AIR 1 at Uniworld City, Kolkata, (West Bengal)
(iv)	Brief Scope of Work	Execution of Balance Work for Civil, Structure, Finishing, MEP Works, External Development & External Services for AIR 1 at Uniworld City, Kolkata, (West Bengal)
(v)	Estimated Cost	Rs. 23,62,49,938/- (Excluding GST) (Twenty-Three Crore Sixty-Two Lacs Forty-Nine Thousand Nine Hundred Thirty-Eight Only)
(vi)	Period of Completion	18 Months
(vii)	Earnest Money Deposit	Rs. 2,50,000/- (Excluding GST) (Two Lacs Fifty Thousand Only)  <b>Bank details of the Employer for preparation of Bank guarantee only:</b> <b>Name of Beneficiary:</b> Unitech Limited <b>Bank:</b> ICICI Bank Limited <b>Current A/c No.:</b> 245105001682 <b>IFSC Code:</b> ICIC0002451 <b>CIF ID:</b> 587747798

<b>Sr. No.</b>	<b>Subject</b>	<b>Description</b>
(viii)	Non-refundable cost of Tender document	Rs. 10,000 + GST@ 18% through e-payment gateway.
(ix)	Non-refundable e-Tender processing fee	Rs. 5,000 + GST@ 18% through e-payment gateway
(x)	Site Visit with PMC/ Employer	On 14 Nov 2023 & 15 Nov 2023
(xi)	Site Visit – Contact	Bidder may contact following for conducting site visit. 1. Mr. Prasanta Roy (Unitech) +91 90070 26192 2. Mr. Saptarshi Hazra (Hill International) +91 89185 89696
(xii)	Last date of receipt of Bidder's Queries in consolidated form	13 Nov 2023 via email at <a href="mailto:Hill@unitechgroup.com">Hill@unitechgroup.com</a>
(xiii)	Pre-Tender Meeting (Time & Venue)	16 Nov 2023 03:00 pm (Online/Virtual Meeting)
(xiv)	Last date & time of submission of Online Tender	Up to 08 Dec 2023 by 04.00PM (IST)
(xv)	Date & Time of Opening of Technical Bids	11 Dec 2023 by 11.00AM (IST)
(xvi)	Intimation of technically qualified bids.	To be notified later
(xvii)	Date & time of opening of Financial Bids of technically qualified bidders.	To be notified later
(xviii)	Validity of offer	180 days from the date of opening of Technical Bid.

1.2 The tender document can be downloaded from the website [www.unitechgroup.com](http://www.unitechgroup.com)

**1.3 Corrigendum, if any, would appear only on the website and not to be published in any Newspaper.**

## **2.0 Eligibility Criteria:**

The interested bidders should meet the following qualifying criteria:

### **2.1 Work Experience:**

- (i) Experience of having successfully completed similar works during the last 07 (seven) years ending previous day of last date of submission of tenders.

- (a) Three similar works each costing not less than 40% of the estimated cost put to tender, OR
- (b) Two similar works each costing not less than 60% of the estimated cost put to tender, OR
- (c) One similar work costing not less than 80% of the estimated cost put to tender.

AND

- (ii) One of the buildings proposed by bidder for qualification should at least have completed a similar work in buildings having equal to or more than 50% of the number of storeys or 12 storeys, whichever is lower of the tallest building as mentioned in the brief scope of work above.

“Similar works” shall mean “Commercial/ Institutional/ Multi-storeyed residential buildings”.

**Notes: -**

- (i) The past experience in similar nature of work should be supported by certificates i.e., copies of Letter of Award & Completion Certificate issued by the respective Employer’s organizations. In case, the work experience is of Private sector, the said certificates shall be supported with copies of Corresponding TDS Certificates. Value of work will be computed from the amount reflected in the TDS Certificates in conjunction with the completion certificate.
- (ii) The value of executed works shall be brought to the current level by enhancing the actual value of work done at a simple rate of 7% per annum, calculated from the date of completion to the date of submission of tenders including extension(s) given, if any.
- (iii) The values of completed work shall be exclusive of Service Tax/GST. Bidder shall produce documentary evidence against the Taxes & Duties applicable against the concerned job(s). In case the value of job submitted by the bidder does not have clarity with regard to inclusion/ exclusion of Service tax/GST, the amount appearing in the Completion Certificate, the bidder shall provide statutory auditors certificates clearly stating the service tax/GST in the computation to arrive at the completed work value in conjunction with the completion certificate. In case where such certification is not provided or the completion certificate does not have clarity, the value of completed work shall be considered inclusive of applicable Service Tax/ GST @18% tax and shall be evaluated accordingly.
- (iv) **Joint venture/ consortium of firms/ companies shall not be allowed, and the bidder should meet the above criteria himself.**
- (v) **Certificates of Subsidiary/ Group Companies:**
  - (a) Any company/ firm while submitting the bid can use the work experience of its subsidiary company to the extent of its ownership in

the subsidiary company.

- (b) In case, the companies/ firms, which intend to get qualified on the basis of experience of the parent company/ group company, the same shall not be considered. However, for the purpose of clarification, the parent company by itself only can submit the bid.
- (c) In case, the companies/ firms, which intend to get qualified on the basis of experience of their own works/in-house works, the same shall not be considered.
- (d) In case of a Company/ firm, formed after merger and/ or acquisition of other companies/ firms, past experience and other antecedents of the merged/ acquired companies/ firms will be considered for qualification of such Company/ firm provided such Company/ firm continues to own the requisite assets and resources of the merged/ acquired companies/ firms relevant to the claimed experience.

(vi) **Foreign Certificate:**

- (a) In case the work experience is for the work executed outside India, the bidders must submit the completion/ experience certificate issued by the owner duly signed & stamped and a self-attested undertaking towards the correctness of the completion/ experience certificates. The contractor shall also get the completion/ experience certificates attested by the Indian Embassy/ Consulate/ High Commission in the respective country.
- (b) In the event of submission of completion/ experience certificate by the Bidder in a language other than English, the English translation of the same shall be duly authenticated by Chamber of Commerce of the respective country and attested by the Indian Embassy/ Consulate/ High Commission of the respective country.
- (c) For the purpose of evaluation of bidders, the conversion rate of such currency into INR shall be arrived at by the daily representative exchange rate published by the IMF as of 7 (Seven) days prior to last date of Submission of bid including extension(s) given, if any.

**2.2 Financial Strength:**

- (i) The average annual financial turnover for the three best out of last five financial years, ending 31st of the March of the previous financial year, shall be at least 35% of the estimated cost put to tender. The requisite Turnover shall be duly certified by a Chartered Accountant/ Statutory Auditor with his Seal/ signatures and registration number. In case of Companies/ Firms less than 3 years old, the Average annual financial turnover shall be worked as relevant to the available period only.
- (ii) Net Worth of the company/ firm as on the last day of preceding Financial Year should be positive.

Net worth means paid-up share capital, Share Application Money pending allotment\*

and reserves # less accumulated losses and deferred expenditure to the extent not written off. Net worth has been calculated using the following formula.

*# Reserves to be considered for the purpose of Net worth shall be all reserves created out of the profits and securities premium account but shall not include reserves created out of revaluation of assets, write back of depreciation and amalgamation.*

*\* Share Application Money pending allotment will be considered only in respect of share to be allotted.*

Paid up share capital	XX
Add: Share Application Money pending allotment	XX
Add: Reserves (As defined Above)	XX
Less: accumulated losses	XX
Less: Deferred Revenue Expenditure to the extent not written off	XX
<b>Net Worth</b>	<b>XX</b>

**Notes:-**

- (a) Self-certified copy of Bank Solvency Certificate issued from Nationalized or any Schedule Bank should be at least 40% of Estimated Cost of the Project put to tender. The certificate should have been issued within 6 months from the last date of the submission of the tender including extension(s) given if any.

Bank Solvency Certificate is not required if estimated cost put to tender is less than or equal to INR 25 Crore.

- (b) The bidders are required to upload and submit one page of summarized Balance Sheet (Audited) and also one page of summarized Profit & Loss Account (Audited) for the last three years.

**3.0** The intending bidder must read the terms and conditions of this document carefully including the checklist at **Annexure-IV**. He should submit his tender only if he considers himself eligible and he is in possession of all the documents required. Information and Instructions/addendums for bidders posted on Website(s) shall form part of the Tender Document.

**4.0** The Tender Document, as uploaded, can be viewed and downloaded free of cost by the intending tenderer. However, the tender can be submitted only after payment of (a) Non-refundable cost of tender document (b) Non-refundable Tender Processing Fee and (c) EMD through e- payment gateway & all other documents shall be as per Notice Inviting e-tender

**5.0** Set of Contract/ Tender Documents:

The following documents will constitute set of tender documents:

- (i) Notice Inviting e-Tender
- (ii) Summary of price
- (iii) Instructions to Tenderers & General Conditions of Contract



- (iv) Technical Specifications
- (v) Bill of Quantities
- (vi) List of approved makes of materials
- (vii) Tender Drawings
- (viii) GENERAL DETAILS Annexure-I
- (ix) Acceptance of Tender Conditions
- (x) Integrity Pact at Annexure-II (To be signed and stamped by the contractors and scanned copy to be uploaded with the bid)
- (xi) Addendum/ Corrigendum, if any, - Duly signed by the authorized person
- (xii) Special Conditions of Contract
- (xiii) Pre-Tender clarifications, if any

- 6.0** The bidders are required to quote strictly as per terms and conditions, specifications, standards given in the tender documents and is not allowed to stipulate any deviations/ conditions.

The bidders are advised to submit complete details with their bids as Technical Bid Evaluation will be done on the basis of documents uploaded on the website by the bidders with the bids. The procedure for e-Tendering, including the maximum allowable file size for the upload, is described at **Annexure-III** and must be complied by the tenderer for successful bid submission. The information should be submitted in the prescribed Performa and only in PDF format as per the sequence defined in the checklist at **Annexure IV**. All pages of all submittals are to be duly signed/attested by the authorised signatory of the bidder along with the company seal.

Bids with Incomplete / Ambiguous information will be rejected.

The Bank Guarantee for EMD submitted by the bidders shall be strictly in the format prescribed in the General Conditions of Contract GCC. In case, EMD is not found verbatim in the prescribed format, the bid will be liable for rejection.

- 7.0** The bidders are advised in their own interest to submit their bid documents well in advance from last date/ time of submission of bids so as to avoid problems which the bidders may face in submission at the last moment/during rush hours for the purpose of uploading the bids.
- 8.0** On the opening date, the tenderer can login and see the tender opening process.
- 9.0** Notwithstanding anything stated above, the Employer reserves the right to assess the capabilities and capacity of the tenderer to perform the contract in the overall interest of work. In case, bidder's capabilities and capacities are not found satisfactory, the Employer reserves the right to reject the tender and the bidder will have no objection to it.

**10.0 Certificate of Financial Turn Over:**

The submission at Clause 2.2 part (ii) (b) above of the audited balance sheet and P&L account, the bidder shall upload the certificate duly attested by the Chartered Accountant/statutory auditor mentioning the Financial Turnover of last 3 years,

however, the entire voluminous balance sheets or P&L accounts are not to be uploaded. Only one page of summarized balance sheet (Audited) and one page of summarized Profit & Loss Account (Audited) copy for last 03 years shall be uploaded and the same shall also be submitted in hard copy.

**11.0** The bidder must ensure to quote separate rates of percentage for Schedule-A and Schedule-B items. The Rate shall be quoted up to two decimals places. The rate of percentage (above, at par or below) quoted by the bidder for Schedule-A items will be applicable to all items covered under Schedule-A and the rate of percentage (above, at par or below) quoted by the bidder for Schedule-B items will be applicable to all items covered under Schedule-B. The evaluation of Lowest (L1) bid shall be done based on the SUM of the value quoted by the bidder towards combined Schedule-A and Schedule-B items.

- a. In case bidder has quoted percentage increase or decrease and the total amount in the summary of prices, but there is discrepancy in total amount, quoted and the amount arrived at after calculating the percentage increase/ decrease quoted by the bidder over Estimated Cost, then the total amount shall be corrected based on the estimated cost and the quoted percentage
- b. In case bidder has quoted the percentage and the total amount in summary of prices, but increase or decrease (“+” or “-”) has not been indicated by the bidder against the % figure, then the amount quoted by bidder shall be considered and the percentage increase/ decrease shall be calculated based on the total amount quoted by the bidder and Estimate Cost.
- c. In case bidder has quoted the percentage in the summary of prices, but the total amount has not been quoted and increase or decrease (“+” or “-”) has not been indicated against the % figure, then the ‘+’ shall be considered for the % figure.
- d. In case the bidder left the % and amount Blank, % increase/ decrease shall be considered as NIL.

**12.0** The tenderer(s) if required, may submit queries, if any, through E-mail and in writing to the Employer to seek clarifications within 15 days from the date of uploading of Tender on website but latest by 13 Nov 2023 so as to reach the office not less than 01 day prior to the date of Pre-bid meeting. The Employer will respond to only those queries which are essentially required for submission of bids. The Employer may not respond to the queries which are not considered fit, viz. replies of which can be implied/ found in the NIT/ Tender documents or which are not relevant or in contravention to NIT/ Tender Documents and the queries received after 15 days from the date of uploading of Tender on website. Technical Bids are to be opened on the scheduled dates. **Requests for Extension of Bid submission will not be entertained.**

The Pre-Bid meeting shall be attended by the intending bidders only and not by vendors/ manufacturers. The intending bidders should depute their authorized person with authorization letter in original to attend the pre-bid meeting.

**13.0 Integrity Pact**

Integrity Pact at **Annexure-II** duly signed and stamped by the tenderer, shall be submitted. Any tenderer submitting the bid without the integrity Pact shall be liable for rejection.

**14.0** The Bidder shall submit an affidavit disclosing therein that no criminal case against him/ company, in relation to his normal course of business, is pending at any level including any inquiry by the Central Bureau of Investigation (CBI)/ Enforcement Directorate (ED).

**15.0 List of Documents to be scanned, uploaded and also to be submitted in hard copy within the period of tender submission:**

- (i) If EMD submitted as BG - Upload scanned copy of Bank Guarantee
- (ii) GENERAL DETAILS as per Annexure-I.
- (iii) Unconditional Letter of Acceptance of Tender Conditions (in original) on the Letter Head of the Applicant/ Bidder.
- (iv) Integrity pact as per Annexure -II.
- (v) Details of Work Experience Certificates –FORM A.
- (vi) Details of Similar Works – FORM B.
- (vii) Financial Details - FORM C.
- (viii) TDS details for Private Sector Projects – FORM D.
- (ix) Self-certified copy of Bank Solvency Certificate - FORM E.
- (x) Documents regarding Net Worth of the Company/ Firm.
- (xi) General Information – Form F.
- (xii) Work Experience Certificates consisting of details as mentioned in Form G.
- (xiii) Affidavit duly notarized by Notary Public on Non-Judicial Stamp Paper of Rs. 100/- for correctness of Documents /Information – Form H.
- (xiv) Power of Attorney in the name of the person authorized for signing/ submitting the tender.
- (xv) E-payment Transaction details towards cost of e-tender processing fee.
- (xvi) Valid GST registration/ EPF registration/ PAN No.
- (xvii) All pages of the entire Corrigendum (if any) duly signed by the authorized person.
- (xviii) Registration Details of the bidder in the GST Act – Form I.
- (xix) Checklist compliance as per Annexure IV.

**Notes:**

- (i) All the uploaded documents should be in readable, printable and legible form, failing which the bids are liable for rejection. The document submitted in hard copy should be indexed and duly page numbered in the sequence as per the checklist at Annexure

IV.

- (ii) In case of foreign bidders participating individually, the bidder is exempted from submission of GST/ EPF/ ESIC registration/ PAN etc. including all other statutory registrations/ permissions/ approvals for executing work in India during bid submission. However, foreign bidders have to submit undertaking on a pre-approved format stating that they will be complying with such mandatory requirements within 60 days of issue of Letter of award. Such format, for the purposes of approval, should reach the Employer on or before the date of the Pre-bid meeting.
  - (iii) The Contract agreement shall be signed with successful Bidder only after meeting out all above requirements. No payment during the execution of work shall be released till the compliance to above requirements. In case of non-fulfilment of any such requirement by the successful bidder within the stipulated time period, the EMD shall be forfeited, and the bidder will be put under holiday list of the Employer and its parent company M/s Unitech Ltd.
  - (iv) The foreign bidder can provide the credit limit documents in lieu of Solvency Certificate.
- 16.0** No Clarification will be sought in case of non-submission of Cost of tender document, EMD of requisite amount, Letter of Waiver as per Section 4 (Forms and formats) and Affidavit as per Form H of Section 2 of the bidding document. In such cases the bid shall be rejected out rightly without seeking any further clarification/document.
- 17.0** The Employer reserves the right to reject any or all tenders or cancel/withdraw the invitation for bid without assigning any reasons whatsoever thereof. The Employer does not bind itself to accept lowest tender and reserves the right to negotiate post the financial bid opening if it may so deem fit.
- 18.0** For all scheduled BOQ items as per Schedule A, the nomenclature/rates/unit of applicable DSR items shall be applicable. In case, any ambiguity is observed in scheduled BOQ items, nomenclature, unit and rate of relevant DSR item will hold good.
- 19.0** Canvassing in connection in the overall tender award process is strictly prohibited, and such canvassed tenders submitted by the bidder will be liable to be rejected and his earnest money shall be forfeited.
- 20.0** In case of any query, please contact [Hill@unitechgroup.com](mailto:Hill@unitechgroup.com) during Office hours on all working days.

(.....)

## General Details

Sl. No.	Description	Cl. No. of NIT/ ITT/ GCC	Values/ Description to be Applicable for Relevant Clause(s)						
1	Name of Work		Balance Work for Civil, Structure, Finishing, MEP Works, External Development & External Services for AIR 1 at Uniworld City, Kolkata, (West Bengal)						
2	Employer		M /s BENGAL UNITECH UNIVERSAL INFRASTRUCTURE PVT. LTD.						
3	Type of Tender		Item rate						
4	Earnest Money Deposit	NIT	Rs. 2,50,000/- (Excluding GST) (Two Lacs Fifty Thousand Only)						
5	Estimated Cost	NIT	Rs. 23,62,49,938/- (Excluding GST) (Twenty-Three Crore Sixty-Two Lacs Forty-Nine Thousand Nine Hundred Thirty-Eight Only)						
6	Time allowed for Completion of Work	NIT	18 Months						
7	Mobilization Advance	GCC / 4.0	Up to 5% of contract value						
8	Rate of interest on Mobilization Advance	GCC /4.0	Mobilization Advance shall bear an Interest @ 9% per annum						
9	Validity of Tender	ITT /7.0	180 days						
10	Performance Guarantee	GCC / 2.0	3% (Three Per cent Only) of contract value to be submitted within 15 days of issue of Letter of Award						
11	Security Deposit/ Retention Money	GCC / 3.0	5% (Five Per cent Only) of the gross value of each running/ final bill.						
12	Start date of Contract	GCC/1.0	The date of start of contract shall be reckoned from 15 <sup>th</sup> day from the date of issue of letter of Award.						
13	Deviation limit beyond which clause of GCC shall apply for all works except foundations.	GCC/ 6.0	<table><tr><td>Building Work</td><td>Repair of Buildings</td><td>Road Work</td></tr><tr><td>30%</td><td>50%</td><td>50%</td></tr></table>	Building Work	Repair of Buildings	Road Work	30%	50%	50%
Building Work	Repair of Buildings	Road Work							
30%	50%	50%							
14	Deviation limit beyond which clause of GCC shall apply for foundation work.	GCC/ 6.0	<table><tr><td>Building Work</td><td>Repair of Buildings</td><td>Road Work</td></tr><tr><td>100%</td><td>NA</td><td>NA</td></tr></table>	Building Work	Repair of Buildings	Road Work	100%	NA	NA
Building Work	Repair of Buildings	Road Work							
100%	NA	NA							

<b>Sl. No.</b>	<b>Description</b>	<b>Cl. No. of NIT/ ITT/ GCC</b>	<b>Values/ Description to be Applicable for Relevant Clause(s)</b>
15	Escalation	GCC / 7.0	For operation of Clause 7.0, the basic rate of materials as on last date of receipt of tender will be as under - (a) Cement (b) Reinforcement steel/ TMT (c) Structural steel
16	Defect Liability Period	GCC/ 42.0	05 (Five) years from the date of Issuance of Completion Certificate for the works by the Employer.

## **SECTION - 2**

### **Instructions to Tenderers**

## **Instructions to Tenderers (ITT)**

1. Online percentage rate open tenders are invited from eligible agencies for **Execution of Balance Work for Civil, Structure, Finishing, MEP Works, External Development & External Services for AIR 1 at Uniworld City, Kolkata, (West Bengal)** for **M /s BENGAL UNITECH UNIVERSAL INFRASTRUCTURE PVT. LTD.**
2. The work is estimated to cost **Rs. 23,62,49,938/- (Excluding GST) (Twenty-Three Crore Sixty-Two Lacs Forty-Nine Thousand Nine Hundred Thirty-Eight Only).**
3. The tender document, as uploaded, can be seen on website [www.unitechgroup.com](http://www.unitechgroup.com) and can be downloaded free of cost.
4. **Earnest Money Deposit**
  - (i) Earnest Money Deposit (EMD) i.e., **Rs. 2,50,000/- (Excluding GST) (Two Lacs Fifty Thousand Only)** to be paid online on the eTendering portal or as a Bank Guarantee (BG).
  - (ii) The EMD shall be valid for a minimum period of 180 (One Hundred Eighty) days from the last date of submission of Tender. The Bank Guarantee (BG) against EMD shall be scanned and uploaded to the e-Tendering website at the time of tender submission. The original BG shall be maintained with the bidder and deposited in the office of Employer as and when demanded. The EMD shall be payable to the Employer without any condition(s), recourse or reservations.
  - (iii) Wherever the EMD is not paid in the online mode, scanned copy of BG should be uploaded on the portal, Original copy of BG shall be submitted to the Employer as and when demanded by them, failing which the Employer have the right to reject the Bid.
  - (iv) The Employer will verify all EMD submitted as a BG with the issuing bank. Incase the BG is not confirmed by the bank the bid will be marked as unresponsive and will be rejected.
  - (v) The EMD of unsuccessful bidders will be returned within 15 days after the award of work to the successful bidder or within 180 days from the date of opening of the financial bid, whichever is earlier.
  - (vi) The EMD of the successful bidder will be discharged after the contractor has furnished the performance guarantee.
  - (vii) No interest shall be paid by the Employer on the EMD.
  - (viii) The EMD shall be forfeited in the following events:
    - (a) If the bidder withdraws the bid after bid opening during the period of validity;
    - (b) Any unilateral revision in the offer made by the tenderer during the validity of the offer.
    - (c) Upon non-acceptance of LOI/ LOA by bidder, if and when issued by the Employer.
    - (d) In the case of a successful bidder, if the bidder fails to sign the contract Agreement within 15 days from the date of issue of LOA or furnish the required Performance Guarantee or fail to mobilise within 30 days of the LOA/LOI.
    - (e) If any bidder furnishes any incorrect or false statement/ information/



document.

- (f) If bidder commits any breach of the Integrity Pact.
- 5. Interested bidder, who intends to participate in the tender, has to make following payments online
  - (a) Cost of Tender Document (Non-refundable) – Rs.10,000.00 + GST@ 18%
  - (b) Cost of e-Tender Processing Fee (Non- refundable) – Rs. 5,000.00 + GST @ 18%.
  - (c) EMD amount as specified in previous section. To be paid online or as BG. In case of BG the scanned copy of BG shall be uploaded on the portal failing which the bid will be rejected.
- 6. Online technical tender documents only of those tenderers shall be opened, whose Earnest Money Deposit, Cost of Tender Document and e-Tender Processing Fee and other documents submitted are found in order. The Financial Bids of only those tenderers will be opened whose technical bid documents are complete in all respect and meet the qualification criteria.
- 7. **Validity of Tender**

The tender for the works shall remain open for acceptance by the bidder for a period of 180 days from the date of opening of financial bid. If any tenderer withdraws his tender before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the tender which are not acceptable to the Employer, then the Employer shall, without prejudice to any other right or remedy, be at a liberty to forfeit the Earnest Money Deposit of the bidder. Further, the tenderers shall be put under holiday list of the Employer and its parent company M/s Unitech Ltd.
- 8. The tender submitted shall become invalid if:
  - (a) The tenderer is found ineligible on technical evaluation.
  - (b) The tenderer does not upload all the documents as stipulated in the tender document.
- 9. **Acceptance of Tender**

The Employer reserves the right to reject any or all the tenders in part or full without assigning any reason whatsoever.
- 10. The bid shall be submitted strictly in accordance with the conditions of Contract and instructions to tenderer. Tenders with any additional condition(s)/ modifications shall be rejected. Tenders, in which any of the prescribed conditions are not fulfilled or found incomplete in any respect, are liable to be rejected.
- 11. On acceptance of tender, the name of the authorised representative(s) of the contractor, who would be responsible for taking instructions from the Engineer-in-Charge, shall be intimated by the contractor within 15 days of issue date of Letter of Award by the Employer.
- 12. The tenderer is not permitted to bid for the works if his family member or a close relative is posted in the project office or concerned Zonal Office of the Employer or its parent company Unitech Limited, unless otherwise permitted. The contractor shall

also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are close relatives to any of the officers of the Employer or its parent company Unitech Limited through the entire duration/ time period of the project. Any breach of this condition by the tenderer would render him liable to the withdrawal of the work awarded to him and forfeiture of Earnest Money Deposit and Security Deposit. This may also debar the contractor from tendering for other/ future works of the Employer or its parent company Unitech Ltd. For the purpose of operation of this clause, a close relative shall mean wife, husband, parents, grandparents, children, grandchildren, brothers, sisters, uncles, aunts, cousins and their corresponding in-laws.

13. The time for completion of the work as contained in contract shall be as per "GENERAL DETAILS - **Annexure-I**".
14. Canvassing, whether directly or indirectly, with Employers/ PMC/ TPIA is strictly prohibited, and the tenders submitted by the bidders, who resort to canvassing, will be liable for rejection.
15. The tender award, execution and completion of work shall be governed by tender documents consisting of (but not limited to) Letter of Award/ Letter of Work Order, Bill of Quantities, General Conditions of Contract, Special Conditions of Contract, Specifications, Drawings. The tenderers shall be deemed to have gone through the various conditions including sub-soil water conditions, topography of the land, drainage and accessibility etc. or any other condition which, in his opinion, will affect his price/ rates before quoting their rates for the work. No claim whatsoever against the foregoing shall be entertained at any stage after the award of works.
16. The drawings issued with the tender documents are indicative. Works shall be carried out as per "Good For Construction/ GFC drawings issued by Engineer-in-Charge to the Contractor" and the "Shop Drawings prepared by the Contractor and approved by Engineer-in-Charge".

**17. Addenda/ Corrigenda**

Addenda/Corrigenda to the tender documents may be issued at least three days prior to last date of submission of the tender to clarify or effect modification in specification(s) and/or contract terms included in various sections of the tender document. The tenderer shall suitably take into consideration such Addenda/Corrigenda while submitting his tender. The tenderer shall return such Addenda/ Corrigenda duly signed and stamped as confirmation of its receipt & acceptance and submit along with the tender document as per **Annexure - IV**. All addenda/ Corrigenda shall be signed and stamped on each page by the tenderer and shall become part of the tender and contract documents.

**18. Site Visit and Collecting Local Information**

Before tendering, the tenderers are advised to visit the site of work, the present status of the project/ work, its surroundings to assess and satisfy themselves about the local conditions such as the status of the project, working and other constraints at site, approach roads to the site, availability of water & electrical power supply,

application of taxes/ duties/ levies/ Toll/ Octroi as applicable & any other relevant information required by them to execute the complete scope of work. It becomes even more important in the case of brown-field projects where part works have already been executed that the tenderer obtain all necessary information as to the risks, weather conditions, contingencies & other circumstances, which may influence or affect its tender prices. Tenderer shall be deemed to have considered the above site and local conditions whether he has inspected the site or not and to have satisfied himself in all respect before quoting his rates so as not to raise any claims or extra charges whatsoever in this regard during the entire duration of the project execution, upon completion or during the defect liability period. No claims or extra charges whatsoever shall be entertained/ payable by the Employer on a later date after award of work.

**19. Access by Road**

- (i) Contractor, if necessary, shall build temporary access roads to the site of construction for the works at his own cost to make the site accessible. The Contractor shall maintain the same in motorable condition at all the times at his own cost. The contractor shall be required to permit the use of any access roads so constructed by him for vehicles of the Employer or any other agencies/ contractors who may be engaged on the project site without any charges whatsoever.
- (ii) Non-availability of access roads or approach to site, for the use of the contractor shall in no case condone any delay in the execution of work nor be the cause for any claim for Penalty.

**20. Handing Over & Clearing of Site**

- (i) The Contractor should note that the area for construction may be made available in phases as per availability and in conjunction with pace of actual progress of work at site. The work may require to be carried out in constrained conditions. The work is to be carried out in such a way that the traffic, people movement, if any, is kept operative and nothing extra shall be payable to the contractor due to this phasing/ sequencing of the work. The contractor is required to arrange the resources to complete the entire project within total stipulated completion time of the contract. Traffic diversion, if required, is to be done and maintained as per requirement of local traffic police, by the contractor at his own cost and the contractor shall not be entitled for any extra payment, whatsoever, in this regard.
- (ii) Efforts will be made by the Engineer-in-Charge/ Employer to handover the site to the Contractor free of encumbrances. However, in case of any delay in handing over of the site to the Contractor, the Employer shall only consider suitable extension of time for the execution of the work. It should be clearly understood that the Employer shall not consider any revision in contract price or any other Compensation whatsoever viz. towards any idling of Contractor's labour, equipment etc.
- (iii) Old/ Temporary structures on the site of work, if required, shall be demolished by the contractor properly at his own cost unless and otherwise mentioned elsewhere in the Schedule A & B of the financial bid or as mentioned in SCC. The useful material obtained from demolition of structures & services shall be the property of the

Employer and these materials shall be stacked as directed and at the place specified by the Engineer-in-Charge.

- (iv) Necessary arrangement including site maintenance is to be made by the contractor for temporary diversion of flow of existing drain, road etc. The existing drain, road would be demolished, wherever required, with the progress of work under the scope of work. The existing Road and Drain, which are not in the alignment of the said project but are affected and/or need to be demolished during execution for smooth progress of the project, shall be re-constructed/re-habilitated to its original status and condition by the contractor at his own cost. The cost to be incurred by contractor in this regard shall be deemed to be included in the quoted rates and contractor shall not be entitled for any extra payment on this account whatsoever.
- (v) The information about the public utilities (whether over ground or underground) like electrical/ telephone/ water supply lines, OFC Cables, open drain etc. is the responsibility of contractor to ascertain through the site investigation whether the utilities will affect the works.
- (vi) The contractor shall be responsible for obtaining necessary approvals from the respective statutory authorities for shifting/ re-alignment of existing public utilities. The Employer shall only assist the contractor in obtaining the approvals from the concerned statutory authorities.
- (vii) Any services affected by the works must be temporarily supported by the bidder/ contractor who shall also take all reasonable measures required to protect the services and property of various government/ private bodies during the progress of works. The cost towards the same is deemed to be a part of the contract bid, and no extra payment shall be made to the contractor for the same.

## **21. Scope of Work**

- (i) The scope of work covered in this tender shall be as per the Bill of Quantities, specifications, drawings, instructions, orders issued to the contractor from time to time during the execution of work. The drawings for this work, which may be referred for tendering, provide general information about the work to be performed under the scope of this contract. These may not be the final drawings and may not indicate the full range of the work under the scope of this contract. The work will be executed according to the drawings to be released as "GOOD FOR CONSTRUCTION" from time to time by the Engineer-in-charge and according to any additions/ modifications/ alterations/ deletions made from time to time, as required by any other drawings that would be issued to the contractor progressively during execution of work. It shall be the responsibility of the contractor to incorporate the changes that may be in this scope of work, envisaged at the time of tendering and as actually required to be executed.
- (ii) The quantities of various items as entered in the "BILL OF QUANTITIES" are approximate and may vary depending upon the actual requirement of the work. The contractor shall be bound to carry out and complete the stipulated work irrespective of the variation in individual items specified in the bill of quantities. The variation of quantities will be governed as per Section 3, clause No. 6.0 of the contract.

## **22. Approval of Temporary / Enabling Works**

The setting and nature of all offices, huts, access road to the work and all other temporary works as may be required for proper execution of the works shall be subject to the approval of the Engineer- in-Charge. All the equipment, labour, material including cement, reinforcement and the structural steel required for the enabling/ temporary works associated with the entire Contract shall have to be arranged by the Contractor only and at his own costs and is deemed to be considered in the bid price. Nothing extra shall be paid to the Contractor on this account.

## **23. Clarifications after Tender Submission**

Tenderer's attention is drawn to the fact that during the period the tenders are under consideration, the tenderers are advised to refrain from contacting the Employer and/or his employees/ representatives on matters related to the tender under consideration and that, if necessary, Employer/ PMC will obtain clarifications in writing or as may be necessary.

## **24. Order of Precedence of Documents**

In case of any difference, contradiction, discrepancy, regarding the conditions of contract, specifications, drawings, Bill of quantities etc. forming part of the contract, the following shall prevail in order of precedence:

- (i) Contract Agreement
- (ii) Letter of Award
- (iii) Bill of Quantities
- (iv) GFC Drawings
- (v) Technical Specifications
- (vi) Special Conditions of Contract
- (vii) Instructions to Tenderers
- (viii) General Conditions of Contract
- (ix) Others

## Integrity Pact

To be executed Between

The Employer and its representatives such as the PMC/TPIA hereinafter referred to as **"The Principal"** (which expression, unless repugnant to the context thereof, shall mean and include its legal representatives, heirs and assigns)

AND

..... hereinafter referred to as **"The Bidder/ Contractor"** (which expression, unless repugnant to the context thereof, shall mean and include its legal representatives, heirs and assigns)

### Preamble

1. Unitech Limited, along with its project owning subsidiaries, being the Employer, is in the process of inviting proposals & bids and award of contracts for procurement, works, goods and services, for completion of its various residential and commercial projects in fulfilment of its given mandate.
2. The Employer places a very high value to the overall integrity, probity and honesty, promoting economic use of resources, and ensure fairness/transparency in its relations with its Bidder(s) and/ or Contractor(s). In order to ensure that highest level of integrity, transparency and trustworthiness is maintained throughout the execution and completion of all its projects, the Employer proposes to adopt and follow an 'Integrity Pact' with the prospective bidders/ contractors. The Integrity Pact is applicable to all the stakeholders i.e. the Contractors and their personnel, the Project Management Consulting agencies and staff, the Engineers India Limited (EIL) and their staff in its role as the Third Party Monitoring Agency, and above all, the Employer and its staff. It seeks the commitment of all persons engaged on these projects on whosoever's behalf to perform without compromising on any aspect, or resorting to any unethical or corrupt practices in any aspect/ stage of the contract, or exercise any unwarranted influence or be influenced on any aspect of the contract or transaction. Only those bidders/ contractors, who commit themselves to this Integrity Pact, would be considered eligible to participate in the bidding process.
3. In order to achieve these goals, the Employer, the EIL and the Project Management Consultants (appointed by the Employer) will monitor the tender process and execution of the contract for compliance with the principles mentioned above.

### Section -1: Commitments of the Employer

Unitech Group, along with its staff, commit itself to take all measures necessary to prevent any form of corruption and to observe the following principles:-

- (i) No employee of the Employer or the PMC or the Third Party Inspection & Monitoring Agency (appointed by the Employer) personally or through any other persons/ family members, will take a promise or demand or accept for self or third person, any material or other benefit or consideration, which the person is not legally entitled to in connection with the tender, or the execution of a contract.

- (ii) The Employer or its agents (i.e. the PMCs and the TPIA) will treat all Bidder (s) with equity, fairness and transparency during the tender process. It will, in particular, before and during the tender process, provide to all Bidder (s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an unfair advantage in relation to the process or the contract execution.

## **Section -2: Commitments of Bidders (s)/ Contractor(s)**

The Bidder(s)/Contractor(s) shall also commit himself/herself/ themselves to take all measures necessary to prevent all forms of corruption. The Bidder commits himself/herself to observe the following principles during his/her participation in the tender process and thereafter during the contract execution.

- (i) The Bidder(s)/ Contractor(s) shall not, directly or through any other persons or firm, offer, promise or give to any Employee of the Employer or its agents (PMCs and TPIA) involved in the tender process or the execution of the contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage during the tender process or during the execution of the contract.
- (ii) The Bidder(s)/ Contractor(s) shall not enter into any undisclosed agreement or understanding, whether formal or informal, whether collusive or otherwise, with other Bidders. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process in any manner.
- (iii) The Bidder(s)/ Contractor(s) shall not commit any offence surrounding the observance of integrity under any law. The Bidder(s)/ Contractors will not indulge in any improper use of any information or document provided by the Employer or its agents in the course of a business relationship, for purposes of competition or personal gain, or pass on to others such information or documents regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- (iv) In case of sub-contracting, Bidder (s)/ Contractor(s) shall also like-wise ensure the adoption and signing of the Integrity Pact by the respective sub-contractors.
- (v) The Bidder(s)/ Contractor(s) shall, when presenting their/ its bid, faithfully disclose any and all payments he/she/it has made or committed or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

## **Section-3: Equal treatment of the Bidders/Contractors/Subcontractors.**

- (i) The bidders(s)/ contractor(s) undertake(s) to obtain a commitment in conformity with this integrity pact from all the sub-contractors.
- (ii) The Employer shall enter into agreements with identical conditions with all bidders and contractors.
- (iii) Employer will disqualify the bidders, who do not sign this Integrity Pact or violate its

provisions, from the tender process.

**Section-4: Disqualification from tender process and exclusion from future contracts.**

If the Bidder(s)/ Contractor(s), before award or during the project execution, has committed a transgression through a violation of Section-2 above or in any other form such as to put his reliability or credibility in question, the Employer is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process and restrict the Bidder (s)/ Contractor(s) from participating in future tenders of the Employer for a period of two years.

**Section-5: Compensation for Damages**

If the Employer has disqualified the Bidder(s) from the tender process prior to the award of the contract in terms of Section 4, the Employer shall be entitled to demand and recover the amount equivalent to Earnest Money Deposit towards compensation for damages.

**Section – 6: Integrity Pact Duration**

- (i) This Integrity pact comes into effect as soon as it is signed by both parties. It shall expire for the Contractor(s) 12 months after the Completion of the work, and 03 months for other unsuccessful Bidder(s) after the contract has been awarded.
- (ii) If any complaint is made/ lodged by either Party to the Employer during the periods mentioned in (i) above, the management would be at liberty to take such action as may be deemed appropriate.

**Section – 7: Miscellaneous**

- (i) If the Bidder(s)/ Contractor(s) is/are a partnership firm or a consortium or a joint venture, the Integrity Pact shall be signed by all members of the partnership firm or the consortium or the Joint Venture, as the case may be.
- (ii) Any dispute or difference arising between the parties with regard to the terms of this Integrity Pact/Agreement, any action taken by the Employer in accordance with this Integrity Pact/ Agreement or interpretation thereof shall not be subject to arbitration.
- (iii) This agreement shall be governed by the Indian laws for the time being in force. The Courts in Delhi, having the ordinary original civil jurisdiction will have the authority to deal with matters arising from this Pact/ Agreement.

(For and on behalf of the Principal)	(For and on behalf of Bidders/Contractors)
(Official Seal)	(Official Seal)
Witness-1	Witness -2



<Name>	<Name>
<Address>	<Address>

Place: \_\_\_\_\_

Date: \_\_\_\_\_

## **Procedure for e-Tendering**

Bidders intending to participate in the tenders of Unitech Group have to register first on the e-Tendering portal of Unitech Limited. For this purpose, the authorized representative of the bidder must possess a Class 3 DSC (Digital Signature Certificate). Registration and participation of the bid has to be done at [etenders.unitechgroup.com](https://etenders.unitechgroup.com)

### **1. Registration / Empanelment**

Registration includes issuance of a unique User ID to each Bidder by the system. The request for the same is made online. The Bidder fills in the basic identification information during the registration process. The approval of registration will be automatic via email verification. Registration and approval are mandatory to be able to operate as a Bidder on the e-tendering processes.

### **2. File Size**

The documents required to be submitted are given in Annexure-III of Section-2. Five (5) Buckets of different documents have been made in such a manner that each document size is within 25 MB, which is the maximum limit for uploading the said document. This arrangement must be strictly adhered to overcome any problems qua e-filing of documents.

### **3. Bidder Information Update**

Bidder information can be updated as and when required by Bidders online by going on to "Edit Profile". The changes may be subject to Employer approval depending on configuration.

### **4. Update of Digital Signature Certificate (DSC)**

The Digital Signature Certificate (DSC) is required to be registered by each bidder on the System. Since DSCs are valid for a limited period, the digital certificates need to be updated (re-registered) online from time to time. Bidders can participate in a bid only by using their DSC.

### **5. Public View of Tenders**

#### **5.1 View of tender notices/ Notice Inviting Tenders**

The bidders can view the detailed N.I.T and the time schedule (Key Dates) for all the tenders floated through the tendering portal on the homepage at <https://etenders.unitechgroup.com>. The tender documents can be downloaded from the portal.

#### **5.2 View of in-process tenders**

The list of live tenders is available to bidders at the home page of the eTendering portal. However, details of the participants who have downloaded the tender or from whom the bids are received are not made available in order to maintain the confidentiality of identities of bidders and transparency of the procurement process until the process of tender opening has been initiated. The list shows the status of each tender and allows viewing of the tender notices of these tenders.

### **5.3 View of completed tenders**

Bidders will be able to view their completed tenders online on the portal.

### **5.4 View of opened bids**

- (i) The participating bidder will be able to view only his opened technical bid.
- (ii) The participating bidder, whose technical bid is qualified, will be able to view all the financial bids on the date of opening of financial bids.

### **5.5 Key Dates**

The bidders are strictly advised to follow dates and times as indicated in the tender document. The data and time shall be binding to all bidders. All online activities are time tracked and the system enforces time locks to ensure that no activity or transaction can take place outside the start and end dates and the time of stage as defined in the tender document.

## **6. Bid Preparation**

Bid preparation must be done online. In order to operate on the electronic tender management system, a user's machine is required to be set up. A help file on system setup/Pre-requisite can be downloaded from home page of the website - <https://etenders.unitechgroup.com>

### **6.1 Filling up the bid forms**

Bid forms are in tabular format. Each bid will be submitted on two envelope formats. Bidder has to fill all forms related with these envelopes. Bid form data can be saved only after encryption with the public key of the Bidder's digital certificate. Data can be edited only after decrypting it with the private key of the Bidder's digital certificate. Unencrypted data cannot be saved in the System.

### **6.2 Adding attachments**

- (i) The attachments, if required, may need to be submitted. Some of these may be mandatory and some not. This is clearly indicated on the form for attachment upload. Extra attachments i.e. the ones not asked for in the tender document can also be uploaded at the choice of the Bidder. Employer has the option to disallow uncalled for attachments.
- (ii) The Bidder has an additional feature of 'Briefcase' where he can keep his commonly used documents. While attaching the same to the tender, he can select document either from the briefcase or he can directly upload the same.
- (iii) **Scan copy of Documents to be submitted/uploaded for Prequalification or Technical bid under online PQQ/ Technical Envelope:** The required documents (refer to Tender document) shall be prepared and scanned in different file formats (in PDF /JPEG/MS WORD format such that file size is not exceed more than 25 MB) and uploaded during the on-line submission of PQQ or Technical Envelope.
- (iv) **FINANCIAL or Price Bid PROPOSAL shall be submitted mandatorily online under Commercial Envelope.**

- (v) **Technical and Financial bid to be submitted on portal and not to be submitted manually**

### **6.3 Validating bid data**

Basic validation rules such as item set rules and mandatory field validations are done during validation. Bidder can choose to go back and rework the bid at this stage, if required.

### **6.4 Bid signing**

- (i) Each electronic bid is digitally signed. The server also obtains a digitally signed time stamp for each envelope that can be verified at any later date. Bidders can generate and print proof of Bid submission with time stamping.
- (ii) The System does not allow the process to be carried out before or after the designated time in tender schedule. Bidder can rework on its bid till the last date of bidding. A bidder seeking to withdraw its bid should initiate the “re-submit” button.

### **6.5 EMD and Tender Document fees**

Bids submitted with EMD and tender fees will only be considered for evaluation. The system will not permit submission of Bid without payment of complete fees.

## **7 Bid Opening**

Unitech representative will undertake the bid opening. Bidder will be able to see the status of bid opened. Technical bids will be opened in the first instance. Upon completion of the technical evaluation, the bids will be marked as “qualified” or “not-qualified”. Financial bids of only such bidders, who qualify in the technical bid evaluation, will be opened.

## **8. Assistance to the Bidders (Help Desk):**

**E-mail: [Support.tenders@unitechgroup.com](mailto:Support.tenders@unitechgroup.com)**

**Contact No: 8010208825, 9356477055 & 9028672454**

**(Nextenders (India) Pvt. Ltd.) Queries related with eTendering only**

**Support Timings:**

**Monday to Friday - 09.00 A.M. to 08.00 P.M.**

**Saturday - 10.00 A.M. to 04.30 P.M.**

### **Important Note: -**

All queries would require to be registered at our official email-[support.tenders@unitechgroup.com](mailto:support.tenders@unitechgroup.com) for on-time support. (Only those queries which are sent through email along with appropriate screenshots or error description will be considered as registered with the Help-desk). Contact our helpdesk on or before prior to 4 hours of the scheduled closing date & time of respective Tender event.

Bidders participating in online tenders shall check the validity of his/her Digital Signature Certificate before participating in the online Tenders at the portal <https://etenders.unitechgroup.com>. For help manual please refer to the ‘Home Page’ of the eTendering portal <https://etenders.unitechgroup.com>, and click on the available link ‘How to...?’ to download the file.

## Annexure - IV

### Check-list - documents to be submitted along with the bid

(All documents mentioned in the Check-list are to be uploaded as a part of the Technical Bid)

Sr. No.	Description	Reference from Tender	Bucket (Size not exceeding 20MB for each bucket)	Submission Compliance (Yes / No)
1	If EMD submitted as BG – Upload scanned copy of Bank Guarantee.	As per Form No. VI (Section 4)	Bucket-1	
3	General Details	Annexure-I		
4	Unconditional Letter of Acceptance of Tender Conditions (in original) on the Letter Head of the Applicant/ Bidder.	Section-4		
5	Integrity pact	Annexure-II		
6	Details of Work Experience Certificates	Form-A		
7	Details of Similar Works	Form-B		
8	Financial Details	Form-C		
9	TDS details for Private Sector Projects	Form-D		
10	Documents regarding Net Worth of the Company/ Firm.	2.2(II) & 14(XI) of NIT		
11	Self-certified copy of Bank Solvency Certificate	Form-E		
12	Audited summarised Balance Sheet (Last 3 years)	2.2 (ii) Note B of NIT		
13	Audited summarised Profit & Loss Account (Last 3 years)	2.2 (ii) Note B & Para 10 of NIT		
14	General Information	Form-F		
15	Work Experience Certificates	Form-G	Bucket-2	
16	Affidavit duly notarized by Notary Public on Non-Judicial Stamp Paper of Rs. 100/- for correctness of Documents /Information	Form-H		
17	Power of Attorney in the name of the person authorized for signing/ submitting the tender	14(XV) of NIT		
18	E-payment Transaction details towards cost of e-tender processing fee.	6.5 of Annexure-3/ 14(ii) & (xvi) of NIT		
19	Registration Details of the bidder in the GST Act	Form-I		
20	Valid GST registration/ EPF registration/ PAN No.	14 (xvii) of NIT & Note -2 of NIT		

Sr. No.	Description	Reference from Tender	Bucket (Size not exceeding 20MB for each bucket)	Submission Compliance (Yes / No)
21	All pages of the entire Corrigendum/ Addenda (if any) duly signed and stamped by the authorized representative of the tenderer	14(xviii) of NIT	Bucket-3	
	Technical Submission as Part of Bid			
22	Project Execution Plan	18 of GCC	Bucket-4	
23	Overall Project Schedule (Resource loaded- Level 3) along with Critical Path	18 of GCC		
24	Progress ‘S’ Curves	17.2(IV) of GCC		
25	Manpower and Machinery Deployment	33 of GCC		
26	Details of Software’s to be used for planning, material control etc.	17.2(iv)		
27	Any other relevant documents the tenderer wishes to submit to support the bid.	-		
28	Forms and Formats			
I	Declaration By the Bidder Regarding Bidding Document	As per Form No. I (Section 4)	Bucket-5	
II	Letter of Waiver	As per Form No. II (Section 4)		
III	Undertaking For Non-Engagement of Child Labour	As per Form No. III (Section 4)		
IV	Affidavit disclosing therein that no criminal case against him/ company, in relation to his normal course of business, is pending at any level including any inquiry by the Central Bureau of Investigation (CBI)/ Enforcement Directorate (ED)			

Signatures of the Bidders

(Name of the Signatory \_\_\_\_\_)

Place:

Date:

**Form - A**  
**Tender for \_\_\_\_\_**

**Mandatory Information Documents**

**Details of Work Experience Certificates**

Sr. No.		1	2	3	4
1.	Name of Work and its Location				
2.	Name of Employer				
3.	Date & Reference No. of Completion Certificate				
4.	Date of Start				
5.	Date of Planned Completion				
6.	Date of Actual Completion				
7.	Awarded cost of Work (Exc. Tax)				
8.	Cost of Work on Completion (Exc. Tax)				
9.	Value of Tax (as considered in the Completion Certificate)				
10.	Reference and page No. of documentary proof of the detail missing in the Completion Certificate				

1. Certified that the Completion Certificates of above works are enclosed with the Tender Documents;
2. Details mentioned in the above Form are as per Completion Certificates and have not been presumed.

**Note:** If any detail is not mentioned in the Completion Certificate, documentary proof of details like drawings, LoA, BoQ, Completion Certificate/ Occupation Certificate, copy of final bill, etc. is to be submitted and uploaded on e-Tender Website along with the Completion Certificate.

**Signature of the Bidder with Seal.**

Tender for \_\_\_\_\_

**Mandatory Information Documents****Details of Similar Works**

Sr. No.		1	2	3	4
1.	Name of Work for which Experience Certificate has been submitted				
2.	Name of Employer				
3.	Date & Reference No. of Completion Certificate				
4.	Type of Work				
5.	No. of Basements				
6.	No. of Storeys				
7.	Height of Building (From GF level to Terrace Floor level)				
8.	Reference and page No. of documentary proof of the detail missing in the Completion Certificate				
9.	Any Other				

If any detail is not mentioned in the Work Completion Certificate, documentary proof of detail is to be submitted and uploaded on e-Tender Website along with the Completion Certificate.

**Signature of the Bidder with Seal.**



Tender for \_\_\_\_\_

**Mandatory Financial Documents**

Sr. No.	Description	1 <sup>st</sup> Year (Rs. in Lakh)	2 <sup>nd</sup> Year (Rs. in Lakh)	3 <sup>rd</sup> Year (Rs. in Lakh)
		(A)	(B)	(C)
(i)	Profit/ Loss			
(ii)	Gross Annual Turnover of previous 3 financial years ending as on the last date of the preceding Financial Year			
(iii)	Average Annual Turnover for previous 3 Financial Years (Rs. in Lakh) = $(A+B+C)/3$			
(iv)	Net Worth (Paid-up Capital + Reserves) on the last date of the previous Financial Year			
(v)	Bank Solvency amount as mentioned in the bank Solvency Certificate			

**Note: This Form-C is to be submitted in Original**

1. Summarised page of Audited Profit & Loss Account of previous 03 Financial Years duly certified by the Chartered Accountant/ Statutory Auditor, has been submitted.
2. Summarised page of Audited Balance Sheet of last Financial Year (ending on the last day of the preceding Financial Year) duly certified by the Chartered Accountant/ Statutory Auditor, has been submitted.

Signature of Chartered Accountant/ Statutory Auditor with Membership Number and Seal	Signature of the Bidder along with the Seal

**TDS details of Private Sector Projects**

Sr. No.	Subject	1	2	3
(i)	Name of Work			
(ii)	Name of Employer			
(iii)	Project Cost (Rs. in Cr.)			
(iv)	No. and date of Completion Certificate			
(v)	Cost of the Work on Completion (Rs. in Cr.)			
(vi)	Payments received as per TDS (Rs. in Cr.)			
(vii)	TDS corresponding to the Payments			
(viii)	Year-wise TDS as per Form 26AS/ Form 16-A relating to the Work			

**Notes:**

1. Value of work done will be considered commensurate with the value of TDS Certificates.
2. In case of multiple contracts undertaken from a Employer, details of TDS/ Form 26AS for each work mentioned above need to be segregated and given separately.
3. This Form needs to be supported with Form -26AS taken in HTML format on Form – 16A

Signature of Chartered Accountant/ Statutory Auditor with Membership Number and Seal	Signature of the Bidder along with the Seal

Dispatch number of bank/ Date

**Solvency certificate on Letter-head of the Bank**

1. This is to state that to the best of our knowledge and information that M/s \_\_\_\_\_ having/ registered office address ..... is a customer of the bank and has been maintaining his accounts with our branch since \_\_\_\_\_. As per records available with the bank, M/s..... can be treated as solvent up to a limit of Rs.....(Rupees in words).
2. It is clarified that the above information is furnished and this certificate is being issued at the specific request of the customer.

**Name, designation, Signature with seal**

## General Information

1.	Name of Applicant/ Company	
2.	Address for correspondence	
3.	Official e-mail for communication	
4.	Contact Person: Telephone Nos. Fax Nos. Mobile	
5.	Type of Organization: (a) An individual (b) A proprietary firm (c) A firm in partnership (Attach copy of Partnership) (d) A Limited Company (e) (Attach copy of Article of Association) (f) Any other (mention the type)	
6.	Place and Year of Incorporation	
7.	Name(s) of Directors/ Partners in the organization	
8.	Name(s) and Designation of the persons, who is authorized to deal with Employer (Attach copy of power of Attorney)	
9.	Bank Details: Name of Bank, Address of Bank Branch, Account No., RTGS, IFS Code	

**Signature of the Bidder with Seal**  
**Form G**

**Work Experience Certificate**

Name of Employer with Address, Email &amp; Phone Number

Dispatch No. \_\_\_\_\_

Date: \_\_\_\_\_

Name of Contractor \_\_\_\_\_

Sr. No.	Subject	Description			
1.	Name of work / project & Location				
2.	Name and Address of the Employers				
3.	Agreement Amount				
4.	Cost of work on completion				
5.	Date of start				
6.	Stipulated date of completion				
7.	Actual date of completion				
8.	Amount of Penalty levied for delayed completion (if any).				
9.	Type of Work: Residential/ Non-Residential Building				
10.	No. of Basements in any Building of this work				
11.	Maximum Height of any Building of this work (From Ground Floor Level to Terrace Floor Level)				
12.	Maximum No. of storeys of any Building of this work				
13.	Performance report	Outstanding	Very Good	Good	Poor
(a)	Quality of work				
(b)	Resourcefulness				
(c)	Financial soundness				
(d)	Technical proficiency				
(e)	General behaviour				

**Name & Designation Signature with  
Seal of issuing Authority**

Date: \_\_\_\_\_

**AFFIDAVIT**

**(To be submitted by bidder on non-judicial stamp paper of Rs.100/ (Rupees Hundred only) duly attested by Notary Public)**

Affidavit of Mr. \_\_\_\_\_ S/o .....R/o .....

I, ..... the deponent above named do hereby solemnly affirm and declare as under:

1. That I am the Proprietor/Authorized signatory of M/s ..... having its Head Office/Regd. Office at .....
2. That the information/ documents/Experience certificates submitted by M/s..... along with the tender for ..... (*Name of work*) ..... to M/s ..... (*Hereinafter referred to as the Employer*) are genuine and true and nothing has been concealed.
3. I shall have no objection in case the Employer verifies them from issuing authority(ies). I shall also have no objection in providing the original document(s) in case the Employer demands so for verification.
4. I hereby confirm that in case, any document, information &/or certificate submitted by me found to be incorrect/ false/ fabricated, the Employer at its discretion may disqualify / reject / terminate the bid/contract and forfeit the EMD/ All dues.
5. I shall have no objection in case the Employer verifies any or all Bank Guarantee(s) under any of the clause(s) of Contract including those issued towards EMD and Performance Guarantee from the Zonal/ Branch office of issuing Bank and I/We shall have no right or claim on my submitted EMD before the Employer receives said verification.
6. That the Bank Guarantee issued against the EMD issued by (name and address of the Bank) is genuine and if found at any stage to be incorrect / false / fabricated, M/s The Employer shall reject my bid, cancel pre-qualification, and debar me from participating in any future tender.
7. I hereby confirm that our firm /company is not blacklisted/ barred /banned from tendering by M/s The Employer If this information is found incorrect, the Employer at its discretion may disqualify / reject / terminate the bid/contract.
8. The person who has signed the tender documents is our authorized representative. The Company is responsible for all of his acts and omissions in the tender.

I, ....., the Proprietor / Authorized signatory of ..... do hereby confirm that the contents of the above Affidavit are true to my knowledge, and nothing has been concealed there from.....and that no part of it is false.

**DEPONENT**

**Verified at .....this.....day of .....**

**ATTESTED BY (NOTARY PUBLIC)**

**Form - I**

GST Registration Details of Contractor/ Vendor	
Name	
Address (As per registration with GST)	
City	
Postal Code	
Region/ State (Complete State Name)	
Permanent Account Number	
GSTIN ID/ Provisional ID No.: (Copy of Acknowledgement required)	
Type of Business (As per registration with GST)	
Service Accounting Code/HSN Code:	
Contact Person	
Phone Number and Mobile Number	
Email ID	
Compliance Rating (if updated by GSTN)	

**Signature of Bidder with Seal**

## **SECTION-3**

### **General Conditions of Contract**



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## 1.0 Definitions

In the contract, the following expressions shall, unless the context otherwise requires, have the meanings hereby respectively assigned to them:

- (a) **Approval** means approval of the Engineer in Charge/Employer, as the case may be, in writing including subsequent written confirmation of previous verbal approval, if any.
- (b) **Authorized Representative of Employer** means the person designated by the Employer/ TPIA and/ or the PMC and shall include their authorized nominee(s) or agent(s).
- (c) **Bill of Quantities or Schedule of Quantities** means the priced complete bill of quantities or schedule of quantities forming part of the complete bill of tender/ tender document.
- (d) **Contract** means the documents forming the tender and acceptance thereof and the formal agreement executed between the Unitech Group Company and the Contractor, together with the documents referred to therein including these conditions, specifications, designs, drawings and instructions issued from time to time by the Engineer-in-Charge and all these documents taken together, shall be deemed to form one contract and shall be complementary to one another.
- (e) **Contractor** means the individual, firm, or company, whether incorporated or not, undertaking the works and shall include the legally authorized personnel and representative of such individual or the persons composing such firm or company, or the successors of such firm or company and the permitted assignees of such individual, firm or company.
- (f) **Contract Value** means the sum for which the tender is accepted as per the letter of Award.
- (g) **Drawings** mean the drawings referred to in the contract document including modifications, if any, and such other drawings as may from time to time be furnished and/ or approved by Engineer-in-charge/PMC.
- (h) **Date of Commencement of Work:** The date of commencement of contract shall be reckoned from the 15<sup>th</sup> day after the date of issue of Letter of Award.
- (i) **Employer** means Unitech Limited, the holding Company or any of its subsidiaries/ JV/ affiliate, with its corporate office at 8/13th Floor, Tower-B, Signature Towers, South City-1, Gurugram-122007, Haryana.
- (j) **Engineer-in-Charge** shall mean the Authorized representative of the Employer.
- (k) **Excepted Risks** are risks due to riots (other than those among Contractor's employees), war (whether declared or not), invasion, act of foreign enemies, hostilities, civil war, rebellion revolution, insurgency, military or usurped power, any acts of Government, damages from aircraft, acts of God, such as earthquake, lightening and unprecedented floods, pandemic and other

causes over which the Contractor has no control and accepted as such by the Employer or causes solely due to use or occupation by Government/ Employer of the part of the works in respect of which a certificate of completion has been issued or a cause solely due to Employer's faulty design of works.

- (l) **Language:** All documents and correspondence in respect of this contract shall be in English Language.
- (m) **Letter of Award (LoA)** shall mean Employer's notification letter conveying its acceptance of the tender along with the conditions stated therein.
- (n) **Market Rate** shall be the rate as decided by the Engineer-in-Charge on the basis of the prevailing cost of materials and labour at the site of work where the work is to be executed plus 15% (Fifteen per cent) to cover all overheads and profits of the Contractor.
- (o) **Month** means English Calendar month, 'Day' means a Calendar Day of 24 Hrs each.
- (p) **PMC** means the Project Management Consultancy agency appointed by the Employer for the works, its Authorized Representatives, Agents, Successors, Beneficiaries, and Legal Heirs.
- (q) **Site** means the land and other places on, under, in or through which the works are to be executed or carried out and any other lands or places provided by the Employer or used for the purpose of the contract.
- (r) **Tender or Bid** means the tender submitted by the bidder for acceptance by the Employer.
- (s) **TPIA** means Third Party Inspection & Monitoring Agency i.e. M/s Engineers India Limited, appointed by the Employer for Inspection, Monitoring, Audit & Quality Control of the works.
- (t) **Writing** means any manuscript type-written or printed statement under or over signature and/or seal of the concerned, as the case may be.
- (u) **Work or Works** shall, unless there be something in the subject or either context repugnant to such construction, be construed and taken to mean the works by or by virtue of the contract contracted to be executed whether temporary or permanent, and whether original, altered, substituted or additional.

**Notes:**

- (i) Headings in the clauses/conditions of tender documents are for convenience only and shall not be used for interpretation of the clause/condition.
- (ii) Words imparting the singular meaning only also include the plurals and vice versa where the context requires. Words imparting persons or parties shall include firms and corporations and organizations having legal capacities.

## **2.0 Performance Guarantee**

- (i) Within 15 (Fifteen) days from the date of issue of Letter of Award (LoA), the Contractor shall submit an irrevocable Performance Guarantee (as per Form No. VII, Section 4) of 3% (Three per cent) of the tendered amount in addition to other deposits mentioned elsewhere in the contract for his proper performance of the contract agreement (notwithstanding and/or without prejudice to any other provisions in the contract). The Performance Guarantee shall be initially valid up to the stipulated date of completion of work plus 60 days. In case the time for completion of works gets extended, the Contractor shall get the validity of Performance Guarantee extended up to such extent to cover such extended time for completion of work + 60 days. The performance guarantee shall be returned to the Contractor/ discharged, without any interest thereon, after issue of the Completion Certificate for the work by the Engineer-in-Charge.
- (ii) The Employer reserves the right to ask for Additional Performance Guarantee where the quoted rates are found to be lower by 15% as compared with the rates indicated in the NIT.
- (iii) The Engineer-in-Charge shall make a claim under the performance guarantee except for amounts to which the Engineer-in-Charge is entitled under the contract (notwithstanding and/or without prejudice to any other provisions in the contract agreement) in the event of:
  - (a) Failure by the Contractor to extend the validity of the Performance Guarantee as described herein above, in which case the Engineer-in-Charge may claim the full amount of the Performance Guarantee.
  - (b) Failure by the Contractor to pay any amount due, either as agreed by the Contractor or determined under any of the Clauses/ Conditions of the agreement, within 30 days of the service of notice to this effect by the Engineer-in-Charge.
  - (c) In the event of the contract being determined or rescinded under provisions of any of the Clauses/ Conditions of the agreement, the performance guarantee shall stand forfeited in full and shall be absolutely at the disposal of Engineer-in-Charge.

## **3.0 Security Deposit/ Retention Money**

- 3.1** At the time of making payment to Contractor towards each running and final bill for the work done under the contract, the Contractor shall permit the Engineer-in-Charge to deduct a sum at the rate of 5% (five per cent) of the gross amount of bill till the sum deducted will amount to security deposit of 5% (five per cent) of the tendered value of the work. Such deductions will be made and held by the Engineer-in-Charge by way of Security Deposit unless the Contractor has deposited the amount of Security at the rate mentioned above in cash or in the form of a Bank Guarantee. At any event, if the Bank Guarantee is to be revoked by Engineer-in-Charge, and the Bank is unable to make payment against the said bank guarantee, the loss caused thereby shall fall on the Contractor and the Contractor shall forthwith, on demand,

furnish additional security to the Engineer-in-Charge to make good the deficit.

- 3.2** All Compensation or other sums of money payable by the Contractor under the terms of this contract may be deducted from, or paid by adjustment of a sufficient part of his security deposit or from the interest arising there from, or from any sums which may be due to or may become due to the Contractor by Engineer-in-Charge on any account whatsoever. In the event of his Security Deposit being reduced by reason of any such deductions or adjustment as aforesaid, the Contractor shall within 10 days make good in cash or fixed deposit receipt tendered by the State Bank of India or by any Scheduled Bank or Government Securities (if deposited for more than 12 months) endorsed in favour of the Employer, any sum or sums which may have been deducted from, or raised by adjustment of his security deposit or any part thereof.

**3.3 Release of Security Deposit**

5% Security Money will be released as per following –

- (a) 25% of the Retention Money/ Security Deposit will be released after 01 year from the date of issue of Completion Certificate subject to the condition that any defects observed during this period are duly rectified/ repaired by the Contractor at his cost to the satisfaction of the Engineer-in-Charge;
- (b) Another 50% of the Retention Money/ Security Deposit will be released after completion of two years from the date of issue of Completion Certificate subject to the condition that any defects observed during this period are duly rectified/ repaired by the Contractor at his cost to the satisfaction of the Engineer-in-Charge;
- (c) The balance 25% of the Retention Money/ Security Deposit will be released after the Defect Liability Period of 5 years from the date of issue of Completion Certificate subject to the condition that any defects observed during this period are duly rectified/ repaired by the Contractor at his cost to the satisfaction of the Engineer-in-Charge;
- (d) If any defect arises within defect liability period, it is the contractor's sole responsibility to rectify the same at his cost once communicated by the Engineer-in-Charge in writing as per Clause 42 & 82 below. In case the contractor fails to rectify the same, then such defect(s) will be got rectified/ repaired by the Employer through any other agency at contractor's risk and cost. The cost will be deducted from the security deposit retained towards such defect liability period.
- (e) The Contractor may, if he so wishes, get his Security Deposit/ Retention Money released from the Employer and replace the same with Bank Guarantees, valid for a period of one year +60 days (25% of the Retention Money), 50% after two years +60 days and the balance 25% after five years +60 days respectively.

**4.0 Mobilization Advance**

- 4.1** Mobilization advance up to 5% of the contract value, bearing a simple interest rate of 9% per annum, shall be paid to the Contractor, if requested by him on submission of irrevocable Bank Guarantee (as per Form VIII of Section 4) of an amount equivalent



to 110% of the respective instalment of mobilization advance, valid for the entire contract period from a Scheduled Bank in the enclosed Performa.

**4.2** The mobilization advance, if requested, shall be paid in three instalments as follows:

- (i) First Instalment of Twenty per cent (20%) of the total mobilization advance shall be paid after:
  - (a) Initial mobilisation at the project site;
  - (b) Submission of bank guarantee in approved Performa (annexed under Forms and Formats).

This instalment shall be paid if the request is made by the Contractor within 30 days from date of issue of LOA/LOI.

- (ii) Second instalment of Forty per cent (40%) of total mobilization advance shall be paid after the Contractor has constructed Site Office, storage shed, fabrication yard, site laboratory, etc. and has physically mobilized plant and machinery, scaffolding & shuttering materials etc. at site and is ready to start the work to the entire satisfaction of Engineer-in-Charge and commenced the work at site.

The above instalment will be released subject to the actions at sub-para (ii) above are performed by the Contractor within 60 days of signing the contract and/or 90 days from the date of issue of LOA/LOI, whichever is earlier.

- (iii) The Balance Forty per cent (40%) of mobilization advance shall be paid to the Contractor on submission of Utilization Certificate (For this contract only) of 60% of the mobilization advance for the already paid to him.

**4.3** The mobilization advance, including the accrued interest, shall be recovered from each running account bill of the Contractor in such a manner that the total Mobilization Advance is recovered when 85% of the contract value gets paid to the contractor.

**4.4** The Contractor can submit a single bank guarantee for the entire mobilisation amount or submit the bank guarantees in parts against the mobilization advances in the proposed numbers of recovery instalments equivalent to the amount of each instalment as per Clause 4.1 and 4.2 above. The bank guarantee submitted by Contractor against mobilization advance shall initially be valid for the entire contract period and shall be kept renewed from time to time to cover the balance amount arrived by deducting the amount already recovered along with the accrued interest till such time.

**5.0 Secured Advance**

- (i) Interest-free secured advance will be payable to the Contractor up to a maximum of 60% (sixty per cent) in respect of purchase of material required for incorporation in the permanent works and brought to site on production of the Tax Invoice against which the Secured Advance is being sought subject to approval by the Engineer-in-charge. This secured advance will be tenable only for non-perishable material/s brought to site after due verification by the Engineer-in-Charge for quality, quantity requirements on site and value

as described above. The advance will be paid only on submission of Indemnity Bond in the prescribed Performa (As per Form XII, Section 4).

- (ii) The Contractor shall construct suitable Go-down/ warehouse at the site of work for safe storage of the materials against any possible damages due to sun, rain, dampness, fire, theft etc. at his own cost. He shall also employ necessary watch & ward establishment for the purpose at his risk and costs. No claims extra charges on account of safe keeping, pilferage or loss for any reason whatsoever will be tenable or entertained by the Employer.
- (iii) Such secured advance shall not be payable on other items of perishable nature, fragile and combustible. No secured advance shall be paid on high-risk materials such as glass, sand, petrol, diesel etc.

### **5.1 Recovery of Secured Advance**

When materials on account of which an advance has been paid under clause 5.0, are incorporated in the work, the amount of such advance shall be recovered from the next payment to be made to the Contractor under any of the clauses of this contract.

If there is any inordinate and inexcusable delay in incorporation of the goods and materials for which the Secured Advance is provided in the permanent work, the Engineer in Charge may levy interest @ 12% on the value of unutilized goods and materials from the date on which such goods and materials were scheduled to be incorporated in the work as per the work completion schedule till the date on which goods and materials are incorporated in the work.

### **6.0 Deviations/ Variations Extent and Pricing**

The Engineer-in-Charge shall have the power to (i) make alteration in, omissions from, additions to, or substitutions for the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work, and (ii) omit a part of the works in case of non-availability of a portion of the site or for any other reasons and the Contractor shall be bound to carry out the works in accordance with any instructions given to him in writing by the Engineer-in-Charge and such alterations, omissions, additions or substitutions shall form part of the contract as if originally provided therein and any altered, additional or substituted work which is instructed, the contractor shall be bound to carry out the works on the same conditions in all respects including the price on which he agreed to do the main work except as hereafter provided in Clause 6.1 and 6.2 below.

The time for completion of the works shall, in the event of any deviations resulting in additional cost over the tendered value sum being ordered, be suitably extended, if requested by the Contractor. Such extension in time on account of additional work shall be proportionate to the value of additional work.

### **6.1 Deviations, Extra Items & Pricing**

- (i) In the case of extra item(s) (items that are completely new and are in addition to the

items contained in the contract), the Contractor may within 15 days of receipt of order or occurrence of the item(s) submit the rates as per the relevant DSR/DAR supported by proper analysis which shall include detailed CPWD specifications for the work. The Engineer-in-Charge shall, within prescribed time limit of 90 days of the date from the receipt of the claims supported by analysis, determine the rates based on the contractor submission, and the Contractor shall be paid in accordance with the rates so determined. In case the Contractor fails to claim such scheduled item rate claim within the prescribed time of 15 days, the rate approved later by the Engineer-in-Charge shall be binding on the Contractor.

- (ii) In the case of extra item(s) (items that are completely new, not a part of the DSR and are in addition to the items contained in the contract), the Contractor may within 15 days of receipt of order or occurrence of the item(s) submit the rates as per the relevant market rate claim rates, supported by proper analysis based on relevant available costs in the DAR which shall include invoices, vouchers etc. and manufacturer's specifications for the work. The Engineer-in-Charge shall, within prescribed time limit of 90 days of the date from the receipt of the claims supported by analysis, determine the rates on the basis of the market rates after giving consideration to the analysis of the rates submitted by the Contractor, and the Contractor shall be paid in accordance with the rates so determined. In case the Contractor fails to claim such market rate claim within the prescribed time of 15 days, the rate approved later by the Engineer-in-Charge shall be binding on the Contractor.
- (iii) In the case of substituted items (items that are taken up with partial substitution or in lieu of items of work in the contract), the rate for the agreement item (to be substituted) and substituted item shall also be determined based on the substituted item being a scheduled item of Schedule A or Schedule B in the manner as mentioned in the following para:
  - (a) For Schedule B item, If the market rate for the substituted item so determined is more than the market rate of the agreement item (to be substituted), the rate payable to the Contractor for the substituted item shall be the rate for the agreement item (to be substituted) so increased to the extent of the difference between the market rates of substituted item and the agreement item (to be substituted)
  - (b) For Schedule B item, If the market rate for the substituted item so determined is less than the market rate of the agreement item (to be substituted), the rate payable to the Contractor for the substituted item shall be the rate for the agreement item (to be substituted) so decreased to the extent of the difference between the market rates of substituted item and the agreement item (to be substituted).
  - (c) For Schedule A item, if the scheduled/DSR/DAR rate for the substituted item so determined is less than the rate of the agreement item (to be substituted), the rate payable to the Contractor for the substituted item shall be the rate for the agreement item (to be substituted) so decreased to the extent of the difference between the DAR/DSR rates (as prevalent on the day of receiving the bid) of substituted item and the agreement item (to be substituted).

- (d) For Schedule A item, if the scheduled/DSR/DAR rate for the substituted item so determined is more than the rate of the agreement item (to be substituted), the rate payable to the Contractor for the substituted item shall be the rate for the agreement item (to be substituted) so increased to the extent of the difference between the DAR/DSR rates (as prevalent on the day of receiving the bid) of substituted item and the agreement item (to be substituted).

The Engineer-in-Charge shall, within prescribed time limit of 90 days from the date of the receipt of the claims **for the substituted item mentioned at Clause 6.1 (iii) (a), (b), (c) & (d) above**, supported by analysis, determine the rates based on the contractor submission, and the Contractor shall be paid in accordance with the rates so determined. In case the Contractor fails to claim such rates for the substituted item within the prescribed time of 15 days, the rate approved later by the Engineer-in-Charge shall be binding on the Contractor.

- (iv) Market rates, in case not available in the DAR/DSR, are to be determined as per various sub-clauses under clause 6.0 and shall be based on prevailing rates of materials excluding GST unless mentioned otherwise, relevant authority rate for labour, market rates of T&P etc. plus 15% towards Contractor's overheads and profits.

## **6.2 Deviation, Deviated Quantities & Pricing**

- (i) In the case of contract items, substituted items, contract-cum-substituted items, which exceed the limits laid down in General details (Annexure-I) are scheduled rates (Schedule A) or have been derived from Scheduled rates based on DSR/DAR, the Contractor may within fifteen days of receipt of order or occurrence of the excess, claim revision of the rates, supported by proper analysis for the work in excess of the above-mentioned limits, provided that if the rates so claimed are in excess of the rates specified in the latest DSR along with its associated latest cost index adjustments (if any) as published by CPWD for the DSR, till the date of receipt of the claim, by the contractor, post adjusting the (below/above/at par percentage quoted by the contractor in his financial bid for Schedule A rates). The Engineer-in-Charge shall within prescribed time limit of 90 days from the date of receipt of the claims supported by analysis, after considering the analysis of the rates submitted by the Contractor, determine the rates on the basis of the DSR/DAR/Cost Index and the Contractor price bid shall be paid in accordance with the rates so determined. In case the Contractor fails to claim such market rate claim within the prescribed time of 15 days, the rate approved later by the Engineer- in-Charge shall be binding on the Contractor.
- (ii) In the case of contract items, substituted items, contract-cum-substituted items, which exceed the limits laid down in General details (Annexure-I) are NOT scheduled rates (Schedule A) or have not been derived from Scheduled rates based on DSR/DAR, the Contractor may within fifteen days of receipt of order or occurrence of the excess, claim revision of the rates, supported by proper analysis for the work in excess of the above-mentioned limits, provided that if the rates so claimed are in excess of the rates specified in the schedule of quantities. The Engineer-in-Charge shall within prescribed time limit of 90 days from the date of receipt of the claims supported by analysis, after giving consideration to the analysis of the rates

- submitted by the Contractor, determine the rates on the basis of the market rates (as per invoice, vouchers from the manufacturers or suppliers submitted by the agency and duly verified by Engineer-in-Charge or his representative) and the Contractor shall be paid in accordance with the rates so determined. In case the Contractor fails to claim such market rate claim within the prescribed time of 15 days, the rate approved later by the Engineer- in-Charge shall be binding on the Contractor.
- (iii) For the purpose of operation/ Accounting of quantities in deviation, the following works shall be treated as works relating to foundation unless & otherwise defined in the contract -
- (a) For Buildings: All works up to 1.2 meter above ground level or up to floor 1 level, whichever is lower.
  - (b) For abutments, piers and well staining: All works up to 1.2 meter above the bed level.
  - (c) For retaining walls, wing walls, compound walls, chimneys, overhead reservoirs/ tanks and other elevated structures - All works up to 1.2 meter above the ground level.
  - (d) For reservoirs/ tanks (other than overhead reservoirs/tanks) - All works up to 1.2 meter above the ground level.
  - (e) For basement - All works up to 1.2 meter above ground level or up to floor 1 level, whichever is lower.
  - (f) For Roads, all items of excavation and filling including treatment of sub-base.
- (iv) Any operation incidental to or necessary for proper execution of the item included in the Schedule of Quantities or in the schedule of rates mentioned above, whether or not, specifically indicated in the description of the item and the relevant specifications, shall be deemed to be included in the rates quoted by the tenderer or the rate given in the said schedule of rates, as the case may be. Nothing extra shall be admissible for such operations and such claims will be rejected as submissions for deviations, deviated quantities and pricing and not be treated tenable under this clause.

## **7.0 Escalation (Cement, Reinforcement & Structural Steel only)**

### **7.1 Payment due to variation in prices of materials after receipt of tender:**

- (i) If after submission of the tender, the price of materials increases/ decreases beyond the base price(s) for the work as mentioned in the contract, then the amount of the contract shall be accordingly varied.

Provided that any such variations shall be effected for the stipulated period of Contract including the justified extended period under the provisions of Clause 17 of the Contract without any action under Clause 8. .

- (ii) However, for work done during the justified extended period, it will be limited to the indices prevailing at the time of updated stipulated date of completion considering the effect of extra work (extra time to be calculated on pro-rata basis only as cost of extra work x stipulated period/tendered cost). If updated stipulated date of

completion as calculated on pro- rata basis does not cover a full calendar month, then indices will be considered or restricted to the previous month.

- (iii) The increase/ decrease in prices of cement, steel reinforcement and structural steel shall be determined by the Price indices issued by the Director General, CPWD. Base price for cement, steel reinforcement and structural steel shall be as issued under the authority of Director General CPWD applicable for the NCR i.e. Delhi including Noida, Gurgaon, Faridabad & Ghaziabad and for other places as issued under the authority of Zonal Chief Engineer, CPWD.
- (iv) The amount of the contract shall accordingly be varied for all such materials and will be worked out as per the formula given below for individual material: -

Adjustment for component of individual material -

$$V = P \times Q \times (CI - CI_0) / CI_0$$

**where,**

V = Variation in material cost i.e. increase or decrease in the amount of rupees to be paid or recovered.

P = Base Price of material as mentioned in the contract

Q = Quantity of material brought at site for bona-fide use in the works since previous bill excluding any such quantity consumed in the deviated quantity of items beyond deviation limit and extra /substituted item, paid/to be paid at rates derived on the basis of market rate under clause 6.2.

CI<sub>0</sub> = Price index for cement, steel reinforcement bars, structural steel as issued by DG, CPWD and corresponding to the time of base price of respective material.

CI = Price index for cement, steel reinforcement bars, structural steel as issued under the authority of DG, CPWD for period under consideration.

**Notes:**

- (i) In respect of the justified extended period under the provisions of clause 17 of the contract, without any action under clause 8, the index prevailing at the time of updated stipulated date of completion considering the effect of extra work (extra time to be calculated on pro-rata basis only as cost of extra work x stipulated period/ tendered cost) shall be considered.
- (ii) If updated stipulated date of completion, as calculated on pro- rata basis, does not cover full calendar month then the indices will be considered or restricted to the previous month.
- (iii) If during progress of work or at the time of completion of work, it is noticed that any material brought at site is in excess of requirement, then the amount of escalation, if paid earlier on such excess quantity of material, shall be recovered on the basis of cost indices as applied at the time of payment of escalation or as prevailing at the time of effecting recovery, whichever is higher.
- (iv) Cement, wherever mentioned in this clause, also includes Cement component

used in RMC brought at site from the outside approved RMC plants, if any.

- (v) The date-wise record of ready-mix concrete shall be kept in a register and the cement consumption for the same shall be calculated accordingly.
- (vi) If built-up steel items are brought at site from workshop, then the variation shall be paid for the structural steel up to the period when the built-up item/ finished product is brought at site or as applicable on the date of purchase of such material based on the invoice, whichever is lower.

## **8.0 Compensation for Delay**

- (i) If the Contractor fails (a) to maintain the required progress in terms of clause 17, or (b) to complete the work and clear the site on or before the stipulated date of completion of contract or justified extended date of completion as well as any extension granted under any other clause, he shall, without prejudice to any other right or remedy available under the law to the Employer on account of such breach, pay as Penalty the amount calculated at the rates stipulated in sub para (ii) below.

- (ii) Compensation for delay of work - With maximum rate @ 0.5% (zero point five per cent) per week of delay to be computed on per day basis.

Provided always that the total amount of Penalty for delay to be levied under this condition shall not exceed 10 % (ten per cent) of accepted tendered value.

- (iii) In case, penalty for delay has not been decided/ not communicated to the contractor by the Engineer-in-Charge during the progress of work, it shall not be treated as a deemed waiver of right to levy penalty by Engineer-in-Charge if the work remains incomplete on the actual date of completion or the final justified extended date of completion.

## **9.0 Action in case work is not done as per Specifications**

- (i) All works under or in the course of execution or executed in pursuance of the contract, shall at all times be open and accessible to inspection and supervision of the Engineer-in-charge, his authorized subordinates, and all the superior officers, officer of the Third Party Inspection and Monitoring Agency (TPIA) of the Employer or any organization engaged by the Employer for Monitoring and Quality Assurance, during the usual working hours and at all other times for which reasonable notice of the visit of such officers will be communicated to the Contractor in writing by the Engineer-in-charge/ Employer/ PMC. Orders given to the Contractor's authorised representative shall be considered to have the same force as if they had been given to the Contractor himself.
- (ii) If it shall appear to the Engineer-in-charge or the PMC and/or his authorized subordinates or to the officer of the TPIA or his subordinate officers that –
  - (a) Any work has been executed with unsound, imperfect, or unskilful workmanship; or
  - (b) With materials or articles provided by him for the execution of work are unsound or of a quality inferior to that contracted; or

- (c) Otherwise not in accordance with the contract;
- the Contractor shall, on demand in writing, which shall be made within twelve months of the completion of the work from the Engineer-in-Charge specifying the work, materials or articles complained of notwithstanding that the same may have been passed, certified and paid for, forthwith rectify, or remove and reconstruct the work so specified in whole or in part, as the case may require or as the case may be, remove the materials or articles so specified and provide other approved proper and suitable materials or articles at his own risk, charge and cost including the cost of suitable barricading around the work front as directed by the engineer in charge.
- (iii) In such case, the Engineer-in-Charge may not accept the item of work at the rates applicable under the contract but may accept such items at reduced rates as the Engineer-in-Charge may consider reasonable during the preparation of on-account bills or final bill if the item is so acceptable without detriment to the safety and utility of the item and the structure or he may reject the work outright without any payment and/or get it and other connected and incidental items rectified, or removed and re-executed at the risk and cost of the Contractor. Decision of the Engineer-in-Charge will be conveyed in writing in respect of the same and will be final and binding on the Contractor.

#### **10.0 Action in case of Bad Work**

- (i) If it shall appear to the Employer/ Engineer-in-Charge or his authorized representative or to any other inspecting agency, that any work has been executed with unsound, imperfect, or unskilful workmanship or with materials of any inferior description, or that any materials or articles provided by him for the execution are unsound or of a quality inferior to that contracted for or of the works are otherwise not in accordance with the contract, the Contractor shall on demand in writing, which shall be made within twelve months of the completion of the work, from the Engineer-in-Charge specifying the work, materials or articles complained of notwithstanding that the same may have been passed, Certified and paid for, forthwith rectify or remove and reconstruct the work so specified in whole or in part as the case may require or as the case may be, remove the materials or articles so specified and provide other proper and suitable materials or articles at his own proper charge and cost.
- (ii) In the event of the Contractor failing to do so within a period to be specified by the Engineer-in-Charge in his demand aforesaid, while the Contractor failure to do so shall continue, the Engineer-in-Charge may rectify or remove and re-execute the work or remove and replace with others, the material or articles complained of, as the case may be, at the risk and cost of the Contractor in all respects.

#### **11.0 Non-Waiver:**

Failure of Engineer-in-Charge to insist upon strict performance of any of the terms & conditions hereof, or failure or delay to exercise any rights or remedies provided herein or by law or failure to properly notify the Contractor in the event of breach or



the acceptance of or payment for any services hereunder or approval of interim reports, shall not release the Contractor of any of the warranties or obligations of this order and shall not be deemed a waiver of any right of Engineer-in-Charge/ Employer/ PMC/ TPIA to insist upon strict performance hereof or of any of its rights or remedies as to any such services regardless when received or accepted, nor shall any purported oral modification or rescission of this Order by Engineer-in-Charge operate as a waiver of the terms hereof.

## **12.0 Cancellation/ Determination of Contract in Full or Part**

**12.1** Subject to other provisions contained in this clause, the Engineer-in-Charge may, without prejudice to his any other rights or remedy against the Contractor in respect of any delay, or not following safety norms, inferior workmanship, any claims for damages and/ or any other provisions of this contract or otherwise, and whether the date of completion has or has not elapsed, by notice in writing, absolutely determine the contract in any of the following cases:

- (i) If the Contractor having been given a notice in writing by the Engineer-in-Charge to rectify, reconstruct or replace any defective work or that the work is being performed in an inefficient or otherwise improper or in a manner of unacceptable and poor workmanship, does not comply with the requirement of such notice for a period of 15 days thereafter; or
- (ii) If the Contractor has, without reasonable cause, suspended the progress of the work or has failed to proceed with the work with due diligence so that in the opinion of the Engineer-in-Charge (which shall be final and binding) he will be unable to secure completion of the work by the scheduled date for completion and continues to do so after a notice in writing of 15 days from the Engineer-in-Charge; or
- (iii) If the Contractor fails to complete the work within the stipulated date or items of work/ achieve the milestones with individual dates of completion, if any stipulated, on or before the stipulated date; and does not complete them within the period specified in a notice given in writing by the Engineer-in-Charge; or
- (iv) If the Contractor persistently neglects to carry out his obligations under the contract and/ or commits default in complying with any of the terms and conditions of the contract and does not remedy it or take effective steps to remedy it within 15 days after a notice in writing is given to him in that behalf by the Engineer-in-Charge; or
- (v) If the Contractor shall offer or give or agree to give to any person in Employer's/ PMC/ TPIA service or to any other person on his behalf, any gift or consideration or make a promise of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any action in relation to the obtaining or execution of this or any other contract for the Employer/ PMC/ TPIA; or
- (vi) If the Contractor being an individual, or if a firm, any partner thereof shall at any time be adjudged insolvent or have a receiving order or order for

administration of his estate made against him or shall take any proceedings for liquidation or composition (other than a voluntary liquidation for the purpose of amalgamation or reconstruction) under any Insolvency law for the time being in force or make any conveyance or assignment of his effects or composition or arrangement for the benefit of his creditors or purport to do so, or if any application be made under any Insolvency law for the time being in force for the sequestration of his estate or if a trust deed be executed by him for benefit of his creditors;

- (vii) If the Contractor, being a company, shall pass a resolution or the Court shall make an order that the company shall be wound up or if a receiver or a manager on behalf of a creditor shall be appointed or if circumstances shall arise which entitle the Court or the creditor to appoint a receiver or a manager or which entitle the Court to make a winding up order;
- (viii) If the Contractor assigns (excluding part(s) of work assigned to other agency(s) by the Contractor as per terms of contract), transfers, sublets (engagement of labour on a piece-work basis or of labour with materials not to be incorporated in the work, shall not be deemed to be subletting) or otherwise parts with or attempts to assign, transfer, sublet or otherwise parts with the entire works or any portion thereof without the prior written approval of the Engineer -in-Charge with reference to the General Conditions of Contract.

**12.2** When the contractor has made himself liable for action under any of the cases aforesaid, the Engineer-in-Charge, without prejudice to any other right or remedy which shall have accrued or shall accrue hereafter to the Employer/PMC, by a notice in writing to cancel the contract as a whole or only such items of work in default from the contract, shall have the powers to:

- (i) Determine or rescind the contract as aforesaid in full or in part (of which termination or rescission notice in writing to the Contractor under the hand of the Engineer-in-Charge shall be conclusive evidence) and get the same executed at the risk & cost of the Contractor. Upon such determination or rescission, Security Deposit already recovered, Security deposit payable and Performance Guarantee under the contract shall be liable to be forfeited and shall be absolutely at the disposal of Engineer-in-Charge and unused materials, construction plants, implements, temporary buildings, etc. shall be taken over by Engineer-in-Charge and shall be absolutely at the disposal of the Engineer-in-Charge.
- (ii) After giving notice to the contractor to measure up the work of the contractor and to take such whole, or the balance or part thereof as shall be un-executed or delayed with reference to the General Conditions of Contract clause no. 24.0 and/ or relevant clause of Special Conditions of Contract, out of his hands and to give it to another contractor to complete.

**Notes:**

- (i) The Contractor, whose contract is determined as above, shall not be allowed to participate in the tendering process for the balance work including any

new items needed to complete the work.

- (ii) In the event of the Engineer-in-Charge taking recourse to the above, the Contractor shall have no claim to Penalty for any loss sustained by him by reasons of his having purchased or procured any materials or entered into any engagements or made any advances on account of or with a view to the execution of the work or the performance of the contract; and
  - (iii) In case action is taken under any of the provisions aforesaid, the Contractor shall not be entitled to recover or be paid any sum for any work thereof or performed under this contract unless and until the Engineer-in-Charge has certified in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid the value so certified.
- 12.3 Any sums in excess of the amounts due to Employer and unsold materials, constructional plant etc. shall be returned to the Contractor, provided always that if the cost or anticipated cost of completion of the works or part of the works by Employer/ PMC/ TPIA is less than the amount which the Contractor would have been paid if he had completed the works or part of the works, such benefit shall not accrue to the Contractor.
- 12.4 In the event of anyone or more of the above courses being adopted by the Engineer-in-Charge, the Contractor shall have no claim towards Penalty for any loss sustained by him by reasons of his having purchased or procured any materials or entered into any engagements or made any advances on such account or with a view to the execution of the work or the performance of the contract. In case action is taken under any of the aforesaid provisions, the Contractor shall not be entitled to recover or be paid any sum for any work thereof or actually performed under this contract unless and until the Engineer-in-Charge has certified in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid the value so certified.
- 12.5 In case, the work cannot be started due to reasons not within the control of the Contractor within 1/8th of the stipulated time or two months for completion of work, whichever is lower, either party may close the contract by giving notice to the other party stating the reasons. In such an eventuality, the Performance Guarantee of the Contractor shall be refunded within following time limits:

(i)	If the Tendered value of work is up to Rs. 1.00 Crore	15 days
(ii)	If the Tendered value of work is more than Rs. 1 Crore and up to Rs. 10 Crore	21 days
(iii)	If the Tendered value of work exceeds Rs. 10 Crore	30 days

Neither party shall claim any compensation for such eventuality. This clause is not applicable for any breach of the contract by either party.

### **13.0 Contractor liable to pay Compensation even if action not taken under clause 12.0**

In a case where any of the powers conferred upon the Engineer-in-Charge

shall have become exercisable under the relevant clause of the Contract, and the same are not exercised, the non-exercise thereof shall not constitute an ipso facto waiver of any of the conditions hereof. Such powers shall be exercisable in the event of any future case of default by the Contractor and the liability of the Contractor for Penalty shall remain unaffected. In the event of the Engineer-in-Charge putting in force all or any of the powers vested in him under any clause, he may, if he so decides, after giving a notice in writing to the Contractor, take possession of (or at the sole discretion of the Engineer-in-Charge, which shall be final and binding on the Contractor), use as on hire (the amount of the hire money being also in the final determination of the Engineer-in-Charge) all or any tools, plant, materials and stores, in or upon the works, or the site thereof belonging to the contractor, or procured by the contractor and intended to be used for the execution of the work/ or any part thereof, paying or allowing for the same in account at the contract rates, or in the case of these not being applicable, at current market rates to be certified by the Engineer-in-Charge, whose certificate thereof shall be final and binding on the contractor and/or direct the contractor, clerk of the works, foreman or other authorized agent to remove such tools, plant, materials, or stores from the premises (within a time to be specified in such notice) in the event of the contractor failing to comply with any such requisition, the Engineer-in-Charge may remove them at the contractor's expense or sell them by auction or private sale on account of the contractor and his risk in all respects and the certificate of the Engineer-in-Charge as to the expenses of any such removal and the amount of the proceeds and expenses of any such sale shall be final and conclusive against the contractor.

#### **14.0 Carrying out part work at the risk & cost of the Contractor**

##### **14.1 If the Contractor:**

- (i) At any time makes default during currency of work or does not execute any part of the work with due diligence and continues to do so even after receiving a notice in writing of 15 days in this respect from the Engineer-in-charge; or
- (ii) Commits default in complying with any of the terms and conditions of the contract and does not remedy it or takes effective steps to remedy it within 15 days even after a notice in writing is given in that behalf by the Engineer-in-Charge; or
- (iii) Fails to complete the work(s) or items of work with individual dates of completion, on or before the date(s) so determined, and does not complete them within the period specified in the notice given in writing in that behalf by the Engineer-in-Charge;

The Engineer-in-Charge, without invoking action under clause 12.0 of the contract may, without prejudice to any other right or remedy against the Contractor, which have either accrued or accrue thereafter to Employer/PMC, by a notice in writing to take the part work/ part incomplete work of any item(s) out of his hands and shall have the powers to:

- (a) Take possession of the site and any materials, constructional plant,

implements, stores, etc. thereon; and/or

- (b) Carry out the part work/ part incomplete work of any item(s) by any means at the risk and cost of the Contractor.

The Engineer-in-Charge shall determine the amount recoverable from the Contractor, if any, for completion of the part work/ part of any incomplete work and execute the same at the risk and cost of the Contractor. The liability of the Contractor on account of loss or damage suffered by the Employer because of action under this clause shall not exceed 10% of the tendered value of the work.

In determining the amount, credit shall be given to the Contractor for the value of work done in all respects in the same manner and at the same rate as if it had been carried out by the Contractor under the terms of his contract, the value of Contractor's materials taken over and incorporated in the work and use of plant and machinery belonging to the Contractor. The certificate of the Engineer-in-Charge as to the value of work done shall be final and binding on the Contractor provided that action under this clause shall be taken only after giving notice in writing to the Contractor. Provided also that if the expenses incurred by the Employer are less than the amount payable to the Contractor at his agreement rates, the difference shall not be payable to the Contractor.

- 14.2 Any excess expenditure incurred or to be incurred by the Employer in completing the part work/ part incomplete work of any item(s) or the excess loss of damages suffered or may be suffered by the Employer as aforesaid after allowing such credit, shall without prejudice to any other right or remedy available to the Employer in law or as per agreement, be recovered from any money due to the Contractor on any account, and if such money is insufficient, the Contractor shall be called upon in writing and shall be liable to pay the same within 30 days.

If the Contractor fails to pay the required sum within the aforesaid period of 30 days, the Engineer-in-Charge shall have the right to sell any or all of the Contractors' unused materials, constructional plant, implements, temporary building at site etc. and adjust the proceeds of sale thereof towards the dues recoverable from the Contractor under the contract and if thereafter there remains any balance outstanding, it shall be recovered from the Contractor in accordance with the provisions of the contract.

In the event of above course being taken by the Engineer-in-Charge, the Contractor shall have no claim to compensation for any loss suffered by him by reason of his having purchased or procured any materials or entered into any engagements or made any advance on any account or with a view to the execution of the work or the performance of the contract.

## **15.0 Suspension of Works**

- (i) The Contractor shall, on receipt of the order in writing of the Engineer-in-charge (whose decision shall be final and binding on the Contractor), suspend the progress of the works or any part thereof for such time and in such manner as the Engineer-in-charge may consider necessary for any of the following reasons:
  - (a) On account of any default on part of the Contractor, or

- (b) For proper execution of the works or part thereof for reason other than the default of the Contractor, or
  - (c) For safety of the works or part thereof.
- (ii) The Contractor shall, during such suspension, properly protect and secure the works to the extent necessary and carry out the instructions given in that behalf by the Engineer-in-charge.
- (iii) If the suspension is ordered for reasons (b) and (c) in sub-Para (i) above.
  - (a) The Contractor shall be entitled to an extension of time equal to the period of every such suspension PLUS 25%, for completion period. No adjustment in contract price will be allowed for reasons of such suspension.
  - (b) In the event of the Contractor treating the suspension as an abandonment of the Contract by Employer, he shall have no claim to payment of any Penalty on account of any profit, loss of profit or advantage, which he may have derived from the execution of the work in full.

## **16.0 Termination of Contract on Death of the Contractor**

Without prejudice to any of the rights or remedies under this contract, if the Contractor dies, the Engineer-in-Charge shall have the option of terminating the contract without any Penalty to the Contractor.

## **17.0 Time & Extension for Delay**

**17.1** The time allowed for execution of the Works as specified or the extended time in accordance with the conditions as per this clause shall be the essence of the Contract. The execution of the work shall commence from the 15<sup>th</sup> day of issue of LoA or from the date of handing over of the site, notified by the Engineer-in-Charge, whichever is later. If the Contractor commits default in commencing the execution of the work as aforesaid, the performance guarantee shall be forfeited by the Engineer-in-Charge and shall be absolutely at the disposal of the Engineer-in-Charge without prejudice to any other right or remedy available in law.

**17.2** As soon as possible but within 10 days of award of work:

- (i) The Contractor shall submit a Time and Progress Chart for each milestone as per the format required by the engineer-in-charge. The Engineer-in-Charge may, if required, within 30 (Thirty) days thereafter modify, and communicate the approved program to the Contractor, failing which the program submitted by the Contractor shall be deemed to be approved by the Engineer-in-Charge. The work programme shall include all details of drawings and decisions required to complete the contract with specific dates by which these details are required by the Contractor without causing any delay in execution of the work. The Chart shall be prepared in direct relation to the time stated in the Contract documents for completion of items of the works. It shall indicate the forecast of the dates of commencement and completion of various activities of the work and may be amended as necessary by agreement between the Engineer-in-Charge and the Contractor within the overall limitations of time imposed in the Contract documents.

- (ii) In case of non-submission of construction programme by the Contractor, the program approved by the Engineer-in-Charge shall be deemed to be final.
- (iii) The approval by the Engineer-in-Charge of such programme shall not relieve the Contractor of any of the obligations under the contract.
- (iv) The Contractor shall submit the Time and Progress Chart using the mutually agreed software or in other format decided by Engineer-in-Charge for the work done during the previous month to the engineer in charge on or before the 7<sup>th</sup> day of each month with S curves of the proposed planning vs actual execution progress.

**17.3 If the work(s) be delayed by -**

- (i) force majeure; or
- (ii) abnormally bad weather; or
- (iii) serious loss or damage by fire; or
- (iv) civil commotion, local commotion of workmen, strike or lockout, affecting any of the trades employed on the work; or
- (v) delay on the part of other Contractors or tradesmen engaged by Engineer-in-Charge in executing work not forming part of the Contract; or
- (vi) any other cause like above which, in the reasoned opinion of the Engineer-in-Charge is beyond the Contractor's control;

then upon the happening of any such event causing delay, the Contractor shall immediately give notice thereof in writing to the Engineer-in-Charge but shall nevertheless constantly use his best endeavours to prevent or make good the delay and shall do all that may be reasonably required to the satisfaction of the Engineer-in-Charge to proceed with the works.

The Contractor shall have no claim of damages for extension of time granted or rescheduling of milestone/s for events listed in above sub clauses and he shall update the progress schedule reports submitted at above Clause for all such delays once they are approved by the engineer in charge based on the contractor submittals as defined in Clause below.

- 17.4** In case the work is hindered by the Employer for any reason/event, for which the Employer is responsible, the Engineer-in-Charge shall, if justified, give a fair and reasonable extension of time and reschedule the milestones for completion of work. Such extension of time or rescheduling of milestone/s shall be without prejudice to any other right or remedy of the parties in contract or in law. Provided further that for concurrent delays under this clause and sub clause 17.3 to the extent the delay is covered under sub clause 17.3, the Contractor shall be entitled to only extension of time and no damages and/or claims on this account.
- 17.5** Request for rescheduling of Milestones or extension of time, to be eligible for consideration, shall be made by the Contractor in writing within ten days of the happening of the event causing delay. The Contractor shall indicate in such a request the period by which rescheduling of milestone/s or extension of time is required.
- 17.6** In case the work is delayed by the Contractor for any reasons, in the opinion of the

Engineer-in-Charge, beyond the events mentioned in clause 17.3 or clause 17.4 and beyond the justified extended date, without prejudice to the right to take action, the Engineer-in-Charge may grant extension of time required for completion of work without rescheduling of the milestones. The Contractor shall be liable for levy of Penalty for delay for such extension of time.

## **18.0 Time Schedule & Progress**

- 18.0** Time allowed for carrying out all the works as entered in the tender shall be as mentioned in the "GENERAL DETAILS (Annexure-I)" which shall be reckoned from the 15<sup>th</sup> day from the date on which the letter of Award or the date of handing over of site whichever is later is issued to the Contractor. Time shall be the essence of the contract and contractor shall ensure the completion of the entire work within the stipulated time of completion.
- 18.1** The contractor shall also furnish within 15<sup>th</sup> days of date of issue of letter of Award a CPM network/ PERT chart/ Bar Chart for completion of work within stipulated time. This will be duly got approved from the Engineer-in-Charge. This approved Network/ PERT Chart shall form a part of the agreement. Achievement of milestones as well as total completion has to be within the time period allowed.
- 18.2** Contractor shall mobilize and employ sufficient resources for completion of all the works as indicated in the agreed BAR CHART/PERT Network. No additional payment will be made to the contractor for any multiple shift work or other incentive methods contemplated by him in his work schedule even though the time schedule is approved by the Engineer-in-Charge.
- 18.3** During the currency of the work the contractor is expected to adhere to the time schedule on milestone and total completion and this adherence will be a part of Contractor's performance under the contract. During the execution of the work contractor is expected to participate in the review and updating of the Network/BAR CHART undertaken by the Engineer-in-Charge. These reviews may be undertaken at the discretion of Engineer-in-charge either as a periodical appraisal measure or when the quantum of work order on the contractor is substantially changed through deviation orders or amendments. The review shall be held at site or any of the offices of Employer/PMC at the sole discretion of Engineer-in-Charge. The contractor will adhere to the revised schedule thereafter. The approval to the revised schedule resulting in a completion date beyond the stipulated date of completion shall not automatically amount to a grant of extension of time to the contractor.
- 18.4** Contractor shall submit (as directed by Engineer-in-Charge) progress reports on a computer-based program (program and software to be approved by Engineer-in-Charge) highlighting status of various activities and physical completion of work. The contractor shall send completion report with as built drawings to the office of Engineer-in-Charge, in writing within a period of 30 days of completion of work.
- 18.5** At least 10 Nos dated photographs of the project taken on last day of every month indicating progress of work (in soft copies) shall be attached along with the physical progress reports to be submitted to Engineer-in-charge.
- 18.6** The defined timelines for documents to be submitted post-award, though mentioned



at various other places, are summarised as under:

<b>Sr. No.</b>	<b>Document Title</b>	<b>From issue of Letter of Award (On or before)</b>
1	Time & Progress Chart for each mile-stone	10 days
2	Date of Commencement of Work	15 <sup>th</sup> day
3	Details of Contractor's Authorised Representative taking instructions from Engineer-in-charge	15 days
4	<u>Updated</u> Overall Project Schedule	15 days
5	CPM network/ PERT chart/ Bar Chart for completion of work within stipulated time	15 days
6	Submission of Irrevocable Performance Bank Guarantee (3% of tendered amount)	15 days
7	Quality Assurance Programme/ Plan	30 days
8	Detailed contract coordination procedure	30 days
9	Site organizational chart and individual personnel resume, including details of experience of the Project-in-Charge and other staff proposed to be deployed by him	30 days
10	Insurance Policies	30 days

**Notes: Document Review and Submission Cycle**

- (i) Post submission of the document by the Contractor, the Engineer-in-charge/ PMC-TPIA will review and provide comments/approval within fourteen (14) days of the receipt of respective documents.
- (ii) The contractor shall re-submit the documents (incorporating comments) within Five (5) days of receipt of the comments, for review/approval.
- (iii) The Engineer-in-charge/PMC-TPIA will be reviewing the same and providing comment s/approval within seven (7) days of the receipt of revised/updated document. The defined cycle will be followed till all the project requirements are complied with by the contractor and document is approved.

**19.0 Taxes and Duties**

- 19.1** The contract price is inclusive of all taxes, duties, cesses, fees, charges, interest/ late fees, incidental expenses, and statutory levies payable under any law (as applicable on the date of submission of bid) by the Contractor in connection with execution of the contract) but excluding the GST as applicable. The contract price shall be adjusted for any increase/ decrease in the rate of GST on works contract as notified by Government of India, from time to time..
- 19.2** Notwithstanding anything contained in clause 19.1, the Contractor shall ensure payment of applicable taxes on the supplies made under the contract. The Contractor shall take registration under the applicable enactment levying tax on supply of goods

or services under the contract and issue invoices having all the particulars prescribed under the applicable provisions of law, including description of goods/services, rate and amount of tax paid or payable on the supplies made under the contract, so that the Employer can avail credit of such tax, wherever applicable. The Contractor shall comply with all applicable provisions of Goods and Service Tax (GST) levied by Union Government and State Governments/ Union Territories (CGST, UTGST, SGST and IGST). The Contractor shall get himself registered and discharge his obligations for payment of taxes, filing of returns on time etc. under the appropriate provisions of law in respect of all the taxes, duties, levies, cess, etc. The Employer would have the right to seek necessary evidence that the Contractor is registered under the law and duly discharging its obligations under the tax laws, enabling the Employer to avail input tax credit, wherever admissible.

Whenever any GST, interest, penalty, late fees etc. is payable by the Employer on reversal of Input Tax Credit (ITC) or through cash payment under GST Act or rules due to default on Contractor's part, such as, non-filing/ late filing of GST returns, non-payment/ late payment of GST liabilities, delay in issue of invoices or non-appearance of GST invoice on the GST portal within the prescribed period, then in such an eventuality, the amount of GST, interest, penalty, late fees, if any, liable to be paid by the Employer under the said contract shall be borne by the Contractor and shall be recoverable from him.

- 19.3** In case the Contractor does not deposit the tax payable on execution of the contract, or has not provided the tax invoice to the Employer showing the amount of tax, or has not uploaded the document in computerized tax network as per prevailing law, leading to non-availability of inputs credit of the tax to Employer, the amount equivalent to such tax shall be retained or withheld from the subsequent RA Bill or payment to be made to the contractor on any account by the Employer till such time that the contractor ensures availability of input credit of the tax to the Employer.
- 19.4** The Contractor will be under obligation for charging correct rate of tax as prescribed under the respective tax laws from time to time during the entire duration of the contract. Further, the contractor shall avail and pass on benefits of all exemptions/concessions available under the tax laws to the Employer.
- 19.5** The Contractor will ensure its registration with the respective tax authorities and submit self-attested copy of such registration certificates to the Employer within 30 days of the award of LOA. The Contractor will be responsible for procurement of material on its own registration (GSTIN) and also to issue/ arrange its own Road Permit/ E-way Bill, if applicable, and comply with the statutory laws of the concerned state.
- 19.6** Any error of interpretation of applicability of taxes/ duties by the Contractor shall be to the Contractor's account. The classification of Goods & Services as per GST Act and charging of correct rate of tax as prescribed under the respective tax laws should be correctly done by the Contractor to ensure that input credit benefit is not lost to the Employer on account of any error on the part of the Contractor or its sub-contractor/vendor. The contractor must ensure that Employer is not subjected to any additional liability towards payment of applicable taxes & duties as a result of wrong classification, valuation, assessment/ interpretation of applicable taxes & duties by

the Contractor and the contractor will reimburse all losses on this account to the Employer (if any).

- 19.7** GST shall be applicable on all advance payments as per GST Act, Rules and relevant notifications thereunder.
- 19.8** Stamp duty and registration charges, if any, under Income Tax/ GST Act, payable towards the execution of any and all contract documents/agreements, shall be borne by the Contractor.
- 19.9** Tax deduction at source (TDS), if any, under Income Tax/ GST Act, shall be made by the Employer as per law applicable from time to time, from the amount payable to the Contractor.
- 19.10** Statutory variations on IGST/ CGST/ SGST/ UTGST (included in quoted prices) in case of imported materials from outside India in Contractor's name (i.e. for Indian Bidders) shall be to the Contractor's account.

**19.11 New Taxes & Duties**

All new taxes, duties, cess, levies notified or imposed after the due date of submission of last/ final price bid before the contractual date of completion of work (including extended contractual completion period for the reasons attributable to the Employer or due to Force Majeure condition), shall be to the Employer's account. These shall be reimbursed against documentary evidence. In case of reduction/elimination of taxes, the necessary credit shall be given to the Employer. However, in case of delays attributable to the Contractor, any new or additional taxes and duties imposed after the Scheduled Completion Date, as above, shall be to the Contractor's account.

**19.12 Any Other Taxes Duties and Levies**

- (i) Except as hereinabove specified, the Contractor shall be liable for and shall pay all fees, cesses, taxes, duties and levies assessable against the Contractor in respect of or pursuant to the Contract. If any legal/ departmental proceedings are initiated against the Contractor for short levy or non-levy of taxes, he shall be fully responsible to defend the same at his own.
- (ii) In addition, the Contractor shall be responsible for payment of all duties, levies, and taxes assessable against the Contractor or Contractor's employees or Sub-Contractor's whether corporate or personal as applicable in respect of property.
- (iii) The Contractor shall accept sole liability for the payment of any and all taxes, duties, cesses and levies, as are payable to any government, local or statutory authority in any country other than India as are now in force or as are hereinafter imposed, increased or modified and as are payable by the Contractor, his agents, Sub-Contractors and Suppliers and its/their respective employees for or in relation to the performance of this Contract. The Contractor shall be deemed to have been fully informed with respect to all such liabilities and shall be deemed to have considered and included the same in his bid. The quoted Price shall not be varied in any manner on this account.

**20.0 Tax Deduction at Source**

### **20.1 Income Tax Deduction (TDS)**

Income tax deductions shall be made from all payments made to the Contractor including advances, in respect of the work/ project undertaken by the Contractor, in accordance with the provisions of the Income Tax Act and Rules made thereunder prevailing and in force from time to time.

### **20.2 TDS under GST**

TDS under GST, if applicable, shall be deducted from Contractor's bill at applicable rate and a certificate as per rules for tax so deducted shall be provided to the Contractor.

The Contractor shall be solely responsible and liable to deduct TDS, if applicable, from the sub-Contractors/ sub-vendors and remit the same to the Government within the due date, as per applicable laws.

### **20.3 Income Tax & Corporate Tax**

- (i) The Contractor shall be solely responsible and liable to pay all Direct Taxes including income tax, profession tax and wealth tax on any payments arising out of the Contract, whether payable in India or in any other jurisdiction.
- (ii) The Contractor shall be responsible for ensuring compliance with all provisions of the Direct Tax laws of India including, but not limited to, the filing of appropriate Returns and shall promptly provide all information required by the Employer for discharging any of its responsibilities under such laws in relation to or arising out of the Contract.
- (iii) The Contractor shall indemnify the Employer against any and all liabilities or claims arising out of this contract for such taxes including interest and penalty which any tax authority may assess or levy on the Employer or its representatives.
- (iv) Tax shall be deducted at source by the Employer from all sums due to an Indian tax resident Contractor in accordance with the provisions of Indian Income Tax Act/ Rules as in force at the relevant point of time.
- (v) Corporate Tax Liability pertaining to contractor's work, if any, shall be to the Contractor's account.

**20.4** Employer shall issue a Tax Deduction Certificate to the Contractor evidencing the Tax deducted or withheld and deposited by the Employer on payments made to the Contractor to enable the Contractor to claim the credit of the Tax deducted by the Employer.

### **20.5 Construction Workers' Cess / Labour Cess**

- (i) The Contractor shall comply with the Building and Other Construction Workers' Welfare Cess Act, 1996, the Building and Other Construction Workers' (Regulation of Employment and Condition of Service) Central Rules, 1998 and the Building and Other Construction Workers' Welfare Cess Rules, 1998.
- (ii) Prices quoted by the bidder shall be deemed to be inclusive of construction

workers cess/ labour cess.

- (iii) Cess as per the prevailing rate, shall be deducted at source from the bills of the Contractor and remitted to the “Secretary, Building and Other Construction Workers Welfare Board” of the concerned State by the Employer as per regulations. The Contractor shall be responsible to submit final assessment return of the cess amount to the assessing officer after adjusting the cess deducted at source.

## **21.0 Royalty and other costs on Materials**

The cost of procurement of materials required for construction, including the Royalty, Cess, Toll, Octroi, if applicable for procurement/ supply of materials such as bajri, stone, kankar, sand, ordinary earth and other materials etc. shall be deemed to be included in the quoted rates and nothing additional would be payable on this account.

## **22.0 Insurance of Works etc.**

- 22.1** Contractor is required to take ‘Contractor’s All Risk Policy’ or ‘Erection All Risk Policy’, as the case may be, before start of work from an approved insurance company in the joint name with first name of Employer and bear all costs towards the same for the full period of execution of works for the full amount of contract against all loss of damage from whatever cause arising other than excepted risks for which he is responsible under the terms of the contract and in such manner that the Employer and his authorized representatives and the Contractor are covered during the period of construction of works for loss or damage in respect of:

- (i) The work and the temporary works to the full value of such works.
- (ii) The materials, constructional plant, centring, shuttering and scaffolding materials and other things brought to the site for their full value.

The Contractor is required to submit the original policy document and the receipt for payment of the current premium to the Employer.

## **22.2 Insurance under Workmen Compensation Act**

- (i) Contractor is required to take insurance cover under the Workman Compensation Act, 1923 amended from time to time from an approved insurance company and pay premium charges thereof.
- (ii) The Contractor is required to submit the original policy document and the receipt for payment of the current premium to Employer.

## **22.3 Third Party Insurance**

- (i) Contractor is required to take third party insurance cover for an amount of 5% (five per cent) of contract value from an approved insurance company for insurance against any damage, injury or loss which may occur to any person or property including that of Employer, arising out of the execution of works or temporary works.
- (ii) The Contractor is required to submit the original policy document and the

receipt for payment of the current premium to Employer.

- (iii) Engineer-in-charge to ensure that Insurance policies are submitted by the Contractor within 30 days from the date of issue of LOA. In case of failure of the Contractor to obtain Contractors All Risk Policy, insurance under Workman Compensation Act and third-party insurance as described above, Employer reserves the right of forfeiture of the Performance Bank Guarantee.
- (iv) If the Contractor could not effect a comprehensive insurance cover against risks which he may be required to effect under the terms of the contract, then he shall give his attention and even in case to get the best insurance cover available of effecting a wider insurance cover than the one which the subsidiary of the General Insurance Company could offer, such an insurance is ought to be done after the Employer's approval, by or through the subsidiary of the General Insurance Company.

**22.4** The Contractor shall at all times indemnify the Employer against all claims, damages or compensation under the provision of Payment of Wages Act 1936, Minimum Wages Act 1948, Employer's Liability Act 1938, the Workmen's Compensation Act 1947, Industrial Disputes Act 1947 and Maternity Benefit Act 1961 or any modifications thereof or any other law in force or as a consequence of any accident or injury to any workman or other persons in or about the works, whether in the employment of the Contractor or not, against all costs, charges and expenses of any suit, action or proceedings arising out of such incident or injury and against all sum or sums which may, with the consent of the Contractor, be paid to compromise or compound any such claim. Without limiting his obligations and liabilities as above provided, the Contractor shall insure against all claims, damages or compensation payable under the Workmen's Compensation Act 1923 or any modification thereof or any other law relating thereto.

## **23.0 Payments**

**23.1** All running payments shall be regarded as payments by way of advance against the final payment only and not as payments for work actually done and completed and/or accepted by Engineer-in-Charge and shall not preclude the recovery for bad, unsound and imperfect or unskilled work to be removed and reconstructed or re-erected. The final bill shall be submitted by the Contractor within three months of the completion of work otherwise Engineer-in-Charge's certificate of the total measurement shall be binding on the Contractor.

- (i) Intermittent progress Photographs, as and when required, shall also be provided by the Contractor at his own cost as per the direction of Engineer-in-Charge. No payment of running account bill shall be released unless it is accompanied by photographs, Monthly Progress Report and tax invoices as stated above.
- (ii) It may be noted that GST shall be recoverable as extra on all applicable recoveries e.g. Workmen recovery, compensation etc. made from the bills of Contractor.
- (iii) The Running Bills will be submitted by the Contractor (in 4 copies), complete

in all respects, on a monthly basis. The Engineer-in-Charge shall process and verify the same within 15 days of submission of the bill, complete in all respects, who shall then forward the same with his certification to the Employer. The Employer will make every effort to process the payment thereof within 15 days of receipt of the certified bill from the Engineer-in-Charge.

- (iv) All payments shall be released by way of e-transfer through RTGS in India directly to their Bank account by the Employer.
- (v) No Running Account Bill shall be paid for the work till the labour licenses, registration with EPFO, ESIC and BOCW Welfare Board, whatever applicable, is submitted by the Contractor to the Engineer-in-Charge/Employer.

### **23.2 Payment of Final Bill**

- (i) The final bill shall be submitted by the Contractor in the same manner as specified in the interim bills/ running bills within three months of physical completion of the work or within one month of the date of the final certificate of completion furnished by the Engineer-in-Charge, whichever is earlier.
- (ii) No further claims shall be made by the Contractor after submission of the final bill and these shall be deemed to have been waived and extinguished. Payments of those items of the bill in respect of which there is no dispute for quantities and rates, as approved by Engineer-in-Charge, will, as far as possible be made within 3 months of submission of final bill. As regards the disputed items, the payment to the extent of amount considered reasonable/ acceptable to the Engineer-in-Charge shall be made along with the payment of undisputed items. However, the payment in respect of the remaining claim shall be resolved and paid as per the provisions in Clause 83.

### **23.3 Opening of Designated Bank Account for the Project**

- (i) The Contractor shall maintain a separate bank account with a Scheduled Bank for the purpose of receiving all payments under the Contract and for utilization of payments received from the Employer for disbursement to sub-Contractors, sub-vendors, PRW's, suppliers etc. for this contract. The Contractor shall maintain separate Books of Account for all payments under this contract and the Engineer-in-Charge shall have access to it at all times.

### **24.0 Measurements of Works**

- (i) Engineer-in-charge shall, except as otherwise provided, ascertain and determine by measurement, the value of work done in accordance with the contract. Except where any general or detailed description of the work expressly shows to the contrary, measurement shall be taken in accordance with the procedure set forth in the CPWD Specifications. In the case of items, which are not covered by specifications, mode of measurement as specified in the Technical Specifications of the contract, and if for any item no such technical specification is available, then a relevant standard method of measurement issued by the Bureau of Indian Standard shall be followed.
- (ii) Provided further that, in case of Cancellation/ Determination of Contract in Full or in

Part in accordance with clause 12.0 (and its sub-clauses), following methodology shall be adopted in respect of measurements in addition to what has been mentioned in foregoing:

- (a) All measurements and levels shall be taken jointly by the Engineer-in-Charge or his authorized representative and by the Contractor or his authorized representative from time to time during the progress of the work and such measurements shall be signed and dated by the Engineer-in-Charge and the Contractor or their representatives as token of their acceptance. If the Contractor objects to any of the measurements recorded, a note shall be made to that effect with reason and signed by Engineer-in-Charge & the Contractor.
- (b) If for any reason, the Contractor or his authorized representative is not available and the work of recording measurements is suspended by the Engineer-in-Charge or his representative, the Engineer-in-Charge shall not entertain any claim from Contractor for any loss or damages on this account. If the Contractor or his authorized representative does not remain present at the time of such measurements after the Contractor or his authorized representative has been given a notice in writing three (3) days in advance or fails to countersign or to record objection within a week from the date of the measurement, then such measurements recorded in his absence by the Engineer-in-Charge or his representative shall be deemed to be accepted by the Contractor.
- (c) The Contractor shall, without any extra charge, provide all assistance with every appliance, equipment, scaffolding, labour and any other things necessary for recording the measurements.

## **25.0 Computerised Measurement Books**

- (i) Engineer-in-Charge shall, except as otherwise provided, ascertain and determine by measurement the value of work done in accordance with the contract. All measurements of all items having financial value shall be entered by the Contractor and compiled in the shape of the Computerized Measurement Book as per the format provided by Engineer-in-Charge so that a complete record is obtained of all the items of works performed under the contract. All such measurements and levels recorded by the Contractor or his authorized representative from time to time, during the progress of the work, shall be got checked by the Contractor from the Engineer-in-Charge or his authorized representative as per interval or program fixed in consultation with Engineer-in-Charge or his authorized representative.
- (ii) After the necessary corrections made by the Engineer-in-Charge, the measurement sheets shall be returned to the Contractor for incorporating the corrections, and for resubmission to the Engineer-in-charge for the dated signatures by the Engineer-in-Charge and the Contractor or their representatives in token of their acceptance.
- (iii) Whenever a Running Account bill is due for payment, the Contractor would initially submit draft computerized measurement sheets and these measurements would be got checked/ test- checked from the Engineer-in-Charge and/or his authorized representative. The Contractor will, thereafter, incorporate such changes as may



- be done during these checks/ test checks in his draft computerized measurements, and submit it to Engineer-In-Charge in both Soft and Hard copies.
- (iv) All the required documents viz. measurement sheets, summary of quality test reports, ESIC/EPF challans, Tax invoice, theoretical v/s actual consumption of material (as required by Engineer-in-Charge) etc. shall also be submitted along with the RA bill in both soft and hard copies.
  - (v) The Contractor shall give not less than seven days' notice to the Engineer-in-Charge or his authorized representative before covering up or otherwise placing beyond the reach of checking and/or test checking the measurement of any work. The Contractor shall not cover up and place beyond reach of measurement any work without consent of the Engineer-in-Charge or his authorized representative in writing in order to ensure the proper checking and measurement thereof. The Engineer-in-Charge or his authorized representative shall within the aforesaid period of seven days inspect the work, and if any work is found to be covered up or placed beyond the reach of checking and/or test checking measurements without such notice having been given or the Engineer-in-Charge's consent being obtained in writing, the same shall be uncovered at the Contractor's expense, or in default thereof no payment or allowance shall be made for such work or the materials with which the same was executed.
  - (vi) It is also a term of this contract that checking and/or test checking the measurements of any item(s) of work in the Measurement Book and/or its payment in the interim, on account of final bill shall not be considered as conclusive evidence as to the sufficiency of any work or material to which it relates nor shall it relieve the Contractor from liabilities from any over measurement or defects noticed till the final completion of the work and certification thereof.

## **26.0 Withholding & Lien In Respect of Sums Due From Contractor**

- (i) Whenever any claim or claims for payment of a sum of money arises out of or under the contract or against the Contractor, Employer shall be entitled to withhold and also have a lien to retain such sum or sums in whole or in part from the Security Deposit by the Contractor and for the purpose aforesaid, Employer shall be entitled to withhold the security deposit, if any, furnished as the case may be and also have a lien over the same pending finalization or adjudication of any such claim. In the event of the security being insufficient to cover the claimed amount or amounts or if no security has been taken from the Contractor, Employer shall be entitled to withhold and have a lien to retain to the extent of such claimed amount or amounts referred to above, from any sum or sums found payable or which may at any time thereafter become payable to the Contractor under the same contract or any other contract pending finalization of adjudication of any such claim.
- (ii) It is an agreed term of the contract that the sum of money or moneys so withheld or retained under the lien referred to above by the Engineer-in-Charge or Employer will be kept withheld or retained till the claim arising out of or under the contract is determined by the competent authority and that the Contractor will have no claim for interest or damages whatsoever on any account in respect of such withholding or retention under the lien referred to above and duly notified as such to the Contractor.

For the purpose of this clause, where the Contractor is a partnership firm or a limited company, the Engineer-in-Charge or the Employer shall be entitled to withhold and also have a lien to retain towards such claimed amount or amounts in whole or in part from any sum found payable to any partner/ limited company, be whether in his individual capacity or otherwise, as the case may be. Employer shall have the right to cause an audit and technical examination of the works and the final bills of the Contractor including all supporting vouchers, abstract etc. to be made after payment of the final bill and if as a result of such audit and technical examination any sum is found to have been overpaid in respect of any work done by the Contractor under the contract or any work claimed to have been done by him under the contract and found not to have been executed, the Contractor shall be liable to refund the amount of over-payment and it shall be lawful for Employer to recover the same from him in any other manner legally permissible. If it is found that the Contractor was paid less than what was due to him under the contract in respect of any work executed by him under it, the amount of such under payment shall be duly paid by Employer to the Contractor, without any interest thereon whatsoever.

#### **Lien In Respect of Claims in Other Contracts**

Any sum of money due and payable to the Contractor (including the security deposit returnable to him) under the contract may be withheld or retained by way of lien by the Engineer-in-Charge or by Employer against any claim of Engineer-in-Charge or Employer in respect of payment of a sum of money arising out of or under any other contract made by the Contractor with the Engineer-in-Charge or the Employer. It is an agreed term of the contract that the sum of money so withheld or retained under this clause by the Engineer-in-Charge or the Employer will be kept withheld or retained till his claim arising out of the same contract or any other contract is either mutually settled or determined by the Competent Authority, as the case may be, and that the Contractor shall have no claim for interest or damages whatsoever on this account or on any other ground in respect of any sum of money withheld or retained under this clause and duly notified as such to the Contractor.

#### **27.0 Work to be executed in accordance with Specifications, Drawings and Orders etc.**

- (i) All items of work in the bill of quantities/ schedule of quantities shall be carried out as per the CPWD specifications, drawings and instructions of the Engineer-in-Charge and the rates shall include procurement and supply of required materials including proper storage, consumables, skilled & unskilled labour, supervision and tools, plant & machinery complete as called for in the detailed specifications and conditions of the contract. Latest updated CPWD specifications shall be followed for execution of work.
- (ii) The Contractor shall execute the whole of the work in the most substantial and workman like manner for materials and otherwise in all other aspects in strict accordance with the specifications. The Contractor shall also conform exactly, fully and faithfully to the design, drawings and instructions in writing in respect of the work assigned by the Engineer-in-Charge.

- (iii) The Contractor shall comply with the provisions of the contract and execute the works with due care and diligence and maintain the works and provide all labour and materials, tools and plants, including for measurements and supervision, of all works, structural plans and other things of temporary or permanent nature required for such execution and maintenance in so far as the necessity for providing these, is specified or is reasonably inferred from the contract. The Contractor shall take full responsibility for adequacy, suitability, and safety of all the works and methods of construction.

## **28.0 Materials to be provided by the Contractor**

- (i) The Contractor shall, at his own expense, provide all materials required for the works. The Contractor at his own expense and without delay provide to the Engineer-in-Charge samples of materials to be used on the work and shall get the same approved in advance. In some cases, the contractor would be instructed by the engineer in charge to create mood boards with a set of samples being available at the same place and time to justify the design aspects for getting Employer's approvals. All such materials to be provided by the Contractor shall be in conformity with the specifications laid down or referred to in the contract. The Contractor shall, if requested by the Engineer-in-Charge, furnish proof to the satisfaction of the Engineer-in-Charge regarding the material being conforming to the specifications. The Contractor shall submit the samples of materials to be tested or analysed and bear all charges and cost of testing unless specifically provided for otherwise elsewhere in the contract or specifications.
- (ii) The Engineer-in-Charge or his authorized representative/ Employer/ PMC/ TPIA shall at all times have access to the works and to all workshops and places where work is being prepared or from where materials, manufactured articles, equipment's or machinery are being obtained for the works and the Contractor shall offer every assistance in obtaining the right to visit and ensure physical visit to such works as directed by engineer-in-charge. The cost for travelling and accommodation to these works of the engineer in charge or his authorized representatives will be borne by the Employer/ PMC/ TPIA apart from those specifically written in the Special conditions of contract. However, the costs towards the contractor or his representatives towards the costs of such visits will be borne by the contractor. The Engineer-in-Charge shall have full powers to instruct the contractor for acceptance, rejection, improvement or substitution prior to delivery on site of any such material that he might have undertaken to inspect the materials at the works.
- (iii) The Engineer-in-Charge shall have full powers to instruct the contractor for removal of all materials from the site/premises, which in his opinion are not in accordance with the specifications. In case of default, the Engineer-in-Charge shall be at liberty to employ at the expense of the Contractor, other persons to remove the same without being answerable or accountable for any loss or damage that may happen or arise to such materials. The Engineer-in-Charge shall also have full power to require other proper materials to be substituted thereof and in case of default, the Engineer-in-Charge may cause the same to be supplied by others at the risk and cost of the contractor. All such costs for removal and substitution shall be borne by the

Contractor.

- (iv) The Contractor shall ensure that the materials are brought to the site in original sealed containers (except where the packing, bearing manufacturer's markings and brands, and quantity required is a fraction of the smallest packing). Materials not complying with this requirement shall be rejected. The empty containers of such materials shall not be destroyed/disposed-off without the permission of Engineer-in-Charge or his authorized representative.
- (v) The Contractor shall produce receipt vouchers showing quantity of materials to satisfy the Engineer-in-Charge that the materials comply with the contract stipulations. These vouchers shall be endorsed, dated and signed by the Contractor. A certified copy of each such voucher signed both by the Engineer-in-Charge and the Contractor shall be kept on record.

## **29.0 Materials, Samples and Testing**

- (i) The materials/products used on the works shall be one of the approved makes/ brands out of the list of approved manufacturers/ brands/ makes given in the tender document. The Contractor shall submit samples/specimens out of approved makes to the Engineer-in-Charge for prior approval.
- (ii) In case single brand/ make are mentioned, other equivalent makes/ brands may be considered by the Engineer-in-Charge on the request of the Contractor. In case of variance in CPWD/IS/BIS specifications from approved products/makes specification, the specification of approved product/ make shall prevail for which nothing shall be paid extra to the Contractor. In case no make or brand of any materials, articles, fittings and accessories etc. is specified, the same shall comply with the relevant Indian Standard Specifications and shall bear the ISI/BIS mark and meet the contractual specifications. The Engineer-in-charge shall have the discretion to the check quality of materials and equipment to be incorporated in the work, at source of supply or site of work and even after incorporation in the work. The Contractor shall provide the necessary facilities and assistance for this purpose.
- (iii) The above provisions shall not absolve the Contractor from the quality of final product and in getting the material and workmanship quality checked and approved from the Engineer-in-Charge/Employer.
- (iv) The Contractor shall well in advance, produce samples of all materials, articles, fittings, accessories etc. that he proposes to use and get them approved in writing by the Engineer-in-Charge. The materials, articles etc. as approved shall be labelled as such and shall be signed by Engineer-in-Charge and the Contractor's representative.
- (v) The approved samples shall be kept in the custody of the Engineer-in-Charge till completion of the work. Thereafter the samples, except those destroyed during testing, shall be returned to the Contractor. No payment will be made to the Contractor for the samples or samples destroyed in testing.
- (vi) The Contractor shall set up and maintain at his cost, a field-testing laboratory for all day-to-day tests at his own cost to the satisfaction of the Engineer-in-Charge. This

- field-testing laboratory shall be provided with equipment and facilities to carry out all mandatory field tests as per CPWD specifications. The Field-testing laboratory shall be constructed and installed with appropriate facilities. Temperature and humidity controls shall be available, wherever necessary, during the testing of sample(s). All equipment shall be provided by the Contractor so as to be compatible with the specified testing requirements.
- (vii) The Contractor shall maintain all the equipment in good working condition for the duration of the contract. The Contractor shall provide/ deploy approved qualified personnel to run the laboratory for the duration of the Contract. The number of staff and equipment available must be sufficient to keep pace with the sampling and testing programme as required by the Engineer-in-charge. The Contractor shall fully service the site laboratory and shall supply everything necessary for its proper functioning, including all transport needed to move equipment and samples to and from sampling points on the site, etc. All measuring devices/equipment shall be calibrated, and Contractor shall keep the records of valid calibration certificates of devices/ equipment at the field laboratory for inspection by Engineer-in-Charge at all times. All field tests shall be carried out in the presence of Engineer-in-Charge or his representative.
  - (viii) All costs towards samples, materials, collection, transport, manpower, testing etc. shall be borne by the Contractor and are deemed to be included in the rates quoted by him in the bill of quantities.
  - (ix) In the case of certain materials pertaining to mechanical, electrical, and plumbing (MEP) works, the Contractor shall be responsible for getting the items tested from Employer/ PMC approved laboratories at his own cost as per the tests written in the Special conditions of contract (SCC) or as deemed fit by engineer in charge, when it is not found feasible to establish a testing facility at site in respect of such items.

### **30.0 Makes of Materials**

The materials required to be supplied by the Contractor under this contract shall be procured from the list of approved manufacturers/ brands/ makes enclosed in the contract document. Where the makes of materials are not indicated in the Bidding document, Contractor shall furnish the details of makes/ brands and shall obtain prior approval of Engineer-in-Charge before placing order.

### **31.0 Materials Procured with the Assistance of Engineer-in-Charge**

If any material for the execution of this contract is procured with the assistance of Engineer-in-Charge by issue from its stores, the Contractor shall use the said materials solely for the purpose of contract and shall not dispose them without the permission of Engineer-in-Charge. The rate for these materials shall be as per the contract or as per the material rates of DSR (if applicable)/Market Rate + GST. The Contractor shall deploy security personnel for safe-keeping and safeguarding of all such materials procured at site and handed over to the contractor by the Engineer-in-Charge. The contractor will satisfy himself with the quantity, specifications and quality of the material being procured with the assistance of the

Engineer in charge so as to ensure that the works are done in accordance with the contractual stipulations. The contractor is not allowed to raise any claim/deviation/relaxation on the use of any/all such material post the handover of the material by the Engineer-in-Charge. The contractor though can submit his objections in writing for the consideration of the engineer in charge prior to accepting the handover of any/all such material.

### **32.0 Contractor to Supply Tools & Plants**

The Contractor shall provide at his own cost all materials, machinery, tools & plants as required for execution of the work. In addition to this, appliances, implements, other plants, ladders, cordage, tackle, scaffolding and temporary works required for the proper execution of the work, whether original, altered or substituted and whether included in the specifications or other documents forming part of the contract or referred to in these conditions or not, or which may be necessary for the purpose of completion of the work. The Contractor shall also supply without any charge the requisite number of persons with the means and materials, necessary for the purpose of setting out works, and counting, weighing and assisting in the measurement or examination at any time and from time to time of the work or materials. In the event of his failure to do so, the same may be provided by the Engineer-in-Charge at the expense of the Contractor and the expenses thereon shall be recovered from any money due to the Contractor under this contract or otherwise and/ or from his security deposit.

### **33.0 Mobilization of Men, Materials and Machinery**

- (i) All expenses towards mobilization at site and de-mobilization including bringing in equipment, work force, materials, dismantling the equipment, clearing the site etc. shall be deemed to be included in prices quoted and no separate payment on account of such expenses shall be entertained.
- (ii) It shall be solely the Contractor's responsibility to provide, operate and maintain all necessary construction equipment, scaffoldings and safety, gadget, lifting tackles, tools and appliances to perform the work in a workman-like and efficient manner and complete all jobs as per the specifications and within the scheduled time of completion of work. Contractor shall also be responsible for obtaining temporary electric and water connections for all purposes. The Contractor shall also make standby arrangements for un-interrupted supply of water & electricity.
- (iii) The procurement and supply in sequence and at the appropriate time of all materials and consumables shall be solely the Contractor's responsibility and his rates for execution of work shall be inclusive of supply of all these items.
- (iv) It is mandatory for the Contractor to provide safety equipment and gadgets to all his workers, supervisory and technical staff engaged in the execution of the work while working. The minimum requirement (but not limited to) shall be gumboots, safety helmets, Rubber hand- gloves, face- masks, safety- nets, safety-belts, goggles, hand sanitizers etc. as per work requirements. The Contractor shall keep a few spare sets of such gadgets for use by the Employer or the Engineer-in-Charge and /or his

- representative or any other inspecting teams. No staff/ worker shall be allowed to enter the site without these equipment/ gadgets.
- (v) The cost of the above equipment/ gadgets is deemed to be included in the rates quoted by the Contractor and the Contractor shall not be entitled for any extra payment in this regard. The Contractor shall abide by the regulations pertaining to Health, Safety and Environment as per the HSE policy attached elsewhere as a part of this contract.
  - (vi) All designs, drawings, bill of quantities etc., except Bar Bending Schedule, Shop & Fabrication drawings, for all works shall be supplied to the Contractor for his scope of work by the Engineer-in-charge in a phased manner, as the works progresses. However, it shall be the duty and responsibility of the Contractor to bring to the notice of the Engineer-in-charge as to any variation, discrepancy or any other changes required and to obtain revised drawings and designs and/ or approval of the Engineer-in-Charge in writing for the same.
  - (vii) One copy of contract documents, including drawings furnished to the Contractor, shall be kept at the site and the same shall at all reasonable times be available for inspection of Engineer-in-charge and his authorised representatives.
  - (viii) All materials, construction plants and equipment etc. (including scrap of brought in material) once brought by the Contractor within the project area will not be allowed to be removed from the premises without the written permission of the Engineer-in-charge. Similarly, all enabling works built by the Contractor for the main construction undertaken by him, shall not be dismantled, and removed without written permission of the Engineer-in-charge.
  - (ix) The Contractor shall need to furnish list of equipment/ machinery/ plants available with the Contractor along with the details/ capacities and manufacturing year of each equipment/ machinery/ plant.
  - (x) Contractor shall prepare the Bar Bending Schedule, shop and fabrication drawings at no extra cost to Employer, if required for any of the items of work as directed by the engineer in charge. Five copies of these drawings and documents will be submitted to the Engineer-in-charge/Employer for approval, at least 30 days prior to execution of the works related to these documents and drawings.
  - (xi) All Contractor's plant, machinery and equipment shall be kept in perfect working condition during currency of the contract.

#### **34.0 Health, Safety and Environment (HSE) Management**

- (i) The Contractor, during entire duration of the Contract, shall adhere to HSE requirement as enclosed in the Bidding Document as Annexure-VIII to SCC.
- (ii) The contractor shall also barricade the site with minimum 3 mtr high sheets or as per the requirement of Green Tribunal/ State Pollution Control Board/ Environment Department or any directions by the local administration during the entire duration of the contract wherever required. Nothing extra shall be paid on this account.
- (iii) Safety Regulations

The Contractor shall abide by all safety regulations and ensure that safety equipment for specific jobs, as stipulated in the factory act/ safety handbook, is issued to workers during execution of work, failing which all the works at site shall be suspended.

(iv) Security

The Contractor shall make proper security arrangements at his own cost for the materials at site & the works till handing over of the works to the Employer/ Engineer-in-Charge.

### **35.0 Quality Assurance Programme**

(i) To ensure that the services under the scope of this contract are in accordance with the specifications, the Contractor shall adopt Quality Assurance Programme to control such activities at the necessary points. The Contractor shall prepare and submit to Engineer in Charge such Quality Assurance Programme within 30 days from date of issue Letter of Award for approval. Engineer-in-charge shall also carry out quality audit and quality surveillance of systems and procedures of Contractor's quality control activities. A Quality Assurance Programme of Contractor shall generally cover the following:

- (a) His organization structure for the management and implementation of the proposed Quality Assurance Program;
- (b) Documentation control system;
- (c) The procedure for materials and source inspection;
- (d) System for site controls including process controls;
- (e) Control of non-conforming items and systems for corrective actions;
- (f) Inspection and test procedure for site activities;
- (g) System for indication and appraisal of inspection status;
- (h) System for maintenance of records;
- (i) System for handling, storage, and delivery; and
- (j) A quality plan detailing out quality practices and procedures, relevant acceptance levels for all types of work under the scope of this contract.

(ii) The Contractor shall maintain all the quality reports. Checklists & Registers as per CPWD norms in this regard shall be submitted to the Engineer-in-Charge for approval and the same shall be adopted. If any item is not covered by the Check-list/ Register, the Format for the same may be developed and submitted to the Engineer-in-Charge for approval and the same shall be adopted. These filled-in reports shall be duly signed by representatives of the Contractor and the Engineer-in-charge. All the costs associated with Printing of Formats and testing of materials required as per technical specifications or as per instructions of Engineer-in-Charge shall be included in the Contractor's quoted rates in the Schedule/ Bill of quantities. Nothing extra shall be paid to the Contractor on this account.



### **36.0 Contract Coordination Procedures, Coordination Meetings and Progress Reporting**

The Contractor shall prepare and finalize a detailed contract coordination procedure within 30 days from the date of issue of Letter of Award in consultation with the Engineer-in-charge for the purpose of execution of the Contract. The Contractor shall have to attend all the meetings at any place in India at his own cost with the representatives of the Employer, the PMC, the TPIA and their representatives during the currency of the Contract, as and when required and fully co-operate with such personnel and agencies involved during these discussions. The Contractor would be advised to deal with the Employer/ PMC only through the Engineer-in-Charge and any dealing/correspondence, if required, at any time with the Employers/ PMC/ TPIA shall be done through Engineer-in-Charge only.

### **37.0 Protection of Existing Facilities**

- (i) Contractor shall obtain full details of all existing and planned underground services from concerned agencies and shall always follow these closely during the performance of work. Contractor shall be responsible for location and protection of all underground lines, structures, power cables, OFC cables etc. at his own cost.
- (ii) Despite all precautions, should any damage to any structure/ utility etc. occur, the Contractor shall immediately inform the Engineer-in-Charge and the Contractor shall forthwith carry out repair at his expense under the direction and to the satisfaction of Engineer-in-Charge. If the same is not attended by the Contractor within the said time period, it will be got done at the risk and cost of the contractor through other agencies.
- (iii) Contractor shall take all precautions to ensure that no damage is caused to the existing pipelines, cables etc. during services.

### **38.0 Completion Plans and Completion Certificate**

- (i) Within ten days of completion of the work, the Contractor shall give notice of such completion to the Engineer-in-Charge. On the receipt of such notice, the Engineer-in-Charge shall within thirty days inspect the work and if there is no defect in the work, he shall furnish the Contractor with a final certificate of completion.
- (ii) In case of any shortcomings/ defects, a provisional certificate of physical completion indicating the defects (a) to be rectified by the Contractor, and/or (b) for which payment will be made at reduced rates, shall be issued.
- (iii) However, no final certificate of completion shall be issued, nor shall the work be considered to be complete until the Contractor shall have removed from the premises on which the work is executed, all scaffolding, surplus materials, rubbish and all huts and sanitary arrangements required for his/their work, people on the site in connection with the execution of the works and cleaned off the dirt from all wood work, doors, windows, walls, floor or other parts of the building, in, upon, or about which the work is to be executed or of which he may have had possession for the purpose of the execution. Similarly, no completion Certificate shall be issued until

the work shall have been measured by the Engineer-in-Charge.

- (iv) If the Contractor shall fail to comply with the requirements of this clause as regards removal of scaffolding, surplus materials and rubbish and all huts and sanitary arrangements as aforesaid and cleaning off dirt on or before the date fixed for the completion of work, the Engineer-in-Charge may remove such scaffolding, surplus materials and rubbish etc. at the expense of the Contractor and dispose of the same as he deems fit and clean off such dirt as aforesaid, and the Contractor shall have no claim in respect of scaffolding or surplus materials as aforesaid except for any sum actually realized by the sale thereof less actual cost incurred on removal of materials/ debris / malba etc.
- (v) The Contractor shall be responsible for handing over of the completed works including signing of inventories by the Engineer-in-charge on a pre-approved format.
- (vi) The Contractor shall, during the course of execution, prepare and keep updated a complete set of 'As Built' drawings to show each and every change from the contract drawings, changes recorded shall be counter-signed by the Engineer-in-Charge and the Contractor.

No payment of final bill shall be released to the Contractor until final work completion certificate is obtained from Employer.

### **39.0 Completion Documents**

The following documents shall be submitted in soft copy and hard-binders by the Contractor in 05 (Five) sets as a part of completion documents:

- (i) Test Certificates, Warranty/ Guarantee certificates and copies of Purchase Orders (Required for Warranty/ Guarantee).
- (ii) All other documents as specified in the respective specifications.
- (iii) Complete set of "As-built" drawings showing therein corrections and modifications (if any) made during the course of execution of the Works, signed by the Engineer-in-Charge;
- (iv) Declaration by the Contractor that it has duly cleared any and all of the dues payable by it to its labourer, employees, piece-rate workers (PRWs), and other personnel, sub-Contractors, suppliers, vendors, GST, income Tax, entry tax, excise, customs duty, provident fund, employees state insurance (ESI) and royalties, or other amounts payable under any Applicable Law (if any) and Certificate towards 'No claim' other than the claim in the Final bill.

### **40.0 Prohibition of Unauthorised Construction & Occupation**

- (i) No unauthorized buildings, construction of structures should be put up by the Contractor anywhere on the project site, neither any building built by him shall be occupied in un-authorized manner by him or his staff.
- (ii) It shall be the responsibility of the Contractor to see that the building under construction is not occupied by anybody in un-authorized manner during construction and is handed over to the Engineer-in-Charge with vacant possession of

complete building. If such building, though completed, is occupied unauthorisedly/ illegally, then the Engineer-in-Charge shall have the option to refuse to accept the said building/ buildings in that position. Any delay in acceptance on this account will be treated as delay in completion and, levy of Penalty may be imposed in line with Clause 8.0 of GCC for such delay.

#### **41.0 Foreclosure of Contract**

- (i) If at any time after acceptance of the tender or during the progress of work, the purpose or object for which the work is being done changes due to any unforeseen and compelling reasons and as a result of which the work has to be abandoned or reduced in scope, the Engineer-in-Charge shall give notice in writing to that effect to the Contractor stating the decision as well as the cause for such decision and the Contractor shall act accordingly in the matter. The Contractor shall have no claim of any compensation or otherwise, whatsoever, on account of any profit, loss of profit or advantage which he might have derived from the execution of the works in full but which he did not derive in consequence of the foreclosure of the whole or part of the works.
- (ii) The Contractor shall be paid for the works executed at site at contract rates at the time of foreclosure.
- (iii) The Contractor shall, if required by the Engineer-in-Charge, furnish to him, books of account, wage books, time sheets and other relevant documents and evidence as may be necessary to enable him to certify the reasonable amount payable under this condition.
- (iv) In the event of action being taken under Clause 14.0 to reduce the scope of work, the Contractor may furnish fresh Performance Guarantee on the same conditions, in the same manner and at the same rate for the balance tendered amount and initially valid up to the extended date of completion or stipulated date of completion if no extension has been granted plus minimum 60 days beyond that. Wherever such a fresh Performance Guarantee is furnished by the Contractor, the Engineer-in-Charge/Employer may return the previous Performance Guarantee.

#### **42. Defects Liability Period**

- (i) The Contractor shall be responsible for rectification of defects in the works for a period 5 (Five) years from the date of issue of Completion Certificate by the Engineer-in-Charge. Any defects, except normal wear & tear, discovered and brought to the notice of the Contractor forthwith shall be attended to and rectified by him at his own cost and expense. In case the Contractor fails to carry out these rectifications, the same may, without prejudice to any other right or remedy available, be got rectified by Engineer-in-Charge at the risk and cost of the Contractor.

Provided that the Contractor shall not be liable for any such structural/ architectural defect as may be induced by the allottee(s), by means of carrying out structural or architectural changes from the original specification designs.

- (ii) A part of the security deposit will be retained towards defect liability as per Clause 3.0 of the GCC above. The final amount towards defect liability would be released after 5 years from the actual date of completion or the final justified extended date of completion.

#### **43. Sub-Letting / Sub-Contracting**

No subletting of whole work or part shall be allowed. However, the Contractor may engage the sub-Contractor for specialized works as mentioned below:

- (i) The Contractor, after obtaining approval from the Engineer-in-Charge, shall engage specialized agencies in respect of the following works at site, in case the Contractor does not have such in-house expertise:
  - (a) Anti-termite treatment.
  - (b) Water proofing works.
  - (c) Fire Fighting works
  - (d) Electrical / LV Works
  - (e) HVAC Works
  - (f) BMS works
  - (g) Horticulture works
  - (h) Tree Transplantation Works, if any
  - (i) Any other work as directed by Engineer-in-Charge
  - (j) Painting Works
  - (k) Lifts
- (ii) If the Contractor is required to engage a Sub-Contractor for any part of work, then such Sub-Contractors shall have prior proven experience of similar work and shall require specific approval by the Engineer-in-charge.
- (iii) The Contractor will submit to the Engineer-in-Charge for approval, the details of Sub-Contractors as per the format enclosed as Form XIV at Section 4 for approval. Contractor shall ensure that very competent and resourceful agencies with proven track record and performance should be proposed for the work to be sub-contracted.
- (iv) However, whatever arrangements are made by the Contractor for sub-letting any part of the work/ getting any part of the work executed through a sub-contractor, getting the works executed from such sub-contractors or payments to such sub-contractors shall always remain the responsibility of the Contractor and the Employer shall not in any manner deal with such sub-contractors.
- (v) Notwithstanding any consent to sub-contract given by the Engineer-in-Charge, if in his opinion it is considered necessary, the Engineer-in-Charge shall have full authority to order the removal of any sub-Contractor from the site.

#### **44. Execution of Electrical Works**

The Contractor shall engage an approved electrical agency for execution of electrical works, holding valid electrical Contractor licence. In case the Contractor himself executes electrical works, then he shall arrange valid electrical Contractor licence before start of electrical works at site.

#### **45. Force Majeure**

- (i) Any delay in or failure to perform on the part of either party, shall not constitute default so as to give rise to any claim for damages, to the extent such delay or failure to perform is caused by an act of God, due to Pandemic, or by fire, explosion, flood or other natural catastrophe, governmental legislation, orders or regulation etc. The time for performance of the respective obligations by the parties shall be deemed to be extended for a period equal to the duration of the force majeure event. Both parties shall make their best efforts to minimize the delay caused by the force majeure event. If the failure/ delay of the Employer in handing over the entire site and/ or in releasing the funds continues even on the expiry of the stipulated date of completion, Engineer-in-charge, may, at the request of the Contractor, foreclose the contract without any liability to either party. In the event of such foreclosure, the Contractor shall not be entitled to any compensation whatsoever. If prior to such foreclosure, the Contractor has brought any material at site and which remain unused, the Engineer-in-Charge shall always have the option of taking over of all such materials at their purchase price or at the local current /DSR rates, whichever is lower.
- (ii) The Contractor shall have no claim of damages for extension of time granted or rescheduling of milestone/s for events listed in this clause.

#### **46. No Compensation**

The Contractor shall have no claim, whatsoever, for compensation or idling charges against the Employer or his authorized representative on any ground or for any reason, whatsoever.

#### **47. Directions for Works**

- (i) All works under the contract shall be executed under the direction and subject to approval in all respects of the Engineer-in-Charge.
- (ii) The Engineer-in-Charge and his authorized representative shall communicate or confirm their instructions to the Contractor in respect of execution of work during their site inspection in a 'Works Site Order Book' maintained at the site office of Engineer-in-Charge. The Contractor or his authorized representative shall confirm receipt of such instructions by signing against the relevant orders in of the Site Order Book. A soft copy of this "works site order book" shall be mailed to the contractor and Employer/PMC/TPIA monthly.

#### **48. Work in Monsoon Season and Rains**

The execution of the work may entail working in the monsoon season also. The Contractor must maintain labour force as may be required for the work and plan and

execute the construction and erection according to the prescribed schedule. No special/ extra rate will be considered for such work during the monsoon season. The stipulated period for completion of project includes the monsoon period, holidays & festivals and the contractor shall make provisions of the same in the contract scheduling submitted to the engineer in charge/Employer. Further;

- (i) During monsoon season and other periods, it shall be the responsibility of the Contractor to keep the construction work site free from any water accumulation at his own cost by making suitable arrangements/ deploying de-watering pumps.
- (ii) Contractor must take due cognizance of the presence of monsoon/ rainy season/ days in his scheduled completion period and accordingly, take all necessary measures to protect, reorganize and maintain progress on the work without any interruptions.
- (iii) No extension of time due to interruption/suspension of work, waterlogging, reduced/ slowing down of progress, non-availability of manpower etc., whatsoever may be the reason, shall be tenable on account of monsoons/ rains and further no claim for stand-by of manpower and equipment, other resources etc. shall be paid for subject to provisions under Clause 17 of the General conditions of contract.
- (iv) Contractor shall procure and stock sufficient quantities of materials viz. coarse and fine aggregates, bricks etc. adequate for the planned volume of the work during the monsoons, well in advance of the onset of same so that progress of work is not affected on this account.
- (v) All electrical installations, equipment shall be placed on plinths above ground under proper rain sheds to avoid any inundation, short circuit and hazards of electrocution.
- (vi) Price shall be inclusive of all costs and expenses including supply of materials required for monsoon protection like tarpaulins, shed, structural, GI sheet etc. for the above provisions and no separate payment shall be made on this account.

#### **49. Work on Sundays, Holidays and During Night**

For carrying out work on Sundays and Holidays or during night, the Contractor shall make necessary arrangements to carry out the works at no extra cost to the Employer, under intimation to the Engineer-in-Charge.

#### **50. Water and Electricity**

The Contractor shall make his own arrangements for Water, fit for construction, use & Electrical Power for construction including all necessary materials and equipment's for its distribution and utilisation for construction activities and other purposes at his own cost. The Contractor shall also make standby arrangements for water & electricity to ensure un-interrupted supply of water and electricity for smooth progress of works as per relevant clauses in the special conditions of contract (SCC).

#### **51. Land for Labour Huts/ Site Office and Storage Accommodation**

- (i) The Contractor may construct temporary office, storage, accommodation, and

labour huts within the site premises with prior approval of the Engineer-in-Charge. In case, where surplus land is not available within the site and/or not permitted by the Employer, the Contractor shall arrange the land for temporary office, storage, accommodation and labour huts at his own cost and shall be responsible for taking the clearance of local authorities, if required, for setting up/construction of labour camp and the same is deemed to be included in the rates quoted by the Contractor for the works. The Contractor shall check the availability of land before tendering and no claim whatsoever shall be entertained in this regard.

- (ii) The Contractor shall ensure that the labour huts are kept clean and in hygienic conditions. The land for the above purposes shall be so placed that it does not hinder the progress of work or access to the worksite. Vacant possession of the land used for the purpose shall be given back by the Contractor to Employer/ authority after completion of the work.
- (iii) The security deposit of the Contractor shall be released only after the Contractor demolishes all temporary structures and clears the site to the satisfaction of Engineer-in-Charge. In the event the Contractor has to shift his labour camps at any time during execution of the work on the instructions of local authorities or as per the requirement of the work progress or as may be required by the Engineer-in-Charge, he shall comply with such instructions at his risk and cost and no claim whatsoever shall be entertained on this account.

## **52. Watch & Ward and Lighting of Work Place**

- (i) The Contractor shall at his own cost take all precautions to ensure safety of life and property by providing necessary barriers, obstructions, lights, watchmen etc. during the progress of work as directed by Engineer-in-Charge.
- (ii) The Contractor shall provide uninterrupted lighting of the work-place and surrounding areas during the night hours with a minimum lux level of 10-15 lux. No additional payment shall be made on this account and the cost in this regard is deemed to be included in the quoted rates.

## **53. Installation of Sign Boards**

The Contractor shall fix/ install Construction/safety sign boards of suitable sizes and in adequate numbers as per the instructions of Engineer-in-Charge before/during the execution of work. No additional payment shall be made to the Contractor on this account.

## **54. Cement and Cement Godown**

- (i) Cement shall be procured by Contractor in line with the technical specifications and requirement of the contract.
- (ii) The cement shall be procured directly from the reputed manufacturers/ stockists as per list of approved makes. Relevant vouchers and test certificates will be produced as and when required by the Engineer-in-charge. It shall be stored by the Contractor in suitable covered and lockable stores, well protected from climate and atmospheric

effects. The cement go-down shall be constructed by the Contractor as per the CPWD specifications at his own cost. Cement bags shall be used on “first -in -first -out” basis. Cement stored beyond 90 days will not be used in structural works. However, this cement can be used in other works after getting the cement tested and found suitable as per relevant IS codes at Contractor’s cost and accepted by Engineer-in-charge, before use in works.

## **55. Steel & Steel Stockyard**

Steel conforming to contract specifications/ BIS specifications (latest edition) shall be procured by the Contractor directly from reputed manufacturers/ producers as per list of approved makes. Relevant vouchers & test certificates will be produced by the Contractor. Reinforcement steel, structural steel shall be stored and stacked in such manner so as to facilitate easy identification, removal etc. The Contractor shall take proper care to prevent direct contact between the steel and the ground/water for which he shall provide necessary arrangement at his own cost including ensuring proper drainage of area to prevent water logging as per directions of the Engineer-in-Charge. Steel shall also be protected by applying a coat of neat cement slurry or any other protective treatment over the TMT bars in order to save it from any rusting, for which no extra payment shall be made. Test certificates for each consignment of steel shall be furnished and tests will be got carried out from the authorized NABL accredited laboratory, as per the directions of the Engineer-in-Charge, before incorporating the materials in the work.

## **56. Schedule of Quantities/ Bill of Quantities**

The quantities shown against the various items of work are approximate quantities, which may vary as per the actual requirement of work. Any variation in quantities, if occurs during the execution of the works, will be dealt as per the provisions of the contract.

## **57. Water - proof Treatment**

**57.1** The water-proof treatment shall be of type and specifications as given in the schedule of quantities.

**57.2** The water-proofing of basement, roofs, water retaining areas shall be and remain fully effective for a period of not less than 10 (Ten) years to be reckoned from the date of issue of Completion Certificate, prescribed in the contract. If any defect or any evidence of re-infestation, dampness, leakage in any part of buildings or structure is found in the said treatment at any time during the said guarantee period and the Contractor is notified of the same, the Contractor shall be liable to rectify the defect or give re-treatment. The Contractor shall commence the work or such rectification or re-treatment within seven days from the date of issue of such letter to him. If the Contractor fails to commence such work within the stipulated period, the Employer may get the same done by deploying another agency at the Contractor’s risk & cost.

**57.3** Water- proofing shall be got done through approved/ specialized agencies only with prior approval of Engineer-in-Charge.



**57.4** During the execution of work, if any damage occurs to the treatment already done, either due to rain or any other circumstances, the same shall be rectified and made good to the entire satisfaction of Engineer-in-Charge by the Contractor at his cost and risk.

**57.5** The Contractor shall make his own arrangement for all equipment required for the execution of the job. The Contractor shall execute a Guarantee Bond in the prescribed form as appended for guaranteeing the water-proofing treatment.

## **58. Indian Standards**

Wherever any reference is made to any BIS in any particular specifications, drawings or bill of quantities, it means the Indian Standards editions with up-to-date amendments issued till the last date of receipt of tender documents.

## **59. Centring & Shuttering**

Plywood/steel/Aluminium plates or any material fit for the use as mentioned elsewhere in the tender document or as approved by Engineer-in-Charge shall be used for formwork. The shuttering plates shall be cleaned and oiled before every repetition and shall be used only after obtaining approval of the Engineer-in-charge. The number of repetitions allowed for plywood/ steel shuttering/ aluminium shall be at the discretion of Engineer-in-Charge depending upon the condition of shuttering surface after each use and the decision of Engineer-in- Charge in this regard shall be final and binding on the Contractor. No claim, whatsoever, on this account shall be admissible.

## **60. Records of Consumption of Cement, Steel & Other Materials**

(i) For the purpose of keeping a record of cement and steel received at site and consumed in works, the Contractor shall maintain a register in the format approved by the Engineer-in-Charge, showing columns like quantity received and used in work and balance in hand etc. This register shall be signed daily by the Contractor's representative and the representative of the Engineer-in-Charge.

(ii) The register of cement, steel & other materials (if required) shall be kept at site in the safe custody of Engineer-in-charge during progress of the work. This provision will not, however, absolve the Contractor from the quality of the final product.

## **61. Borrow Areas**

The Contractor shall make his own arrangements for borrow pits and borrow disposal areas including their approaches and space for movement of man, machinery, other equipment as required for carrying out the works. The Contractor shall be responsible for taking all safety measures, getting approval, making payment of royalties, charges etc. and nothing extra shall be paid to the Contractor on this account and unit rates quoted by the Contractor for various items of bill of quantities shall deemed to include the same.

## **62. Care of Works**

From the commencement to the completion of works and handing over, the Contractor shall take full responsibility for care of all the works and in case of any damage/ loss to the works or to any part thereof or to any temporary works due to lack of precautions or due to negligence on the part of Contractor, the same shall be made good by the Contractor at no extra cost to Employer.

### **63. Coordination with Other Agencies**

- (i) Work shall be carried out in such a manner that the work of other agencies operating at the site is not hampered due to any action of the Contractor. Proper coordination with other agencies will be Contractor's responsibility. In case of any dispute, the decision of Engineer-in-charge shall be final and binding on the Contractor.
- (ii) If and when required for the coordination of works with other agencies involved at site, the Contractor shall within the scope of work, re-route and/or prepare approaches and working areas as may be necessary.

### **64. Setting Out of the Works**

The Contractor shall be responsible for the true and proper setting out of the works and for the correctness of the position, levels, dimensions and alignment of all parts of the works. If any error appears or arises in the position, levels, dimensions or alignment of any part of the works at any time during the progress of works, the Contractor shall rectify such error to the satisfaction of Engineer-in-charge at his own expenses. The checking of any setting out or of any line or level by the Engineer-in-charge shall not in any way relieve the Contractor of his responsibility for the correctness thereof.

### **65. Site Clearance**

- (i) The Contractor shall ensure that the working site is kept clean and free of obstructions for easy access to job site and also from safety point of view. Before handing over the completed work to the Engineer-in-charge, the Contractor shall remove all temporary structures like the site offices, cement go-down, stores, labour hutments, scaffolding, rubbish, debris, left-over materials, tools and plants, equipment etc. and clean the site to the entire satisfaction of the Engineer-in-charge. If this is not done, the same may be got done by the Engineer-in-charge at the risk and cost of Contractor.
- (ii) The Contractor shall clean all floors, remove cement/ lime/ paint drops and deposits, clean joinery, glass panes etc., touching all painter's works and carry out all other necessary items of works to make the premises clean and tidy before handing over the completed works, and the rates quoted by the Contractor shall be deemed to have included for the same.
- (iii) If the work involves dismantling of any existing structure in whole or part, any RCC foundation and/ or paved area, care shall be taken to limit the dismantling up to the exact point and/ or lines as directed by the Engineer-in-Charge and any damage

caused to the existing structure beyond the said line or point shall be repaired and restored to the original condition at the cost and risk of Contractor to the satisfaction of the Engineer-in-Charge, whose decision shall be final and binding upon the Contractor.

- (iv) The Contractor shall not dispose of the ordinary earth excavated from within the boundary limits to any place outside such limits as the same may be required as per the discretion of the engineer in charge.
- (v) Disposal of Debris/ Surplus Earth (including contaminated earth) shall be done by the Contractor at the designated disposal area(s) within the boundary limits as directed by engineer in charge. In case the Employer is not in a position to provide disposal area within the boundary limits due to space constraints, the Contractor has to dispose the same outside the boundary limits as per the provisions of the contract. While disposing the Debris/ Surplus Earth (including contaminated Earth) outside the boundary limit, the Contractor has to ensure that the same are disposed off safely and fulfilling the local statutory regulations including but not limited to the guidelines/ stipulations of State Pollution Control Board.

#### **66. General Guidelines during and before Erection**

- (i) The Contractor shall be responsible for organizing the lifting of the equipment in the proper sequence for orderly progress of the work and to ensure that access routes for erecting the other equipment are kept open. The installation of machines at different floor levels/ terrace and at basement shall be carried out by the Contractor with due care so as to guard against any damage to the existing finishes of the building and shall augment if required, necessary machineries/ lifting crane for installation purpose within the quoted prices.
- (ii) Orientation of all foundations, elevations, lengths and disposition of anchor bolts and diameter of holes in the supports and saddles shall be checked by the Contractor well in advance of the installation. Rectifications, including chipping of foundations, shall be carried out only where necessary in consultation with the Engineer-in-Charge. If a structural member needs to be dismantled to facilitate the equipment erection, this shall be done by the Contractor after ensuring proper stability of the main structure in consultation with the Engineer-in-Charge. All such dismantled members shall be put back in position to the satisfaction of Engineer-in-Charge after the completion of the equipment erection.
- (iii) During the performance of the work the Contractor shall at his own cost keep structures, materials and equipment adequately braced by guys, struts or other approved means which shall be supplied and installed by the Contractor as required till the installation work is satisfactorily completed. Such guys, shoring, bracing, strutting, planking supports etc. shall not interfere with the work of other agencies and shall not damage or cause distortion to other works executed by the Contractor or other agencies.
- (iv) The Contractor shall duly comply with manufacturer(s) recommendations and detailed specifications for the installation of the various equipment and machines. Various tolerances required as marked on the drawings and/or in accordance with

the specifications and/or instructions of the Engineer-in-charge shall be maintained. Verticality shall be verified with the Total-station and shall be maintained.

## **67. Security and Security Arrangements**

- (i) The Contractor shall provide adequate number of watch and ward personnel on round the clock basis with limited/restricted access to the site through gates manned by the Security personnel. The responsibility for safe custody of materials, works in progress, office of Employer/ Engineer-in-charge, building and all services etc. lies with the Contractor till handing over of the works to the Employer.
- (ii) The Contractor shall ensure adequate illumination of the worksite(s) on a continuous basis to ensure safe working and to avoid pilferage/theft of materials lying at the work site. The rates quoted shall be deemed to be inclusive of this scope and the Contractor is not entitled for any additional payment in this regard. This is to be implemented from start of work till handing over of the works to the Employer.
- (iii) The project site during execution shall be properly barricaded with Pre-coated sheets/ GI/ MS sheets of at least 3.0 meters height, as directed by the engineer in charge, with proper supports/ foundations in order to isolate the site from surroundings to avoid any disturbance and to avoid the entry of unauthorized personnel. Expenditure towards this activity is considered to be included in the quoted rates.
- (iv) The Contractor shall make adequate security arrangement for protection of the work site and to prevent unauthorized entry to protect their materials and equipment in its own interest at no extra cost to the Employer.
- (v) If at any place/site, entry is restricted by the Employer, the Contractor shall then arrange to obtain through the Engineer-in-Charge, well in advance, all necessary entry permits/ gate passes for his staff and labourer and entry and exit of his men and materials shall be subject to vigorous checking by the security staff. The Contractor shall not be eligible for any claim or extension of time whatsoever on this account.
- (vi) The Contractor shall, at their own cost, construct their centralized store for safe keeping of the materials/equipment and for proper accounting of the material/ equipment being used in this project.

## **68. Works to remain Open to Inspection**

- (i) All works executed or under the course of execution in pursuance of this contract shall at all times be open to inspection of the Engineer-in-charge.
- (ii) The work during its progress or after its completion may be inspected by the third party appointed by the Employer. The compliance of observations/ improvements suggested by the inspecting officers shall be obligatory on the part of the Contractor at his cost.

## **69. Set-Off of Contractor's Liabilities**

The Engineer-in-charge shall have the right to deduct or set off the expenses incurred

or likely to be incurred by it in rectifying the defects and/or any claim under this agreement against the Contractor from any or against any amount payable to the Contractor under this agreement including security deposit, defect liability and proceeds of performance guarantee.

#### **70. Possession Prior to Completion**

The Engineer-in-charge shall have the right to take temporary possession of any completed or use partially completed work or part of the work. Such possession or use shall not be deemed to be any acceptance of any work not completed in accordance with the contract agreement. If such prior possession or use by Engineer-in-charge delays the progress of work, an equitable adjustment in the time of completion will be made and the contract agreement shall be deemed to be modified accordingly. The decision of Engineer-in-charge in such case shall be final binding and conclusive on the Contractor.

#### **71. Employment of Personnel**

- (i) The Contractor shall employ his representatives and workmen after verifying their antecedents and loyalty. He shall ensure that no personnel of doubtful antecedents is associated with the works in any manner.
- (ii) In case the Engineer-in-charge observes misconduct, negligence or incompetence etc. on the part of any representative, agent and workmen or employees etc. of the Contractor, the Engineer-in-charge shall be competent to instruct the Contractor to remove such engineer/ staff/ worker from the site without giving any reason to the Contractor and ask to provide suitable replacements. The decision of the Engineer-in-charge shall be final and binding on the Contractor. The Contractor shall not be allowed any compensation on this account.

#### **72. Technical Staff for Work**

- (i) The Contractor shall employ adequate number of technical staff at his cost during the execution of this work depending upon the requirement of work. For this purpose, the numbers to be deployed, their qualification and experience, as decided by Engineer-in-charge, shall be final and binding on Contractor. The Contractor shall not be entitled for any extra payment in this regard.
- (ii) The technical staff should be available at site to take instructions from the Engineer-in-Charge.
- (iii) The Contractor shall submit a site organizational chart and Resume, including details of experience of the Project-in-Charge and other staff proposed to be deployed by him. The technical team shall be deputed by the Contractor on the Project after getting approval from the Engineer-in-Charge.
- (iv) In case the Contractor fails to employ the staff as aforesaid, he shall be liable to pay a reasonable amount as defined in Special conditions of contract for each month of default in the case of each person. The decision of the Engineer-in-charge as to number of Technical Staff to be adequate for the project and the period for which the

desired strength of technical staff was not employed by the Contractor and as to the reasonableness of the amount to be deducted on this account shall be final and binding on the Contractor.

### **73. Valuable Articles Found at Site**

All gold, silver and other minerals of any description and all precious stones, coins, treasure, relics, antiques and all other similar things which shall be found in, under or upon the site shall be the property of the Employer.

### **74. Labour Laws - to be Complied with by the Contractor**

- (i) The Contractor shall obtain a valid license under the Contract Labour (Regulation & Abolition) Act, 1970 and the Contract Labour Act (Regulation & Abolition) Central Rules 1971, as amended from time to time, and continue to have a valid license until the completion of the work including the defect liability period.
- (ii) The Contractor shall also comply with the provisions of the building and other Construction Workers (Regulation of Employment & Conditions of Service) Act, 1996 and the Building and other Construction Workers Welfare Cess Act, 1996 and its amendments, if any.
- (iii) The Contractor shall also comply with the provisions of the Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979.
- (iv) The Contractor shall not engage any labour below the age of 18 years under any circumstances. The provisions under Child Labour (Prohibition and Regulation) Amendment Act, 2016 shall be strictly adhered to. In case of any non-compliance with the requirements of Labour laws, the Contractor shall be liable for all consequences or any penalty imposed in this regard.

#### **74.1 Payment of Wages:**

- (i) The Contractor shall pay to the labour employed by him either directly or through sub-Contractors, wages not less than fair wages as defined in the Contractor's Labour Regulations or as per the provisions of the Contract Labour (Regulation and Abolition) Act, 1970 and the Contract Labour (Regulation and Abolition) Central Rules, 1971, wherever applicable.
- (ii) The Contractor shall, notwithstanding the provisions of any contract to the contrary, cause to be paid fair wages to labour indirectly engaged on the work, including any labour engaged by his sub-Contractors in connection with the said work, as if the labour had been employed by him.
- (iii) The Contractor shall transfer/ credit the wages/ salary of all labourer/ workers preferably in their bank accounts. He shall be responsible for opening of bank accounts of all labourers/workers employed by the Contractor at the work site in this regard.
- (iv) In respect of all labour, directly or indirectly employed in the works for performance of the Contractor's part of this contract, the Contractor shall comply with Labour Regulations in regard to payment of wages, wage period, maintenance of wage books

or wage slips, publication of scale of wages and other terms of employment, inspection and submission of periodical returns and all other matters of the like nature or as per the provisions of the Contract Labour (Regulation and Abolition) Act, 1970, and the Contract Labour (Regulation and Abolition) Central Rules, 1971, wherever applicable..

- (v) Under the provision of labour rules, the Contractor is bound to allow one-day rest for 6 days' continuous work and pay wages at the same rate as for duty to the labour directly or indirectly employed in the works. In the event of default, the Engineer-in-Charge shall have the right to deduct the sum or sums not paid on account of wages for weekly holidays to any labourer/ worker and pay the same to the persons entitled thereto from any money due to the Contractor.
- (vi) The Contractor shall comply with the provisions of the Payment of Wages Act, 1936, Minimum Wages Act, 1948, Employees Liability Act, 1938, Workmen's Compensation Act, 1923, Industrial Disputes Act, 1947, Maternity Benefits Act, 1961, and the Contractor's Labour (Regulation and Abolition) Act 1970, or the modifications thereof or any other laws relating thereto and the rules made there under from time to time.
- (vii) The Contractor shall indemnify and keep the Employer indemnified against payments to be made under and for the observance of the laws aforesaid and the Labour Regulations without prejudice to his right to claim indemnity from his sub-Contractors.
- (viii) The laws aforesaid shall be deemed to be a part of this contract and any breach thereof shall be deemed to be a breach of this contract.

#### **74.2 Labour Safety Provisions**

- (i) The Contractor shall be fully responsible to observe the labour safety provisions. The Contractor shall at his own cost take all precautions to ensure safety of life and property by providing necessary barriers, lights, watchmen etc. during the progress of work.
- (ii) In case of all labour, directly or indirectly employed in work for the performance on the Contractor's part of this contract, the Contractor shall comply with all rules framed by Government from time to time for the protection of health and sanitary arrangements for workers.

#### **74.3 Observance of Labour Laws**

- (i) The Contractor shall be fully responsible for observance of all labour laws, including the local laws and other laws, applicable in this matter and shall indemnify and keep the Employer indemnified against any adverse effect or non-observance of any such laws. The Contractor shall be liable to make payment to all its employees, workers and sub-Contractors and make compliance with labour laws. If the Employer or his authorized representative is held liable as "Principal Employer" to pay contributions etc. under legislation of Government or Court decision in respect of the employees of the Contractor, then the Contractor would be liable to reimburse the amount of such payments, contribution etc. to the Employer and/ or the same shall be deducted from the payments, security deposit etc. of the Contractor.

- (ii) The Contractor shall submit proof of having a valid EPF registration certificate. He shall within 7 days of the close of every month, submit a statement to the Employer showing the recoveries of contributions in respect of each employee employed by or through him and shall furnish to Employer such information as the Employer is required to furnish under the provisions of para 36B of the EPF Scheme 1952 to the EPF authorities and other information required by the EPFO authorities from time to time. He shall also submit a copy of challan every month in token of proof of having deposited the subscription and contribution of workers engaged on the project, if demanded by the Engineer-in-Charge.
- (iii) The Contractor shall also ensure the compliance of EPF Act, 1952 by the sub-Contractors, if any, engaged by the Contractor for the above said work.
- (iv) The Contractor shall indemnify and keep the Employer harmless from and against all actions, suits, proceedings, losses, costs, damages, charges, claims and demands of every nature and description brought or recovered against the Employer by reasons of any act or omission of the Contractor, his agents or employees in connection with complying the provisions of the Employees Provident Fund & Miscellaneous Provisions Act, 1952 as amended from time to time. All sums payable by way of compensation/ damages/ interest on the outstanding amounts payable by the Contractor shall be considered as reasonable and be payable by the Contractor to the Employer immediately and if the Contractor does not pay the amount immediately the same will be deducted from the security deposit or earnest money or any other amount available with the Employer or any money payable to the Contractor by the Employer.

#### **74.4 Minimum Wages Act**

The Contractor shall comply with all provisions of the Minimum Wages Act, 1948, Contract Labour Act (Regulation & Abolition) 1970, and rules framed thereunder and other labour laws/ local laws affecting the contract labour that may be brought into force from time to time.

#### **74.5 Labour Records**

- (i) The Contractor shall submit a true statement of the following data by the 4th & 19th of every month to the Engineer-in-Charge, showing in respect of the second half of the preceding month and the first half of the current month respectively:

(a)	The number of the labourer employed by him (category-wise)	
(b)	Their working hours	
(c)	The wages paid to them	
(d)	The accidents that occurred during the said fortnight showing the circumstances under which they happened and the extent of damage and injury caused.	
(e)	The number of female workers who have been allowed Maternity Benefits and the amount paid to them.	



(f)	Any other information required by Engineer-in-Charge	
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- (ii) In the event of the Contractor(s) committing a default or breach of any of the provisions of the Labour Regulations and Model Rules for the protection of health and sanitary arrangements for the workers as amended from time to time or furnishing any information or submitting or filing any statement under the provisions of the above Regulations and Rules which is materially incorrect, the compensation imposed, if any, by the concerned Department will be recoverable from his dues.
- (iii) Should it appear to the Engineer-in-Charge that the Contractor is not properly observing and complying with the provisions of the Contractor's Labour Regulations and Model Rules and the provisions of the Contract Labour (Regulation and Abolition) Act 1970, and the Contract Labour (R&A) Central Rules 1971, for the protection of health and sanitary arrangements for workers employed by the Contractor(s) (hereinafter referred as "the said Rules") the Engineer-in-Charge shall be competent to give a notice in writing to the Contractor requiring that the said Rules be complied with the amenities prescribed therein and shall be provided to the workers within a reasonable time to be specified in the notice.
- (iv) If the Contractor(s) fails to comply with the notice and observe the said rules within the period specified to provide the amenities to the workers as aforesaid, the Engineer-in-Charge shall have the power to provide the amenities hereinbefore mentioned at the cost of the Contractor(s). The Contractor(s) shall erect, make and maintain at his/their own expense and in accordance with the approved standards all necessary huts and sanitary arrangements required for his/their work-people on the site in connection with the execution of the works, and if the same shall not have been erected or constructed, according to approved standards, the Engineer-in-Charge shall have the power to give notice in writing to the Contractor(s) requiring that the said huts and sanitary arrangements be remodelled and/or reconstructed according to approved standards. If the Contractor(s) fail to remodel or reconstruct such huts and sanitary arrangements according to approved standards within the period specified in the notice, the Engineer-in-Charge shall have the power to remodel or reconstruct such huts and sanitary arrangements according to approved standards at the cost of the Contractor(s).
- (v) The Contractor shall provide his labourers with a sufficient number of huts (hereinafter referred to as the camp) at his own cost of the following specifications on a suitable plot of land:
- The minimum height of each hut at the eave's level shall be 2.10 m. (7 ft.) and the floor area to be provided will be at the rate of 2.70 sqm (30 Sqft.) for each member of the worker's family staying with the labourer.
  - The Contractor shall in addition construct suitable cooking places having a minimum area of 1.80m x 1.50m (6'x5') adjacent to the hut for each family.
  - The Contractor shall also construct temporary latrines and urinals, and bathing & washing places for the use of labour/ workers, which shall be at the rate one

such facility for each 25 users (men and women to be counted separately), and separate latrines and urinals to be provided for women. These facilities shall be suitably screened.

- (vi) All the huts shall have walls of sun-dried or burnt-bricks laid in mud mortar or other suitable local materials as may be approved by the Engineer-in-Charge. In case of sun-dried bricks, the walls should be plastered with mud *gobri* on both sides. The floor may be *kutchra* but plastered with mud *gobri* and shall be at least 15 cm (6") above the surrounding ground. The roofs shall be laid with thatch, or any other materials as may be approved by the Engineer-in-Charge and the Contractor shall ensure that throughout the period of their occupation, the roofs remain water-tight.
- (vii) The Contractor(s) shall provide each hut with proper ventilation.
- (viii) All doors, windows, and ventilators shall be provided with suitable leaves for security purposes.
- (ix) There shall be kept an open space of at least 7.2 m. between the rows of huts, which may be reduced to 6 m. according to the availability of site with the approval of the Engineer-in-Charge. Back-to-back construction will be allowed.
- (x) Water Supply - The Contractor(s) shall provide adequate supply of water for the use of labourer. The provisions shall not be less than two gallons of pure and wholesome water per head per day for drinking purposes and three gallons of clean water per head per day for bathing and washing purposes. Where piped water supply is available, supply shall be at stand posts and where the supply is from wells or river, tanks which may be of metal or masonry, shall be provided. The Contractor(s) shall also at his/ their own cost make arrangements for laying pipelines for water supply to his/ their labour camp from the existing mains wherever available, and shall pay all fees and charges thereof.
- (xi) Disposal of Excreta- The Contractor shall make necessary arrangements for the disposal of excreta from the latrines by trenching or incineration which shall be according to the requirements laid down by the Local Health Authorities. If trenching or incineration is not allowed, the Contractor shall make arrangements for the removal of the excreta through the Municipal Committee/authority and inform it about the number of labourers employed so that arrangements may be made by such Committee/authority for the removal of the excreta. All charges on this account shall be borne by the Contractor and paid directly by him to the Municipality/authority. The Contractor shall provide one sweeper for every eight seats in case of dry system.
- (xii) Drainage - The Contractor shall provide efficient arrangements to drain away sullage water so as to keep the camp neat and tidy.
- (xiii) The Contractor shall make necessary arrangements for keeping the camp area sufficiently lighted to avoid accidents to the workers.
- (xiv) Sanitation - The Contractor shall make arrangements for conservancy and sanitation in the labour camps according to the Public Health and Medical Authorities.

## **75. Recovery of Compensation Paid to Workmen**

In every case in which by virtue of the provisions of the Workmen's Compensation Act, 1923, Employer is obliged to pay Compensation to a workman employed by the Contractor, in execution of the works, Engineer-in-Charge/Employer will recover from the Contractor, the amount of the Compensation so paid from any sum due to the Contractor whether under this contract or otherwise.

**76. Ensuring Payment and Amenities to Workers if Contractor Fails**

In every case in which by virtue of the provisions of the Contract Labour (Regulation and Abolition) Act, 1970, and of the Contract Labour (Regulation & Abolition) Central Rules 1971, Employer is obliged to pay any amount of wages to workman employed by the Contractor in execution of the works, or to incur any expenditure in providing welfare and health amenities required to be provided under the above said Act or under the Labour Regulations, or under the Rules framed by Government from time to time for the protection of health and sanitary arrangements for workers employed by Contractors, Employer will recover from the Contractor, the amount of wages so paid or the amount of expenditure so incurred from any sum due by Employer to the Contractor whether under this contract or otherwise.

**77. Change in Firm's Constitution to be Intimated**

Where the Contractor is a partnership firm, the prior approval in writing of the Engineer-in-Charge shall be obtained before any change is made in the constitution of the firm. Where the Contractor is an individual or a Hindu Undivided Family business concern such approval as aforesaid shall likewise be obtained before the Contractor enters into any partnership under agreement where the partnership firm would have the right to carry out the works hereby undertaken by the Contractor.

**78. Indemnity Against Patent Rights**

The Contractor shall fully indemnify the Employer and his authorized representatives from and against all claims and proceedings for or on account of any infringement of any patent rights, design, trademark or name or other protected rights in respect of any construction plant, machine, work or material used for in connection with the works or temporary works.

**79. Law Covering the Contract**

This contract shall be governed by the Indian laws for the time being in force.

**80. Laws, Bye-Laws Relating to the Work**

The Contractor shall strictly adhere by the provisions of law for the time being in force relating to works or any regulations and bylaws made by any local authority or any water & lighting agencies or any undertakings within the limits of the jurisdiction of which the work is proposed to be executed. The Contractor shall be bound to give to the authorities concerned such notices and take all approvals as may be provided in the law, regulations or bylaws as aforesaid, and to pay all fees and taxes payable to such authorities in respect thereof.

## **81. Jurisdiction**

The agreement shall be executed at Gurugram on non-judicial stamp paper purchased in Gurugram and the courts at Gurugram alone will have jurisdiction to deal with matters arising there from, to the exclusion of all other courts.

## **82. Contractor Liable for Damages, Defects During Defect Liability Period**

If the Contractor or his working people or servants shall break, deface, injure, or destroy any part of the building in which they may be working, or any building, road, road kerb, fence, enclosure, water pipe, cables, drains, electric or telephone post or wires, trees, grass or grassland, or cultivated ground contiguous to the premises on which the work or any part is being executed, or if any damage shall happen to the work while in progress, from any cause whatever or if any defect, shrinkage or other faults appear in the work, he shall, upon receipt of a notice in writing from Engineer-in-Charge on that behalf, make the same good at his own expense or in default, the Engineer-in-Charge shall cause the same to be made good by other workmen and deduct the expense from any sums that may be due or at any time thereafter may become due to the Contractor, or from his security deposit or the proceeds of sale thereof or of a sufficient portion thereof.

## **83. Resolution and Settlement of Disputes & Arbitration**

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

- (i) If the Contractor considers any work demanded of him to be outside the requirements of the contract, or disputes any drawings, record or decision given in writing by the Engineer-in-Charge or if the Engineer-in-Charge considers any act or decision of the Contractor on any matter in connection with or arising out of the contract or carrying out of the work, to be unacceptable and is disputed, such party shall promptly within 15 days of the arising of the disputes, request as under.
  - (a) Dispute to be put up before the Employer for resolution.
  - (b) If the resolution fails, the matter be put up before the Conciliation Committee to be appointed by the Employer.
  - (c) If the conciliation also fails, the Contractor may request for the appointment of arbitrator under intimation to the other party.
  - (d) On receipt of such request, the Employer may appoint a sole arbitrator for adjudication of the dispute(s).

- (ii) It is a term of this contract that the party invoking arbitration shall give a list of disputes with amounts claimed, if any, in respect of each such dispute along with the notice for appointment of arbitrator.
- (iii) The parties shall share the Arbitration fees equally. In case there is no finalization of place of arbitration, the Arbitral Tribunal shall determine the place of arbitration. The venue of the arbitration shall be such place as may be fixed by the Arbitral Tribunal in consultation with both the parties. Failing any such agreement, the Arbitral Tribunal shall decide the venue.

#### **84. Action where no Specifications are prescribed**

In the case of any class of work for which there is no such specifications, such work shall be carried out in accordance with the latest CPWD, Bureau of Indian Standards Specifications. In case there are no such specifications mentioned in the CPWD/ Bureau of Indian Standards, the work shall be carried out as per manufacturers' specifications, if not available then as per State/ District Specifications. In case there are no such specifications as required above, the work shall be carried out in all respects in accordance with the instructions and requirements of the Engineer-in-Charge.

0-0-0-0-0

## **SECTION - 4**

### **Forms and Formats**

### Declaration by the bidder regarding bidding document

1. I/ We\_\_\_\_\_ (Name of the Bidder) hereby represent that we have gone through and understood the Bidding Documents (including but not limited to) the Commercial & Technical Requirements/ Specifications and that our Bid has been prepared accordingly in compliance with the requirements stipulated in the said documents.
2. I/ We are submitting the **Table of Contents of Bidding Documents and amendments, if any**, as part of our Bid duly signed and stamped on each page in token of our acceptance. We are not submitting the total Bidding Document as part of our Bid but undertake that said Bidding Document shall be deemed to form part of our Bid and in the event of award of work to us, all parts shall be considered for constitution of the Contract Agreement. Further, I/ We shall sign and stamp each page of these documents as a token of Acceptance and as a part of the Contract in the event of award of Contract to us.

<b>Signed for and on behalf of</b> <b>&lt;bidder's name&gt;</b>
<b>&lt;Name of the Signatory&gt;</b>
<b>Authorised Representative of the Bidder</b>

Place: \_\_\_\_\_

Date: \_\_\_\_\_

**Letter of Waiver (on Letter-head of the Bidder)**

1. I/ We \_\_\_\_\_<Bidder's Name> \_\_\_\_\_ hereby agree to fully comply with, abide by and accept without variation, deviation or reservation, all technical, commercial and other conditions whatsoever of the Bidding Document including Addenda (if any).
2. I/ We further hereby waive, withdraw and abandon any and all deviations, variations, objections or reservations whatsoever thereto here to-before set out, given or indicated in our offer, clarifications, correspondence, communications, or otherwise, with a view that the price bid submitted shall be treated to conform in all respects with the terms and conditions of the said Bidding Documents including all Addenda.
3. I/ We further hereby confirm that the prices quoted in the price bid are as per the provisions of the Bidding Document and there is no deviation in the price bid.

<b>Signed for and on behalf of</b> <b>&lt;bidder's name&gt;</b>
<b>&lt;Name of the Signatory&gt;</b>
<b>Authorised Representative of the Bidder</b>

**Place:** \_\_\_\_\_

**Date:** \_\_\_\_\_



**Undertaking for Non-engagement of Child Labour**

I/ We hereby declare that:

- (i) We are committed to elimination of child labour in all its forms.
- (ii) Neither we nor any of our nominated sub-contractor(s) are engaging Child Labour in any of our work(s) in terms of the provisions of The Child Labour (Prohibition and Regulation) Act, 1986 and other applicable laws.
- (iii) We, as well as our nominated sub-contractor(s), undertake to fully comply with provisions of The Child Labour (Prohibition and Regulation) Act, 1986 and other applicable labour laws in case the work is awarded to us.
- (iv) It is understood that if I/We, either before award or during execution of Contract, commit a transgression through a violation of (ii) and (iii) above or in any other form, such as to put my/our reliability or credibility in question, the Employer is entitled to disqualify us from the Tender process or terminate the Contract, if already executed or exclude me/us from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of transgression as determined by the Employer. Such exclusion may be for a period of 1 year to 3 years as per the procedure prescribed in the guidelines for holiday listing of the Employer.
- (v) I/ We accept and undertake to respect and uphold the Employer's absolute right to resort to and impose such exclusion.

<b>Signed for and on behalf of</b>
<b>&lt;bidder's name&gt;</b>
<b>&lt;Name of the Signatory&gt;</b>
<b>Authorised Representative of the Bidder</b>

**Place:** \_\_\_\_\_

**Date:** \_\_\_\_\_

### Form for submission of Pre-bid queries by the bidders

[illegible]

**(Name & Signature of the Bidder  
or his authorised representative)**

**Place:**  
**Dated:**

### Application for Extension of Time

(To be submitted by the Contractor)

1.	Name of the Contractor											
2.	Name of the work as given in the Agreement											
3.	Agreement No.											
4.	Estimated amount put to tender											
5.	Date of commencement of work as per agreement											
6.	Period allowed for completion of work as per agreement											
7.	Date of completion stipulated as per agreement											
8.	Period for which extension of time has been given previously: <b>Extension Granted earlier:</b> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td style="width: 5%; text-align: center;">a)</td> <td style="width: 35%;">First extension vide Engineer-in-charge letter No... ..date</td> <td style="width: 15%; text-align: center;">Months</td> <td style="width: 15%; text-align: center;">Days</td> </tr> <tr> <td style="text-align: center;">b)</td> <td>2nd extension vide Engineer-in-charge letter No..... date</td> <td style="text-align: center;">Months</td> <td style="text-align: center;">Days</td> </tr> </table>				a)	First extension vide Engineer-in-charge letter No... ..date	Months	Days	b)	2nd extension vide Engineer-in-charge letter No..... date	Months	Days
a)	First extension vide Engineer-in-charge letter No... ..date	Months	Days									
b)	2nd extension vide Engineer-in-charge letter No..... date	Months	Days									
9.	Reasons for which extension have been previously given (copies of the previous application should be attached)											
10.	Period for which extension is applied for:											
11.	Hindrances on account of which extension is applied for with dates on which hindrances occurred, and the period for which these are likely to last - <ul style="list-style-type: none"> <li>a) Serial No.</li> <li>b) Nature of hindrance</li> <li>c) Date of Occurrence</li> <li>d) Period for which it is likely to last</li> <li>e) Period for which extension required for this particular hindrance.</li> <li>f) Over lapping period, if any, with reference to item</li> <li>g) Net extension applied for</li> <li>h) Remarks, if any</li> </ul>											

12.	Total period for which extension is now applied for on account of hindrances mentioned above	Month/ days
13.	Extension of time required for extra work.	
14.	Details of extra work and on the amount involved: a) Total value of extra work b) Proportionate period of extension of time based on estimated amount put to tender on account of extra work.	
15.	Total extension of time required for 11 & 12	

Submitted in the office of the Engineer-in-Charge.

<b>Signed for and on behalf of &lt;bidder's name&gt;</b>
<b>&lt;Name of the Signatory&gt;</b>
<b>Authorised Representative of the Bidder</b>

**Place:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Performa of Bank Guarantee in lieu of EMD**

(Judicial Stamp paper of appropriate value as per stamp Act of respective state)

Employer/PMC,

1. In consideration of the Employer/PMC, having its Registered Office at \_\_\_\_\_(hereinafter called "Employer/PMC" which expression shall, unless repugnant to the subject or context, include its successors and assigns) having issued Notice Inviting Tender No. \_\_\_\_\_ and M/s. \_\_\_\_\_ having its Registered Office at \_\_\_\_\_ (hereinafter called the "Tenderer") is to participate in the said tender for \_\_\_\_\_.
2. Whereas the Employer/PMC, as a special case, has agreed to accept an irrevocable and unconditional Tender Bond Guarantee for an amount of Rs. \_\_\_\_\_, valid up to \_\_\_\_\_ from the tenderer in lieu of Cash Deposit of Rs. \_\_\_\_\_ required to be made by the tenderer, as a condition precedent for participation in the said tender.
3. We the (hereinafter called the "BANK") having its Registered Office at \_\_\_\_\_ and branch office at \_\_\_\_\_, do hereby unconditionally and irrevocably undertake to pay to the Employer/PMC immediately on demand in writing, without any demur/ protest, any amount but not exceeding Rs. \_\_\_\_\_ and any such demand made by the Employer/PMC shall be conclusive and binding on us irrespective of any dispute or differences that may be raised by the tenderer. Any change in the constitution of the tenderer or the Bank shall not discharge our liability under this Guarantee.
4. We, the \_\_\_\_\_ Bank, lastly undertake not to revoke this guarantee during its currency without the prior consent of the Employer/PMC in writing and this guarantee shall remain valid up to \_\_\_\_\_ upon expiry of which, we shall be relieved of our liability under this guarantee thereafter.

**For and on behalf of the Bank**

**Place:**

**Dated:**

**Witness.**

1.

2.

**Performa of Bank Guarantee (Performance)**

(Judicial Stamp paper of appropriate value as per stamp Act of respective state)

Employer/PMC,

1. Whereas the Employer/ PMC, having its Registered Office at \_\_\_\_\_ (hereinafter called "Employer/PMC", which expression shall include its successors and assigns) having awarded a work order/contract / supply order No. dated \_\_\_\_\_ (hereinafter called the contract) to M/s \_\_\_\_\_ (hereinafter called the contractor/ supplier) at a total price of Rs. \_\_\_\_\_ subject to the terms and conditions contained in the contract.
2. Whereas, the terms and conditions of the contract require the contractor to furnish a bank guarantee for Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_) being \_\_\_\_\_ % of the total value of the contract for proper execution and due fulfilment of the terms and conditions contained in the contract.
3. We, the Bank, (hereinafter called the "Bank") do hereby unconditionally and irrevocably undertake to pay to the Employer/PMC immediately on demand in writing and without protest/or demur all moneys payable by the contractor/ supplier to the Employer/PMC in connection with the execution/ supply of and performance of the works/ equipment, inclusive of any loss, damages, charges, expenses and costs caused to or suffered by or which would be caused to or suffered by Employer/PMC by reason of any breach by the contractor/ supplier of any of the terms and conditions contained in the contract as specified in the notice of demand made by Employer/PMC to the bank. Any such demand made by Employer/PMC on the bank shall be conclusive evidence of the amount due and payable.
4. This guarantee shall be a continuing guarantee and irrevocable for all claims of the Employer/PMC as specified above and shall be valid during the period specified for the performance of the contract.
5. We, the said bank, further agree with the Employer/PMC that the Employer/PMC shall have the fullest liberty, without our consent and without affecting in any manner our obligations and liabilities hereunder, to vary any of the terms and conditions of the said contract or to extend time for performance of the contract by the contractor from time to time or to postpone for any time or from time to time any of the powers exercisable by Employer/PMC against the contractor/supplier under the contract and forbear or enforce any of the terms and conditions relating to the said contract and we shall not be relieved from our liability by reason of any such variations or extension being granted to the contractor or for any forbearance, act or omission on the part of Employer/PMC or any indulgence by Employer/PMC to the contractor or by any such matter or thing, whatsoever, which under the law relating to the sureties would, but for this provision, have effect of so relieving us.

6. This guarantee/undertaking shall be in addition to any other guarantee or security whatsoever Employer/PMC may now or at any time have in relation to the performance of the works/ equipment and the Employer shall have full re-course to or enforce this security in performance to any other security or guarantee which the Employer/PMC may have or obtained and there shall be no forbearance on the part of the Contractor in enforcing or requiring enforcement of any other security which shall have the effect of releasing the Bank from its full liability. It shall not be necessary for Employer/PMC to proceed against the said contractor/supplier before proceeding against the Bank.
7. This guarantee/ undertaking shall not be determined or affected by the liquidation or winding up, dissolution or change of constitution or insolvency of the supplier/ contractor, but shall in all respects and for all purposes be binding and operative until payment of all moneys payable to Employer/PMC are paid by the Bank in terms thereof.
8. The Bank hereby waives all rights at any time inconsistent with the terms of this Guarantee and the obligations of the bank in terms hereof shall not be otherwise effected or suspended by reasons of any dispute or disputes having been raised by the supplier/ contractor (whether or not pending before any Arbitrator, Tribunal or Court) or any denial of liability by the supplier/ contractor stopping or preventing or purporting to stop or prevent any payment by the Bank to Employer/PMC in terms hereof.
9. We, the said Bank, lastly undertake not to revoke this guarantee during its currency except with the previous consent of Employer/PMC in writing, upon expiry of which we shall be relieved from all liabilities under this guarantee thereafter.
10. Signed this \_\_\_\_\_ day of \_\_\_\_\_ at \_\_\_\_\_.

**For and on behalf of the Bank**

(Signature, name and Designation of the Signatory  
along with the Bank Seal)

WITNESS.

1.

2.

**Performa of Bank Guarantee**

(For mobilization advance)

(Judicial Stamp paper of appropriate value as per stamp Act of the respective state)

Employer/PMC,

1. In consideration of the Employer/PMC, having its Registered Office at \_\_\_\_\_ (hereinafter called "Employer/PMC", which expression shall unless repugnant to the subject or context include its successor and assigns) having agreed under the terms and conditions of Contract No. \_\_\_\_\_ dated \_\_\_\_\_ made between \_\_\_\_\_ and the Employer/PMC in connection with \_\_\_\_\_ (hereinafter called "the said contract") to make at the request of the Contractor a Mobilization Advance of Rs. \_\_\_\_\_ for utilizing it for the purpose of the Contract on his furnishing a guarantee acceptable to Employer/PMC, we the \_\_\_\_\_ Bank Ltd. (hereinafter referred to the "the said Bank") and having our registered office at \_\_\_\_\_ do hereby guarantee the due recovery by Employer/PMC of the said advance as provided according to the terms and conditions of the Contract.
2. We, the said Bank, do hereby undertake to pay the amount due and payable under this Guarantee without any demur, merely on a demand from the Employer/PMC stating that the amount claimed is due to the Employer/PMC under the said Agreement. Any such demand made on the \_\_\_\_\_ shall be conclusive as regards the amount due and payable by the \_\_\_\_\_ under this guarantee and \_\_\_\_\_ agree that the liability of the \_\_\_\_\_ to pay the amount so demanded to the Employer/PMC, shall be absolute and unconditional notwithstanding any dispute or disputes raised by the Contractor and notwithstanding any legal proceeding(s) pending in any Court or Tribunal relating thereto. However, our liability under this Guarantee shall be restricted to an amount not exceeding Rs. \_\_\_\_\_, which shall be valid up to \_\_\_\_\_.
3. We, \_\_\_\_\_ Bank further agree that Employer/PMC shall be the sole judge of and as to whether the amount claimed has fallen due to the Employer/PMC under the said agreement or whether the said Contractor has not utilized the said advance or any part thereof for the purpose of the Contract and the extent of loss or damage caused to or suffered by Employer/PMC on account of the said advance together with interest not being recovered in full and the decision of Employer/PMC that the amount has fallen due from contractor or the said Contractor has not utilized the said advance or any part thereto for the purpose of the contract and as to the amount or amounts of loss or damage caused to or suffered by Employer/PMC shall be final and binding on us.
4. We, the said Bank, further agree that the Guarantee herein contained shall remain in full force and effect till the said advance has been fully recovered and its claims satisfied or discharged and till the Employer/PMC certify that the said advance has been fully recovered from the said contractor and, accordingly, discharges this



Guarantee subject, however, that Employer/PMC shall have no claims under this Guarantee after the said advance has been fully recovered, unless a notice of the claims under this Guarantee has been served on the bank before the expiry of the said Bank Guarantee in which case the same shall be enforceable against the Bank.

5. The Employer/PMC shall have the fullest liberty without affecting in any way the liability of the Bank under this Guarantee or indemnity from time to time to vary any of the terms and conditions of the said Contract or the advance or to extend time of performance by the said Contractor or to postpone for any time and from time to time of the powers exercisable by it against the said Contractor and either to enforce or forbear from enforcing any of terms and conditions governing the said Contract or the advance or securities available to the Employer/PMC and the said Bank shall not be released from its liability under these presents by any exercise by Employer/PMC of the liberty with reference to the matters aforesaid or by reasons of time being given to the said Contractor or any other forbearance, act or omission on the part of Employer/PMC or any indulgence by Employer/PMC to the said Contractor or of any other matter or thing whatsoever which under sureties the law relating to would but for this provision have the effect of so releasing the bank from its such liability.
6. It shall not be necessary for Employer/PMC to proceed against the Contractor before proceeding against the Bank and the Guarantee herein contained shall be enforceable against the Bank notwithstanding any security which Employer/PMC may have obtained or obtain from the Contractor or shall at the time when proceedings are taken against the Bank hereunder be outstanding or unrealized.
7. We, the said Bank, lastly undertake not to revoke this Guarantee during its currency except with the previous consent of Employer/PMC in writing and agree that any change in the constitution of the said Contractor or the said Bank shall not discharge our liability hereunder.
8. Signed this \_\_\_\_\_ day of \_\_\_\_\_ at \_\_\_\_\_.

**For and on behalf of the Bank**

(Signature, name and Designation of the Signatory  
along with the Bank Seal)

WITNESS.

1.

2.

**Performa for Bank Guarantee**

(in lieu of Security Deposit)

(Judicial Stamp paper of appropriate value as per Stamp Act of respective state)

Employer/PMC,

- A. In consideration of the Employer/PMC, having its Registered Office at \_\_\_\_\_ (hereinafter called "Employer/PMC"), which expression shall include its successors and assigns, having awarded to M/s \_\_\_\_\_ (hereinafter called "the Supplier/ Contractor"), which expression shall wherever the subject or context so permits includes its successors and assigns, a Contract in terms inter-alia of Employer/PMC's letter No. \_\_\_\_\_ dated \_\_\_\_\_ and the Contract/ Purchase Conditions of the Employer/ PMC with the condition of the Contractor/ Supplier furnishing a Bank Guarantee to secure the performance of Contractor's/ Supplier's obligations and /or discharge of the contractor's/ supplier's liability under and/or in connection with the said supply/ contract up to a sum of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only).
- B. We, \_\_\_\_\_, ((hereinafter called "the Bank"), which expression shall include its successors and assigns, hereby undertake and guarantee payment to Employer/ PMC forthwith on the same day on demand in writing and without any protest or demur of any and all moneys payable by the supplier/contractor to the Employer/PMC under, in respect or in connection with the said contract inclusive of all the losses, damages, costs, charges and expenses and other moneys payable in respect of the above as specified in any notice of demand made by Employer/PMC to the Bank with reference to this guarantee up to and aggregate limit of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only) and the Bank hereby agree with Employer/PMC that:
1. This Guarantee shall be a continuing guarantee and shall remain valid and irrevocable for all claims of the Employer/PMC and liabilities of Supplier/ Contractor arising up to and until midnight of \_\_\_\_\_ ;
  2. This Guarantee shall be in addition to any other Guarantee or Security whatsoever that Employer/PMC now or at any time have in relation to the Supplier's/ Contractor's obligations/ liabilities under and/or in connection with the said supply/contract, and the Employer/PMC shall have full authority to take recourse or to enforce this Security in preference to any other Guarantee or Security which the Employer/PMC may have or obtain and no forbearance on the part of Employer/PMC in enforcing or requiring enforcement of any other Security shall have the effect of releasing the Bank from its liability hereunder;
  3. The Employer/PMC shall be at liberty without reference to the Bank and without affecting the full liability of the Bank hereunder to take any other security in respect of the Supplier's/Contractor's obligations and/ or liabilities under or in connection with the said supply/contract or to grant time and / or indulgence to the supplier/

- contractor or to increase or otherwise vary the prices or the total contract value or to release or to forbear from enforcement of all or any of the conditions under the said supply/ contract and/or the remedies of the Employer/PMC under any other security/securities now or hereafter held by Employer/PMC and no such dealings, increase(s) or other indulgence(s) or arrangement(s) with the supplier/ contractor or releasing or forbearance whatsoever shall have the effect of releasing the Bank from its full liability to Employer/PMC hereunder or prejudicing rights of Employer/PMC against the Bank;
4. This Guarantee shall not be determined or affected by the liquidation or winding up, dissolution or change of constitution or insolvency of the supplier/ contractor but shall in all respects and for all purposes be binding and operative until payment of all moneys payable to the Employer/PMC in terms thereof;
  5. The Bank hereby waives all rights at any time inconsistent with the terms of this Guarantee and the obligations of the Bank in terms hereof shall not be otherwise affected or suspended by reason of any dispute or disputes having been raised by the supplier/ contractor (whether or not pending before any Arbitrator, Tribunal or Court) or any denial or liability by the supplier/ contractor stopping/ preventing or purporting to stop or prevent any payment by the Bank to Employer/PMC in terms thereof;
  6. The amount stated in any notice of demand addressed by Employer/PMC to the Guarantor as liable to be paid to the Employer/PMC by the supplier/contractor or as suffered or incurred by Employer/PMC on account of any losses or damages, costs, charges and/or expenses shall as between the Bank and Employer/PMC be conclusive of the amount so liable to be paid to the Employer/PMC or suffered or incurred by Employer/PMC as the case may be and payable by the Guarantor to the Employer/PMC in terms hereof subject to a maximum of Rs \_\_\_\_\_ (Rupees \_\_\_\_\_ only);
  7. Unless demand or claim under this Guarantee is made on the Guarantor in writing within three months from the date of expiry of the Guarantee i.e. up to the Guarantor shall be discharged from all liabilities under this Guarantee there under;
  8. Notwithstanding anything contained hereinbefore, our liability under this guarantee is restricted to Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only). This guarantee will expire on \_\_\_\_\_. Any claim under this Guarantee must be received by us within three months from the date of expiry.
  9. Signed this \_\_\_\_\_ day of \_\_\_\_\_ at \_\_\_\_\_.

**For and on behalf of the Bank**

(Signature, name and Designation of the Signatory  
along with the Bank Seal)

WITNESS.

- 1.
- 2.

**Form for Guarantee Bond for anti-termite Treatment**

THIS AGREEMENT is made this \_\_\_\_ day of \_\_\_\_\_ at \_\_\_\_\_ between:

M/s \_\_\_\_\_ (hereinafter called the guarantor) of the one part;

and

M/s Employer/ PMC, hereinafter called the Employer/PMC of the other part, which expression shall include its successors or assigns, more particularly the Resident Welfare Association (RWA) of the said complex.

This agreement witnesses as under:

1. Whereas this agreement is supplementary to the contract hereinafter called the Main Contract dated \_\_\_\_\_ between the guarantor of the one part and the Employer/PMC of the other part whereby the contractor, inter-alia, is understood to render the buildings and structures in the said contract recited, completed, termite proof.
2. And whereas the guarantor agreed to furnish a guarantee to the effect that the said structure will remain termite proof for TEN YEARS to be so reckoned from the date of issue of Completion Certificate of the Contract by the Employer/ PMC;
3. During this period of guarantee, the guarantor shall make good all defects and for that matter shall replace at his risk and cost such wooden member(s) as may be damaged by termite and in case of any other defect being found, he shall render the building termite- proof at his cost to the satisfaction of the Engineer-in-charge and shall commence the works of such rectification within seven days from date of issuing notice from the Engineer-in-Charge, and later the manager concerned from the concerned RWA, calling upon him to rectify the defects falling which the work shall be got done by Employer/PMC/ Employer by some other contractor at the guarantor's cost and risk and in the latter case the decision of the Engineer-in-charge as to the cost recoverable from the guarantor shall be final and binding.
4. That if the Guarantor fails to execute the Anti-Termite treatment or commits breaches hereunder, then the Guarantor will indemnify Employer/PMC against all losses damages, costs, expenses or otherwise which may be incurred by him by reasons of any default on the part of the guarantor in performance and observance of this supplemental Agreement. As to the amount of loss and or damage and/or cost incurred by Employer/PMC, decision of the Engineer-in-charge will be final and binding on the parties.
5. In witness where of these presents have been executed by the Guarantor \_\_\_\_\_ and by \_\_\_\_\_  
for and on behalf of Employer/PMC on the day of month and year first above written.

<b>For and on Behalf of the Guarantor</b>	<b>For and on behalf of the Employer/ PMC</b>
<Signature>	<Signature>
<Name and Address of the Authorised Signatory>	<Name and Address of the Authorised Signatory>
<b>Witnesses</b>	
1.	1.

**Draft for Guarantee to be executed by the Contractor for removal of defects after completion in respect of Water-proofing works**

This agreement made on this \_\_\_\_ day of \_\_\_\_\_, Two thousand Twenty Two between \_\_\_\_\_ (hereinafter called Guarantor of the one Part) and the Employer/ PMC (hereinafter called the Execution Agency of the other Part).

- A. WHEREAS this agreement is supplementary to a contract (hereinafter called the Contract) dated \_\_\_\_\_ made between the GUARANTOR of the ONE Part and the Employer/ PMC of the Other Part, whereby the Contractor, inter-alia, undertook to render the buildings and structures in the said contract recited completely water and leak proof.
- B. AND WHEREAS the Guarantor agreed to give a guarantee to the effect that the said structures will remain water and leak proof for a period of Ten years from the date of issue of Completion Certificate by the Employer.

NOW, THE GUARANTOR hereby guarantees that the water-proofing treatment given by him will render the structures completely leak-proof and the minimum life of such water-proofing treatment shall be Ten years to be reckoned from the date of issue of Completion Certificate of the building/ project by the Employer/PMC as prescribed in the contract.

Provided that the Guarantor will not be responsible for leakage caused by earthquake or structural defects or misuse of roof or alteration and for such purpose.

- (a) Misuse of roof shall mean any operation, which will damage water-proofing treatment, like chopping of fire wood and things of the same nature which might cause damage to the roof.
- (b) Alternation shall mean construction of an additional storey or a part of the roof or construction adjoining to existing roof whereby proofing treatment is removed in parts.
- (c) The decision of the Engineer-in-Charge with regard to cause of leakage shall be final.

That this Agreement, inter alia, provides for the following:

1. During this period of guarantee, the Guarantor shall make good all defects, in case of any defect being found, and render the building completely water-proof to the satisfaction of the Engineer-in-Charge at his cost. The Guarantor shall commence the work for such rectification within seven days from the date of issue of notice by the Engineer-in-Charge calling upon him to rectify the defects, failing which the work shall be got done by the Employer/ PMC from some other Contractor at the guarantor's cost and risk. The decision of Engineer- in-Charge as to the cost, payable by the Guarantor, shall be final and binding.
2. That if the Guarantor fails to execute the waterproofing or commits any breach

thereunder, then the Guarantor will indemnify the principal and his successors against all laws, damage, cost, expense or otherwise which may be incurred by him by reason of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/or damage and/or cost incurred by the Employer/PMC, the decision of the Engineer-in-Charge will be final and binding on the parties.

3. IN WITNESS WHEREOF these presents have been executed by the Obligor \_\_\_\_\_ and by \_\_\_\_\_ and for and on behalf of the Employer/PMC on the day, month and year first above written.

<b>For and on Behalf of the Guarantor</b>	<b>For and on behalf of the Employer/ PMC</b>
<Signature>	<Signature>
<Name and Address of the Authorised Signatory>	<Name and Address of the Authorised Signatory>
<b>Witnesses</b>	<b>Witnesses</b>
1.	1.
2.	2.

**Performa for  
Indenture for Secured Advance or Credit**

THIS INDENTURE made this \_\_\_\_\_ day of \_\_\_\_\_

Between

The Contractor, which expression shall where the Context as admits or implies be deemed to include his executor/ administrators and assigns of the one part;

And

The Employer/PMC, having its Registered Office at \_\_\_\_\_ (represented through the Engineer-in-Charge), which expression shall where the context so admits or implies be deemed to include its successors and assign of the other part;

Whereas by an agreement dated (hereinafter called the said agreement), the Contractor has agreed to construct \_\_\_\_\_ ;

And whereas the Contractor has applied to the Engineer-in-Charge that he may be or be given credit for materials brought by him to the site of the work subject to the said agreement for use in construction of the work.

NOW. THIS INDENTURE Witnesseth that in pursuance of the said agreement and in consideration of the sum of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only) paid to the contractor by the Engineer-in-Charge, the receipt whereof the Contractor hereby acknowledges and of such advance or credit (if any) as may be made to him as aforesaid, the Contractor hereby covenants and agrees with the Engineer-in-Charge and declares as follows:

1. That all sums given as advance or credit by the Engineer-in-Charge to the Contractor as aforesaid shall be employed by the Constructor in or toward the execution of the said works and for no other purpose whatsoever.
2. That the material for which the advance or credit is given are offered to and accepted by the Engineer-in-Charge as security and are absolutely the Contractor's own property and free from encumbrances of any kind. The Contractor will not make any application for or receive further advance or credit on the security or material which are not absolutely his own property and free from encumbrances of any kind and the Contractor shall indemnify the Engineer-in-Charge against any claims to any material in respect of which advance or credit has been made to him as aforesaid.
3. That the said material and all other material on the security of which any further advance or advances or credit may be given as aforesaid (hereinafter called the said materials) shall be used by the Contractor solely in the execution of the said works in accordance with the directions of the Engineer-in-Charge and in terms of said agreement.
4. That the Contractor shall make all necessary and adequate arrangements for the proper safe custody and protection at his own cost against all risks qua the said



- material and, that until used in the construction as aforesaid, the material shall remain at the site of the said works in the Contractor's custody and on his responsibility and shall at all times be open to inspection by the Engineer-in-Charge. In the event of the materials or any part thereof being stolen, destroyed or damaged or getting deteriorated, the Contractor will replace the same with other materials of like quality or repair and make good the same as required by the Engineer-in-Charge.
5. That said material shall not on any account be removed from the site of work except with the written permission of the Engineer-in-Charge.
  6. That the advance shall be repayable in full when or before the Contractor receives payment from the Engineer-in-Charge of the price payable to him for the said work under the terms and provisions of the said agreement. Provided that if any intermediate payments are made to the Contractor on account of work done then on the occasion of each payment, the Engineer-in-Charge will be at liberty to make a recovery from the Contractor's bill from such payments by deducting therefrom the value of the said materials than actually used in the construction and in respect of which recovery has not been made previously. The value of this purpose being determined in respect of each description of materials at the rates at which the amounts of the advance as made under these presents was calculated.
  7. That if the Contractor shall at any time make any default in the performance of observance in respect of any of the terms and provisions of the said agreement or of that provisions the total amount of the advance or advances that may still be owing to the Engineer-in-Charge, shall immediately on the happening of such default be repayable by the Contractor to the Engineer-in-Charge together with interest thereon at 12% p.a. from the date of respective dated to such advance or advances to the date of payment and with all costs. Damages and expenses incurred by the Engineer-in-Charge in or for recovery hereof or the Contractor hereby covenants and agrees with The Engineer to repay and pay the same respective to him accordingly.
  8. That the Contractor hereby charges all the said materials with the repayment to The Engineer of all sums advances or credit as aforesaid and all costs. Charges, damages and expenses payable under these presents PROVIDED ALWAYS it is hereby agreed and declared that notwithstanding anything in the said agreement and without prejudice to the powers contained therein if and wherever the covenant for payment and repayment herein before contained shall be become enforceable and the money owing shall not be paid in accordance therewith. The Engineer may at any time thereafter adopt all or any of the following courses he may deem best:
    - (i) Seize the utilize the said material or any part thereof in the completion of the said works in accordance with the provision in that behalf contained in the said agreement debating the Contractor with the actual cost of effecting such completion and the amount due in respect of advance or credit under these presents and crediting the Contractor with value of work done as if he has carried it out in accordance with the said agreement and the rates thereby provided if the balance is against the Contractor is to pay the same to the engineer on demand.

- (ii) Remove and sell by public action the seized materials or any part thereof and out of the money arising from the sale repay the engineer under these presents and pay over the surplus (if any) to the Contractor.
  - (iii) Deduct all or any part of the moneys owing from any sums due to the contractor under said agreement.
9. Expect in the event of such default on the part of contractor as aforesaid, interest on the said advance shall not be payable.
10. That in the event of conflict between the provisions of these presents and the said agreements, the provision of these presents shall prevail and in the event of any dispute or difference arising over the construction or effect of these presents, the settlement of which has not been hereinbefore expressly provided for the same shall so far as is lawful be subject to jurisdiction of Delhi courts only.

IN WITNESS whereof the said the engineer and the contractor hereunto set their respective hands and seals the day year first above written.

Signed Sealed and delivered by

Contractor

**Undertaking by the Contractor regarding Compliance with the provisions of Contract Labour (Regulation & Abolition) Act & Rules, EPF and ESI Obligations**

(To be submitted along with each RA/Final Bill)

I, S/o Sh. \_\_\_\_\_, authorised representative of M/s \_\_\_\_\_ <the Contractor> \_\_\_\_\_ do hereby declare and undertake as under:

- (i) That in the capacity of independent Contractor for M/s \_\_\_\_\_ <Employer/PMC> \_\_\_\_\_ at \_\_\_\_\_, I and the sub-contractor engaged by me for the above said work, if any, have complied with the provisions of Contract Labour (Regulation & Abolition) Act, 1970 by holding a valid license under the Act and Rules thereto. I have paid the wages **for the month of** \_\_\_\_\_.
- (ii) These wages are not less than the minimum rates applicable to all the employees and no other dues are payable to any employee.
- (iii) That I and the sub-contractor engaged by me for the above said work, if any, have covered all the eligible employees under the Employees Provident Funds and Miscellaneous Provisions Act, 1952 and the Employees State Insurance Act, 1948 and deposited the Contributions for the months up to \_\_\_\_\_ and, as such, no amount towards EPF/ESI contributions, whatsoever is payable, is pending.
- (iv) I further declare and undertake that in case any liability pertaining to my employees or towards employees of the sub-contractor engaged by me for the above said work, if any, arises in future, I shall be fully responsible for all consequences. In case any liability is discharged by Employer/PMC due to my/ my sub-contractor's lapse, I undertake to reimburse the same or the Employer/PMC is authorised to deduct the same from my dues at this Project or at any other Project.

**Authorised Signatory  
(Name & Seal of Company)**

**Date**

Witness

1. -

2. -

## Approval of Sub-Contractor

1.	Name of Main Contractor	
2.	Name of Work, Location	
3.	Name of Proposed Sub- Contractor	
4.	Scope of Work Proposed to be Sub-contracted (Brief)	
5.	Estimated Value of the Proposed Work to be Sub-Contracted (INR)	
6.	Qualifying Criteria for Sub-Contractor	
6.1	Similar Work Experience	
(i)	1 (One ) Contract of 50% or 2 (Two) Contracts of 30% Each of Estimated Value of Proposed Work to be Sub-Contracted	
(ii)	Annual Turnover (Not Less Than 100% of Estimated Value of the Proposed Work to be Sub-Contracted )	
(iii)	Positive Net Worth as per latest Annual Balance Sheet/ Profit & Loss Account	
7	Experience and Financial Details of Proposed Sub-Contractor	
(i)	Contract Value of Similar Work Executed (as Evidenced by Work Order & Completion Certificate) during the Last 7 Years	
(ii)	Maximum Annual Turnover During Last 3 (Three) Years (as Evidenced by Balance Sheet)	
(iii)	Net Worth as per latest Annual Balance Sheet/ Profit & Loss Account	
8	Criteria for Qualification of Sub-Contractor	
(i)	Sl. No. 7(i) > 6(i)	YES / NO
(ii)	Sl. No. 7(ii) > 6(ii)	YES / NO
(iii)	Sl. No. 7(iii)>0	YES / NO
9.	Based On Above Mentioned Information, We M/S_____ (Name Of Main Contractor) Propose M/S_____ (Name Of Proposed Sub-Contractor) As Our Sub-Contractor For The Above Mentioned Works. We Understand That Notwithstanding Above Approval, We Shall Remain Fully Responsible For The Performance Of The Said Sub-Contractor And Any Failure Of The Sub-Contractor Shall Not Absolve/Relieve Us Of Our Responsibility To Complete The Works As Per The Terms And Condition Of The Contract.	

**Note: Contractor to fill all the details in the above performa. Further Contractor shall also fill-in the details at Sl.No.5 above based on the estimated value of the proposed work to be subcontracted.**

**(STAMP & SIGNATURE OF CONTRACTOR)**

## **Special Conditions of Contract**

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## **1. General**

The documents forming the Contract are to be taken as mutually explanatory of one another. If there is an ambiguity or discrepancy in the documents, the Employer shall issue necessary clarifications or instructions to the Contractor, and the order of precedence of the documents shall be as follows:

- I. Contract Agreement
- II. Letter of Award
- III. Bill of Quantities
- IV. GFC Drawings
- V. Technical Specifications
- VI. Special Conditions of Contract
- VII. Instructions to Tenderers
- VIII. General Conditions of Contract
- IX. Other

## **2. Scope of Work**

The scope of work covered in this contract will be as described in **Annexure - I to SCC**.

## **3. Scope of Supply**

The scope of supply covered in this contract will be as described in **Annexure -II to SCC**.

## **4. Time Schedule**

- 4.1. The work shall be executed strictly as per the Time Schedule mentioned in **Annexure - III to SCC**. The period of completion given includes the time required for mobilization & demobilization as well as testing, commissioning, rectifications, if any, re-testing, and completion in all respects as per the directions of the Engineer-in-Charge.

## **5. Statutory Approvals**

- 5.1. Obtaining statutory approvals (for both temporary and permanent works) during construction and upon completion, as required, and as defined in Contractor's Scope of Work in **Annexure-I to SCC**, shall be the responsibility of the Contractor. Contractor shall arrange the inspection of the works by the authorities and necessary co-ordination and liaison work in this respect.

The statutory approvals/ permissions (but not limited to the following) are required to be arranged by the contractor for the execution of works. In case the permissions/ approvals are arranged by the contractor in the name of employer, the fees paid for

obtaining such statutory approvals shall be reimbursed as per actuals by the employer on production of documentary evidence.

- (a) Permission for excavation
- (b) Labour registration
- (c) Temporary water, sewer and electricity connections.
- (d) NOC from electrical inspectorate.
- (e) NOC from Labour department.
- (f) Any other approvals from the statutory authorities that the Contractor may need to obtain in connection with his scope of work.

5.2 However, in addition to the above, the contractor shall render all possible support for submission and approval of various other statutory approvals required to be taken by the PMC/ Employer, including the following:

- (a) Application for obtaining the Occupation Certificate and to support checking by the authorities that the building has been constructed in conformity with the sanctioned building plans.
- (b) Obtaining the Fire NOC.
- (c) Obtaining Permanent Water, Sewer and Electricity connections from the authorities.
- (d) Any other approval arising from the execution of works that may be required.

## **6. Site Organization and Construction Equipment**

### **6.1. Site Organisation:**

- (i) The contractor stands liable and responsible to provide adequately qualified, skilled, semi-skilled, and unskilled personnel on the work. The contractor shall deploy the minimum key Construction Personnel as specified in **Annexure-IV to SCC** and augment the same from time to time as decided by the Engineer-in-Charge depending upon the site requirements & the exigencies of work so as to complete all works within the contracted time schedule and the same shall be done without any additional cost to the Employer. In case the contractor fails to deploy the minimum required key personal, the recovery shall be affected as per details in **Annexure -IV**.

### **6.2. Construction Equipment**

To complete the work as per specifications and within the time schedule, the Contractor shall progressively deploy **Equipment & Machinery** as specified in **Annexure-V to SCC** as and when required and augment the same as decided and directed by the Engineer-in-Charge depending on the exigencies of the work so as to complete all works within the contracted time schedule and without any additional cost to the Employer. The Employer shall not supply any equipment, except those mentioned in Clause 8.



## **7. Materials to be supplied by the Employer**

In continuation to Clause 31 of the GCC, the issue of materials lying at Site and listed in **Annexure-VI to SCC** shall be supplied by the Employer to the contractor against Payment as per rates depicted in **Annexure-VI** which includes GST. The contractor shall be responsible for the transportation, up-keep and watch and ward of the material after issue.

## **8. Tools and Equipment Lying at Site.**

- (i) The Employer shall not supply any Tools and Equipment lying at site as 'free issue' material.
- (ii) However, for the purpose of faster mobilization and timely project execution, if opted by the contractor, the tools and equipment already lying at site under Employer's Possession, will be offered to the Contractor for work execution at the rates as mentioned in **Annexure-VII**. The amount based on the mentioned Rates will be recovered by the Employer from the RA/ final bills of the contractor on a pro rata basis.
- (iii) It may be noted that the repair, operation and maintenance of the equipment so made available would be the responsibility of the contractor.
- (iv) The quality of work shall be as per bid document irrespective of the Employer's offered equipment supply. The responsibility of the quality of work that has been executed using the corresponding equipment solely lies with the Contractor, without any time and cost implications to the Employer.
- (v) On completion of the work, the contractor shall handover the possession of tools and equipment to the Engineer-in-Charge in working condition. In case of any damage to the tools and equipment, contractor shall repair the same before handing over to the Employer/ his representative.

## **9. Health Safety and Environment (HSE) Management**

In continuation with Clause 34 of the GCC, the HSE management at site shall be carried out in strict compliance to **Annexure - VIII to SCC**.

## **10. Office Accommodation to be arranged by the Contractor for the Engineer-in-Charge/ PMC/ TPIA/ Employer**

- (i) The Contractor to establish/ provide an Office (for Tower-In-Charges approx. 4-5 person or tentatively 100 sqft, exact area requirement shall be as per direction of Engineer In charge) at site furnished with basic furniture and air conditioners, for the PMC/ TPIA/ Employer's personnel to the satisfaction of Engineer-in-charge. Minimum capacity of the number of persons and area shall be as per site requirements.
- (ii) The contractor shall maintain the aforesaid facilities for various site activities operational during the currency of the contract and till the contractual completion date including extensions (if any). Operation and maintenance cost on the above

facilities shall be completely borne by the contractor.

**11. Maintenance of the Works**

- (i) The maintenance cost of the works executed shall be borne by the Employer after the taking over or issuance of the Completion Certificate whichever is later.
- (ii) Contractor shall prepare and submit all Operation & Maintenance manuals as per “Good Engineering Practices” after completion of work, which shall be got approved from the Engineer- in-charge.

**12.** The Contractor shall ensure that the painting works is got executed from the approved applicator using approved brands of Asian Paints or Berger Paints or Nerolac or Dulux as the case may be and provide manufacture’s Test certificate and counter corporate guarantee from management for a period of 6 years

**13.** In Case Unitech is unable to make payments to the contractor in lieu of the work done, Unitech may exercise the option of offering the unsold inventory of the project at current rates, discounted by 10%, on that particular day subjected to contractor’s acceptance.

**14. Additional Special conditions of contract (Annexure-IX)**

Additional special project specific conditions are given in the **Annexure-IX**.

## **Annexure - I**

### **(Special Conditions of Contract)**

### **Scope of Work**

1. The scope of work includes **Balance Work for Civil, Structure, Finishing, MEP Works, External Development & External Services for AIR 1 at Uniworld City, Kolkata, (West Bengal)**, generally comprise of but not limited to the following.
2. **Scope of Works - 1 Nos. Towers (Basement+ Podium+ Ground + 39 floors)**

#### **Civil, Structural & Architectural Works**

- i. Earthwork
- ii. PCC & RCC Work
- iii. Brick work
- iv. Finishing works (Plastering, POP, False Ceiling & Painting)
- v. Woodwork & Aluminium Door & Windows, Flush Door & Door Hardware
- vi. Structural Steel Work
- vii. Aluminium & Glass Work
- viii. Flooring & Cladding Work
- ix. Water Proofing Work
- x. Façade Works
- xi. Repairing work
- xii. External Developments including roads, footpaths & horticulture
- xiii. All other works as mentioned in SOR/BOQ

#### **Plumbing, Sanitary, Water Supply, Sewerage & Drainage Works**

- i. Sanitary Fixtures and CP Fittings works
- ii. Water supply pipes and associated works
- iii. Soil waste and vent pipes
- iv. All other works mentioned in SOR/BOQ

#### **Fire Fighting Works**

- i. Fire hydrant system works, FHC, pipes & accessories
- ii. Sprinkler system & accessories
- iii. All other works mentioned in SOR/BOQ

#### **Electrical Works**

- i. All conduit works including Junction boxes, outlet boxes and wiring for lighting and power circuit.
- ii. Switches, plug sockets, cover plates, and other wiring accessories
- iii. Distribution board
- iv. TV, intercom, data and voice networking

- v. Fire alarm and detection system
- vi. Raceways, cable and cable trays
- vii. External lighting & cabling works
- viii. Lifts
- ix. All other works as mentioned in SOR/BOQ

#### **HVAC Works**

- i. Refrigerant piping and insulation
- ii. Drain piping
- iii. Control cabling & conduiting
- iv. All other works as mentioned in SOR/BOQ

#### **CCTV**

- i. CCTV cameras
- ii. Switches, racks, monitor
- iii. Cables and conduits
- iv. All other works as mentioned in SOR/BOQ

#### **Access Control System Works**

- i. Proximity reader, door controller, push to exit switches
- ii. SMPS, door locks
- iii. ACS software & computer system
- iv. Cables and conduits
- v. All other works as mentioned in SOR/BOQ

#### **LPG**

- i. Regulating valves, pressure gauge
- ii. Pipe & accessories
- iii. Gas meter
- iv. All other works as mentioned in SOR/BOQ

3. The quantities of various items as mentioned in the "BILL OF QUANTITIES" are approximate and may vary depending upon the actual requirement of the work. The contractor shall be bound to carry out and complete the stipulated work irrespective of the variation in individual items specified in the bill of quantities. The variation of quantities will be governed as per Section 3, clause No. 6.0 of the contract

**Annexure - II**  
**(Special Condition of Contract)**

**Scope of Supply**

1. Scope of Supply shall be as specified in the technical section of the bidding document.
2. All material, equipment, consumables etc. required for successful completion of the works are to be supplied by the contractor.
3. All materials, equipment, labour & consumables required for successful completion of work as per the description of items in the Schedule of Rates shall be supplied by the Contractor and the cost of such supply shall be deemed to be included in the quoted rates without any additional liability on the Employer except for the material (if any) specifically covered under Employer's Scope of Supply.
4. The Equipment tools and tackles to facilitate construction and after final commissioning, Performance Guarantee, Test run shall be in Contractor's scope. The Contractor may arrange the same through purchase/ hire/ lease basis and such equipment, tools, tackles shall remain the property of the Contractor and it shall be removed from site after its requirement is over. No additional payment shall be made for mobilization and/or demobilization of such equipment, tools & tackles etc.

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**Annexure- III**  
**(Special Condition of Contract)**

**Time Schedule**

**Name of Work:** Balance Work for Civil, Structure, Finishing, MEP Works, External Development & External Services for AIR 1 at Uniworld City, Kolkata, (West Bengal)

<b>Sr. No.</b>	<b>Description</b>	<b>Time of Completion</b>
1	Balance Work for Civil, Structure, Finishing, MEP Works, External Development & External Services for AIR 1 at Uniworld City, Kolkata, (West Bengal)	18 Months

**Notes:**

1. Time of Completion shall be as defined in the NIT.
2. The Time indicated is for completing all the works in all respects as per specifications, codes, drawings, and instructions of Engineer-in-Charge.

**Annexure- IV**  
**(Special Conditions of Contract)**

**Qualifications & Experience of Key Construction Personnel**

1. Minimum Qualification, Experience & Numbers of Key Personnel to be deployed along with rate of recovery in case minimum staff not deployed:

Sr. No.	Category	Qualification & Experience	Nos.	Rate at which recovery shall be made per month from the contractor in the event of not fulfilling this requirement
1.	Project In charge	Degree in Engineering with minimum 15 years of relevant experience. He should have experience of supervising construction of Residential/ Commercial/ Institutional building complex and must have completed at least one major project from construction commencement till handover.	1	Rs 1,00,000/- Rs One Lac Only
2.	Planning Manager	Degree in Engineering with 10 years' experience in project	1	Rs 75,000/- Rs Seventy-five thousand Only
3.	Discipline Engineers	Degree in relevant Engineering Discipline with minimum 5 years' experience in Construction of commercial/ institutional building complex.  <b>OR</b>  Diploma in relevant Engineering Discipline with minimum 10 years' experience in Construction of commercial/ institutional building complex.	4	Rs 50,000/- Rs Fifty thousand Only
4.	QA/QC	Degree in Engineering with	1	

Sr. No.	Category	Qualification & Experience	Nos.	Rate at which recovery shall be made per month from the contractor in the event of not fulfilling this requirement
	Engineer	minimum 10 years' relevant experience <b>OR</b> Diploma in Engineering with minimum 15 Years' relevant experience.		Rs 50,000/- Rs Fifty thousand Only
5.	Safety Manager	A recognized degree/ diploma or equivalent in any branch of engineering or technology. Also, had practical experience of working in a construction project site in supervisory capacity for a period of not less than 10 years. Possesses a degree or diploma in construction / industrial safety recognized by the Central / State Government.	1	Rs 75,000/- Rs Fifty thousand Only
6.	Safety Officer	A recognized degree/ diploma or equivalent in any branch of engineering or technology. Also, had practical experience of working in a construction project site in supervisory capacity for a period of not less than 5-10 years. Possesses a degree or diploma in construction / industrial safety recognized by the Central / State Government.	1	Rs 50,000/- Rs Fifty thousand Only
8	Store In charge	Graduate with minimum 10 years' experience in store management of similar nature	1	Rs 35,000/- Rs Thirty-Five thousand Only
9	Field Supervisors	Graduate with minimum 8 years' experience in ware housing/Stores management of similar nature.	6	Rs 15000/- Rs Fifteen thousand Only

## 2. Notes-

- (i) The detail of manpower required to be deployed by the contractor during Construction for Completion of the work within schedule time is Indicative only. This should be corresponding to the scale and size of the Contract. The Contractor is required to augment the above list with additional numbers/categories of personnel as required and/or as directed by Engineer-in-Charge to carry out the works in working hours including night shifts and complete the work within the completion schedule.



- (ii) The Key Personnel identified above shall be well qualified & having adequate relevant experience as specified in document above. The other manpower shall also be qualified and experienced with their assigned work. The contractor shall submit the Detailed Manpower Deployment schedule along with the Bid.
- (iii) CVs of key persons proposed to be deployed shall be submitted to Engineer-in-Charge for approval prior to their mobilization at site.

## **Annexure - V**

### **(Special Conditions of Contract)**

#### **Indicative List of Equipment & Machinery to be deployed by the Contractor**

<b>Sr. No.</b>	<b>Equipment</b>	<b>Minimum Capacity</b>	<b>Indicative Nos.</b>
1	Excavator	As required	
2	Loader	As required	
3	Concrete Pump	As required	
4	Concrete Transit Mixer	As required	
	Tower Crane	Nos.	1
5	Concrete Vibrator (Electrical / Pneumatic)	-	As required
6	Compressor	1000 cfm	As required
7	Tractor Tractor	8/10 T	As required
8	Vibratory Compactor	8/10 T	As required
9	Water Sprinklers	8000 L	As required
10	Water Tanker	8000 L	2
11	Road Roller	8/10 T	As required
12	Pick & Carry Crane (Hydra)	10 T	As required
13	DG Set	125 kVa	As required
14	DG Set	40 kVa	1
15	Tele handler	3 T	As required
16	Forklift	2 T	As required
17	Winch (For Façade)	1.5 T	As required
18	Water Pumps	nos.	As required
19	Bar Cutting Machine	nos.	As required
20	Bar Bending Machine	nos.	As required
21	Vibro Roller	nos.	As required
22	Passenger & Material Hoist	nos.	As required
23	Welding Machines	nos.	2
24	Auto Level	Nos	2
25	Total Station	Nos	1
26	Stone Cutting Machine	Nos.	2
27	Stone polishing Machine	Nos.	2
28	HILTI Breaker	Nos.	2
29	Steel Scaffolding pipes, clamps and related	-	As Required
30	Shuttering Material in good working Condition	-	As Required
31	Dewatering Pumps	-	As Required
32	Ambulance	nos.	1

The Equipment/ Machinery required to be mobilized by the contractor during Construction to Complete the work within schedule time is Indicative only. Contractor is required to augment the above list with additional numbers/categories as required and/or as directed by Engineer-In-Charge to carry out the works within the completion schedule.

## Annexure - VI

### (Special Conditions of Contract)

#### Material lying at site to be supplied by the Employer

Sr. No.	Description	Unit	Rate including GST (Rs.)
1	Angle Valve	each	Rs. 413/-
2	European Water Closet	each	Rs. 3,336/-
3	Health faucet	each	Rs. 779/-
4	Seat Cover	each	Rs. 484/-
5	Wash Basin (Flat Back)	each	Rs. 856/-
6	Wash Basin (Under Counter)	each	Rs. 2,442/-
7	Bottle Trap	each	Rs. 1,310/-
8	Waste Coupler	each	Rs. 442/-
9	Wash Basin Mixer	each	Rs. 2,372/-
10	Bib Cock	each	Rs. 354/-
11	Pillar Cock	each	Rs. 1,681/-
12	Concealed Stop Cock	each	Rs. 496/-
13	Wall Mixer	each	Rs. 4,708/-
14	Wall Divertor	each	Rs. 1,805/-
15	Telephonic Spout	each	Rs. 1,681/-
16	Plain Spout	each	Rs. 1,257/-
17	Hand Shower	each	Rs. 1522/-
18	Shower Head	each	Rs. 1097/-
19	Shower Arm	each	Rs. 495/-
20	Cistern	each	Rs. 826/-
21	Kitchen Sink	each	Rs. 3,748/-
22	Sink Mixer	each	Rs. 3,682/-
23	Sink Cock	each	Rs. 1,274/-
24	Geyser 15 ltr	each	Rs. 5,478/-
25	Geyser 25 ltr	each	Rs. 6,368/-
26	Connector Pipe 450mm	each	Rs. 177/-
27	Leeba Handle	each	Rs. 1430/-
28	Lamoree Lock Set( Key Lock)	each	Rs.2415/-
29	Lamoree Lock Set( Coin Lock)	each	Rs.2415/-
30	Only Lamoree Handle	each	Rs.1920/-
31	Only Madona Handle	each	Rs.1530/-
32	Pull Handle	each	Rs.145/-
33	Door Stopper	each	Rs.153/-
34	Door Buffer	each	Rs.104/-
35	Tower Bolt 10 "	each	Rs.423/-
36	Tower Bolt8 "	each	Rs.350/-
37	Baby Latch	each	Rs.90/-

**Annexure - VII**  
**(Special Conditions of Contract)**

**List of Plant & Equipment in possession of Employer, lying at Site  
along with rates to be recovered from the Contractor.**

<b>Sr. No.</b>	<b>Description of Machinery/equipment</b>	<b>Unit</b>	<b>Rate per day to be charged including GST</b>
1	Not applicable		
2			
3			
4			

## **Annexure - VIII**

### **(Special Conditions of Contract)**

### **Terms of Payment**

Progressive payments shall be released to Contractor against running accounts bill duly certified by Engineer in Charge after affect the necessary deduction/recovery, if any. The basis of payment against various items shall be as follows.

<b>S. No.</b>	<b>Nature of Work</b>	<b>Payment Terms</b>
<b>1</b>	<b>CIVIL AND STRUCTURAL WORKS</b>	90% on completion of work as certified in progress of bill & acceptance by Engineer in charge.
		10% on completion of all work in all respects and acceptance thereof including submission of completion documents & acceptance by Engineer in charge.
<b>2</b>	<b>MEP WORKS</b>	
<b>2.1</b>	<b>For items involving Erection only</b>	90% on Erection of material at site & acceptance by Engineer in charge.
		10% on testing, commissioning of material and acceptance thereof by the Engineer in Charge.
<b>2.2</b>	<b>For items involving Supply &amp; Erection</b>	60% on supply of material at site & acceptance by Engineer in Charge.
		30% on Erection of material at site & acceptance by Engineer in charge.
		10% on testing, commissioning of material and acceptance thereof by the Engineer in Charge.
<b>3</b>	<b>Other Misc. Works</b>	90% on completion of work as certified in progress of bill & acceptance by Engineer in charge.
		10% on completion of all work in all respects and acceptance thereof including submission of completion documents & acceptance by Engineer in charge.

**Note:** Clause 3.0 of GCC will be applicable on above payment terms.

**Annexure - IX**  
**(Special Conditions of Contract)**

**Health, Safety & Environment Management Plan**

## 1. SCOPE

This specification establishes the Health, Safety and Environment (HSE) management requirement to be complied by Contractors/Vendors including their sub-contractors/sub vendors during construction.

This specification is not intended to replace the necessary professional judgment needed to design & implement an effective HSE system for construction activities and the contractor is expected to fulfill HSE requirements in this specification as a minimum. It is expected that contractor shall implement best HSE practices beyond whatever are mentioned in this specification.

Requirements stipulated in this specification shall supplement the requirements of HSE Management given in relevant Act(s)/ Legislations, General Conditions of Contract (GCC), Special Conditions of Contract (SCC) and Technical Specifications. Where different documents stipulate different requirements, the most stringent shall apply.

## 2. REFERENCES

The document should be read in conjunction with following:

- General Conditions of Contract (GCC)
- Special Conditions of Contract (SCC)
- Building and other construction workers Act,
- Indian Factories Act
- Technical specifications
- Relevant State & National Statutory requirements.
- Operating Manuals Recommendation of Manufacturer of various construction Machineries

## 3. REQUIREMENTS OF HEALTH, SAFETY & ENVIRONMENTAL (HSE) MANAGEMENT SYSTEM TO BE COMPLIED BY CONTRACTORS

### 3.1 Management Responsibility

#### 3.1.1 HSE Policy & Objectives

The Contractor should have a documented and duly approved HSE policy & objectives to demonstrate commitment of their organization to ensure health, safety and environmental aspects in their line of operations.

#### 3.1.2 Management System

The HSE management system of the Contractor shall cover the HSE requirements & commitments to fulfill them, including but not limited to what have been specified under clauses 1.0 and 2.0 above. The Contractor shall obtain the approval of its site specific HSE Plan from Engineer in charge prior to commencement of any site works. Corporate as well as Site management of the Contractor shall ensure compliance of their HSE Plan at work sites in its entirety in true spirit.

#### 3.1.3 Indemnification

Contractor shall indemnify & hold harmless, Owner/PMC & their representatives, free from any and all liabilities arising out of non-fulfilment of HSE requirements or its consequences.

### 3.1.4 Deployment & Qualifications of Safety Personnel

The Contractor shall designate / deploy various categories of HSE personnel at site as indicated below in sufficient number. The Safety supervisors, Safety stewards/Observer etc. would facilitate the HSE tasks at grass root level for construction sites and shall assist Safety Officer

/Engineers. Contractor shall appoint safety personnel as given below;

- 3.1.4.1 Safety Observer/Steward: Contractor shall depute one Safety Observer/Steward.
- 3.1.4.2 Safety Supervisor: In addition to above, contractor shall depute one Safety Supervisor for every 250 workers and additionally thereon.
- 3.1.4.3 Safety Engineer: In addition to above (i & ii), one safety engineer/ officer for every 1000 workers and additionally thereon.

a) Safety Steward/Observer

As a minimum, he shall possess class XII pass certificate and should have minimum two year of practical experience in construction work environment and should have adequate knowledge of the local language spoken by majority of the workers at the construction site.

b) Safety Supervisor

As a minimum, he shall possess a recognized graduation Degree or a Diploma in Engg. with minimum Two years of practical experience in construction work environment and should possess requisite skills to deal with construction safety related day-to-day issues.

c) Safety Officer / Safety Engineer

Safety Officer/Engineer should possess following qualification & experience:

- (i) Recognized degree in any branch of Engg. or Tech. or Architecture with practical experience of working in a building or other construction work in supervisory capacity for a period of not less than two years or possessing recognized diploma in any branch of Engg. or Tech with practical experience of working in a building or other construction work in supervisory capacity for a period of not less than five years.
- (ii) Recognized degree or one year diploma in Industrial safety (from any reputed Indian Institutes).
- (iii) Preferably have adequate knowledge of the language spoken by majority of the workers at the construction site.

Alternately

- (i) Person possessing Graduation Degree in Science with Physics & Chemistry and degree or one year diploma in Industrial Safety (from any reputed Indian institutes) with practical experience of working in a building, plant or other construction works (as Safety Officer) for a period of not less than five years, may be considered as Safety Officer.



The Contractor shall verify & authenticate credentials of such safety personnel and furnish Bio-Data/Resume/Curriculum Vitae of the safety personnel as above for approval of Engineer in charge.

Imposition/ Realization of penalty shall not absolve the Contractor from his/her responsibility of deploying competent safety officer at site.

Adequate planning and deployment of safety personnel shall be ensured by the Contractor so that field activities do not get affected because of non-deployment of competent & qualified safety personnel in appropriate numbers.

### **3.1.5 Implementation, Inspection/Monitoring**

- a) The Contractor shall be fully responsible for planning, reporting, implementing and monitoring all HSE requirements and compliance of all laws & statutory requirements.
- b) The Contractor shall also ensure that the HSE requirements are clearly understood & implemented conscientiously by their site personnel at all levels at site.
- c) The Contractor shall ensure physical presence of their field engineers / supervisors, during the continuation of their contract works / site activities including all material transportation activities. Physical absence of experienced field engineers / supervisors of Contractor at critical work spot during the course of work may invite halting / stoppage of work.
- d) The Contractor shall regularly review inspection report internally and implement all practical steps / actions for improving the status continuously.
- e) Contractor skilled workmen like riggers, scaffold erectors, welders, crane operators etc. should have sufficient past experience and skill on the relevant job.
- f) The Contractor shall ensure important safety checks right from beginning of works at every work site locations. and to this effect format No. HSE-10 "Daily Safety Check List" shall be prepared by field engineer & duly checked by safety personnel for conformance.
- g) The Contractor shall carry out inspection to identify various unsafe conditions of work sites/machinery/equipments as well as unsafe acts on the part of workmen/supervisor/engineer while carrying out different project related works.
- h) Adequate records for all inspections shall be maintained by the Contractor and the same shall be furnished to Engineer in charge, whenever sought.
- i) As a general practice lifting tools/tackles, machinery, accessories etc. shall be inspected, tested and examined by competent person (approved by concerned State authorities) before being used at site and also at periodical interval (e.g., during replacement, extension, modification, elongation/reduction of machine/parts, etc.) as per relevant statutes. Hydra, cranes, lifting machinery, mobile equipments/ machinery/ vehicles, etc. shall be inspected regularly by only competent / experienced personnel at site and requisite records for such inspections shall be maintained by contractor. Contractor shall also maintain records of maintenance of all other site machinery (e.g. generators, rectifiers, compressors, cutters, etc.) & portable tools/equipments being used at project related works (e.g. drills, abrasive wheels, punches, chisels, spanners, etc.).
- j) Site facilities /temporary. installations, e.g. batching plant, cement go down, DG-room, temporary electrical panels/distribution boards, fabrication yards, etc. and site welfare facilities, like labour colonies, canteen/pantry, rest-shelters, motor cycle/bicycle-shed, First-aid centers, urinals/toilets, etc. should be periodically inspected by Contractor.

### **3.1.6 Awareness and Motivation**

- a) The Contractor shall promote and develop awareness on Health, Safety and Environmental protection among all personnel working for the Contractor.
- b) The contractor shall display safety statistics board at all prominent location. Also shall provide dedicated notice board for displaying of safety alerts or any other safety related notices for awareness site workforces.
- c) Regular awareness programs and fabrication shop/work site meetings at least on monthly basis shall be arranged on HSE activities to cover hazards/risks involved in various operations during construction.
- d) Contractor to motivate & encourage the workmen & supervisory staff by issuing/ awarding them with tokens/ gifts/ mementos/ monetary incentives/ certificates etc. The motivational program shall be organized on regular basis.

### **3.1.7 Fire Prevention & First Aid**

- a) The Contractor shall arrange suitable First-aid measures such as First Aid Box (Refer Appendix-B for details), stand-by Emergency Vehicle. Additionally separate ambulance. At least one fire extinguisher shall be placed at each location of DG Set, Hot works, electrical booth etc.
- b) The Contractor shall arrange installation of fire protection measures such as adequate number of steel buckets with sand & water and adequate number of appropriate portable fire extinguishers (Refer Appendix-C for details) to the satisfaction of Engineer in Charge/Employer.
- c) The Contractor shall arrange EMERGENCY MOCK DRILL like fire, bomb threat, gas leakage, earthquake, etc. at each site at least once in three months, involving site workmen and site supervisory personnel & engineers.
- d) The contractor shall require to tie-up with the hospitals located in the neighbourhood for attending medical emergency.

### **3.1.8 Documentation**

5. The Contractor shall evolve a comprehensive, planned and documented system covering the following as a minimum for implementation and monitoring of the HSE requirements and the same shall be submitted for approval by Engineer in Charge/Employer.
  - HSE Organogram
  - Site specific HSE Plan
  - Safety Procedures, forms and Checklist. Indicative list of HSE procedures is attached as Appendix: H
  - Inspections and Test Plan

### **3.1.9 Audit**

The Contractor shall submit an Audit Plan to Engineer in charge indicating the type of audits covering following as minimum:

- a) Internal HSE audits regularly on six monthly basis by engaging internal qualified auditors. However, minimum two internal HSE audit will have to be conducted irrespective of time period of the contract.

All HSE shortfalls/ non-conformances on HSE matters brought out during review/audit, shall be resolved forthwith (generally within a week) by Contractor & compliance report shall be submitted to Engineer in charge.

In addition to above audits by contractor, the contractor's work shall be subjected to HSE audit by Engineer in charge at any point of time during the pendency of contract. The Contractor shall take all actions required to comply with the findings of the Audit Report

and issue regular Compliance Reports for the same to Engineer in charge till all the findings of the Audit Report are fully complied.

Failure to carry-out HSE Audits& its compliance by Contractor, shall invite penalization.

### **3.1.10 Meetings**

- i. The Contractor shall ensure participation of his topmost executive at site (viz. Resident Construction Manager / Resident Engineer/ Project Manager / Site-in-Charge) in Safety Committee/HSE Committee meetings arranged by Engineer in charge usually on monthly basis or as and when called for. In case Contractor's topmost executive at site is not in a position to attend such meeting, he shall inform Engineer in charge in writing before the commencement of such meeting indicating reasons of his absence and nominate his representative – failure to do so may invite very stringent penalization against the specific Contractor, as deemed fit as per Contract. The obligation of compliance of any observations during the meeting shall be always time bound. The Contractor shall always assist Engineer in charge to achieve the targets set by them on HSE management during the project implementation.
- ii. In addition, the Contractor shall also arrange internal HSE meetings chaired by his topmost executive at site on fortnightly basis and maintain records. Such internal HSE meetings shall essentially be attended by field engineers / supervisors including safety personnel of the Contractor and its associates. Records of such internal HSE meetings shall be maintained by the Contractor for review by Engineer in charge or for any HSE Audits.
- iii. Agenda of internal HSE meeting should broadly cover: -
  - a) Confirmation of record notes /minutes of previous meeting
  - b) Discussion on outstanding subjects of previous points / subjects, if any
  - c) Incidents / Accidents (of all types) at project site, if any
  - d) Current topics related to site activities / subjects of discussion
  - e) House keeping
  - f) Information / views / deliberations of members / site sub-contractors
  - g) Report from Owner / Client
  - h) Status of Safety awareness, Induction programs & Training programs The time frame for such HSE meeting shall be religiously maintained by one and all.

### **3.1.11 Intoxicating drinks & drugs and smoking**

- a) The Contractor shall ensure that his staff members & workers (permanent as well casual) shall not be in a state of intoxication during working hours and shall abide by any law relating to consumption & possession of intoxicating drinks or drugs in force.
- b) The Contractor shall not allow any workman to commence any work at any locations of project activity who is/are influenced / affected with the intake of alcohol, drugs or any other intoxicating items being consumed prior to start of work or working day.
- c) Awareness about local laws on this issue shall form part of the Induction Training and compulsory work-site discipline.
- d) The Contractor shall ensure that all personnel working for him comply with “No-Smoking” requirements of the Owner as notified from time to time. Cigarettes, lighters, auto ignition tools or appliances as well as intoxicating drugs, dry tobacco powder, etc. shall not be allowed inside the project / plant complex.

- e) Smoking shall be permitted only inside smoking booths, if any, exclusively designated & authorized by the Engineer in charge.

### 3.1.12 Penalty

The Contractor shall adhere consistently to all provisions of HSE requirements. In case of non-compliance and also for repeated failure in implementation of any of the HSE provisions, Engineer in charge may impose stoppage of work without any cost & time implication to the Owner and/or impose a suitable penalty.

The amount of penalty to be levied against defaulted Contractor shall be up to a cumulative limit of 2.0% (Two percent) of the contract value.

This penalty shall be in addition to all other penalties specified elsewhere in the contract. The decision of imposing stop-work-instruction and imposition of penalty shall rest with Engineer in charge. The same shall be binding on the Contractor. Imposition of penalty does not make the Contractor eligible to continue the work in unsafe manner.

The amount of penalty applicable for the Contractor on different types of HSE violations is specified below:

Sl. No.	Violation of HSE Norms	Penalty Amount
1.	For not using personal protective equipment like Helmet, Safety Shoes, and other safety gadgets as applicable as per nature of work.	Rs.500/- per day/Item / Person
2.	Execution of work without deployment of requisite field engineer / supervisor at work spot	Rs.5,000/- per violation per day
3.	Unsafe electrical practices (not installing ELCB, using poor joints of cables, using naked wire without top plug into socket, laying wire/cables on the roads, electrical jobs by incompetent person, etc.)	Rs.5,000/- per item per day
4.	Working at height without full body harness, using non-standard/ rejected scaffolding and not arranging fall protection arrangement as required, like handrails, lifelines, Safety Nets etc.	Rs.10,000/ per - case per day
5.	No fencing/barricading of excavated areas / trenches.	Rs.5,000/- per occasion
6.	Absence of Contractor's RCM/SIC or his nominated representative (prior approval must be taken for each meeting for nomination) from site HSE meetings whenever called by Engineer in Charge/Employer & failure to nominate his immediate deputy for such HSE meetings.	Rs.10,000/ per - meeting
7.	Poor House Keeping	Rs.5,000 /- per occasion per subject
8.	Failure to report & follow-up accident (including Near Miss) reporting system within specific timeframe.	Rs.20,000/ per - occasion

9.	Failure to deploy adequately qualified and competent Safety Officer	Rs.10,000/ per day
10.	Any violation not covered above	To be decided by Engineer in charge

Note: Penalty amount deducted from the contractor shall be utilized by Engineer in charge for the promotion of the safety during the currency of the project.

The Contractor shall make his field engineers/supervisors fully aware of the fact that they keep track with the site workmen for their behaviour and compliance of various HSE requirements. Safety lapses / defects of project construction site shall be attributable to the concerned job supervisor / engineer of the Contractor, (who remains directly responsible for safely executing field works). For repeated HSE violations, concerned job supervisor / engineer shall be reprimanded or appropriate action, as deemed fit, shall be initiated (with information to Engineer in charge) by the concerned Contractor.

Contractor shall initiate verbal warning shall be given to the worker/employee during his first HSE violation. A written warning shall be issued on second violation and specific training shall be arranged / provided by the Contractor to enhance HSE awareness/skill including feedback on the mistakes/ flaws. Any further violation of HSE stipulations by the erring individuals shall call for his forthright debar from the specific construction site. A record of warnings for each worker/employee shall be maintained by the Contractor, like by punching their cards / Gate passes or by displaying their names at the Project entry gate. Warnings, penalizations, appreciations etc. shall be discussed in HSE Committee meetings by site Head of the Contractor.

### **3.1.13 Accident/ Incident investigation**

All accidents/incidents shall be informed to Engineer in charge at least telephonically by Contractor immediately and in writing within 24 hours on Format No. HSE-2 as applicable, by Contractor. Thereafter, a Supplementary Accident/Incident investigation Report on Format No.

HSE-3 shall be submitted to Engineer in charge/Employer within 72 hours. Near Miss incident(s), Dangerous accidents/incident shall also be reported on Format No. HSE-4 within 24 hours. The accident/ incident shall be investigated by a team of Contractor's senior Site personnel (involving Site-in- Charge or at least by his deputy) for establishing root-cause and recommending corrective & preventive actions. Findings shall be documented, and suitable actions taken to avoid recurrences shall be communicated to Engineer in charge. Engineer in charge shall have the liberty to independently investigate such occurrences and the Contractor shall extend all necessary help and cooperation in this regard. Engineer in charge shall have the right to share the content of this report with the outside world.

### 3.2 House Keeping

The Contractor shall ensure that a high degree of housekeeping is maintained and shall ensure inter-alia; the followings:

- a) All surplus earth and debris are removed/disposed-off from the working areas to designated location(s).
- b) Unused/surplus cables, steel items and steel scrap lying scattered at different places within the working areas are removed to identify location(s).
- c) All wooden scrap, empty wooden cable drums and other combustible packing materials, shall be removed from workplace to identified location(s).
- d) Roads shall be kept clear and materials like pipes, steel, sand, boulders, concrete, chips and bricks etc. shall not be allowed on the roads to obstruct free movement of men & machineries.
- e) Fabricated steel structural, pipes & piping materials shall be stacked properly.
- f) Water logging on roads shall not be allowed.
- g) No parking of trucks/trolleys, cranes and trailers etc. shall be allowed on roads, which may obstruct the traffic movement.
- h) Utmost care shall be taken to ensure over all cleanliness and proper upkeep of the working areas.
- i) Protective measures to be ensured with projected rebar by suitable means.
- j) Trucks carrying sand, earth and pulverized materials etc. shall be covered while moving within the plant area/ or these materials shall be transported with top surface wet.
- k) The contractor shall ensure that the atmosphere in plant area and on roads is free from particulate matter like dust, sand, etc. by keeping the top surface wet for ease in breathing.
- l) At least two exits for any unit area shall be assured at all times – same arrangement is preferable for digging pits/ trench excavation/ elevated work platforms/ confined spaces etc.
- m) Welding cables and the power cable must be segregated and properly stored and used. The same shall be laid away from the area of movement and shall be free from obstruction.
- n) Schedule for upkeep /cleaning of site to be firmed up and implemented on regular basis.

The Contractor shall carry-out regular checks (minimum one per fortnight) as per format No. HSE-11 for maintaining high standard of housekeeping and maintain records for the same. The Contractor shall provide supervisor for housekeeping exclusively for management of day-to-day housekeeping activities.

### 3.3 HSE Measures

#### 3.3.1 Construction Hazards

The Contractor shall ensure identification of all Occupational Health, Safety & Environmental hazards in the type of work he is going to undertake and enlist mitigation measures specially towards following activities;

- a) Working at height (+2.0 Mts height)
- b) Work in confined space,
- c) Deep excavations & trench cutting (depth > 2.0 mts.)
- d) Operation & Maintenance of Batching Plant.
- e) Shuttering / concreting (in single or multiple pour) for columns, parapets & roofs.
- f) Erection & maintenance of Tower Crane.
- g) Erection of structural steel members / roof-trusses / pipes at height more than 2.0 Mts. with or without crane.
- h) All lifts using 100T Crane plus mechanical pulling.
- i) Any lift exceeding 80% capacity of the lifting equipments (hydra, crane etc.).
- j) Laying of pipes (isolated or fabricated) in deep narrow trenches – manually or mechanically.
- k) Maintenance of crane / extension or reduction of crane-boom on roads or in yards.
- l) Erection of any item at >2.0 Mts. height using 100T crane or of higher capacity
- m) Work in Live Electrical installations / circuits
- n) Demolishing/ dismantling activities
- o) Welding/ gas cutting jobs at height (+2.0 Mts.)
- p) Lifting/placing roof-girders at height (+2.0 Mts.)
- q) Working in “Charged/Live” elect. Panels
- r) Erection/dismantling of scaffolding

The necessary HSE measures devices shall be put in place, prior to start of an activity & also shall be maintained during the course of works, by the Contractor.

#### 3.3.2 Accessibility

- e) The Contractor shall provide safe means of access (in sufficient numbers) & efficient exit to any working place including provisions of suitable and sufficient scaffolding at various stages during all operations of the work for the safety of his workmen and Engineer in Charge/Employer.
- f) The Contractor shall implement use of all measures including use of “life line”, “fall-arresters”, “retractable fall arresters”, “safety nets” etc. during the course of using all safe accesses & exits, so that in no case any individual remains at risk of slip & fall during their travel.
- g) A ladder or step- ladder must have a level and firm footing, in case of use of fixed ladders, sufficient foot hold and hand hold to be provided.
- h) The access to operating plant / project complex shall be strictly regulated. Any person or vehicle entering such complex shall undergo identification check, as per

the procedures in force / requirement of Engineer in charge.

- i) Accessibility to 'confined space' shall be governed by specific system / regulation, as established at project site.

### 3.3.3 Personal Protective Equipment (PPEs)

- a) The Contractor workmen shall be permitted entry inside the project premises only with proper PPEs.
- b) The Contractor shall ensure that all their staff, workers and visitors including their sub- contractor(s) have been issued (records to be kept) & wear appropriate PPEs like nape strap type safety helmets preferably with head & sweat band with ¾" cotton chin strap, High ankle safety shoes with steel toe cap and antiskid sole, full body harness, protective goggles, gloves, ear muffs, respiratory protective devices, etc. All these gadgets shall conform to applicable IS Specifications. The Contractor shall implement a regular regime of inspecting physical conditions of the PPEs being issued / used by the workmen of their own & also its sub-agencies and the damaged / unserviceable PPEs shall be replaced forthwith.
- c) Engineer in charge may issue a comprehensive color scheme for helmets to be used by various agencies. The Contractor shall follow the scheme issued by the Engineer in charge and shall choose colour other than blue (for Owner and their representatives). All HSE personnel shall preferably wear dark green band on their helmet or green color safety helmet so that workmen can approach them for guidance during emergencies. HSE personnel shall preferably wear such dresses with fluorescent stripes, which are noticeable during night, when light falls on them.
- d) Florescent jackets with respective company logo to be worn by the contractor workmen with different color coding for categories like supervisor and workmen.
- e) An indicative list of HSE standards/codes is given under **Appendix-A**.
- f) Contractor shall ensure procurement & usage of following safety equipments/ accessories (conforming to applicable IS mark) by their staff, workmen & visitors including their subcontractors all through the span of project construction.
  - i. PPEs (Helmet with company name/logo, Safety Goggles, Coverall, Ear-muff, Face Shield, Hand Gloves, High Ankle Safety Shoes, Gum Boot etc.)
  - ii. Barricading tape / warning signs
  - iii. Rechargeable Safety torch (flame-proof)
  - iv. Safety nets (with tie-chords)
  - v. Fall arresters
  - vi. Portable ladders (varying lengths)
  - vii. Life-lines (steel wire-rope, dia. not less than 8.0 mm)
  - viii. Full body double lanyard Safety harness with Rebar/ladder hook or scaffolding hook.
  - ix. Retractable fall arresters (various length)
  - x. Portable fire extinguishers of adequate capacity
  - xi. Portable Multi Gas detector



### 3.3.4 Working at height

- a) The Contractor shall issue permit for working (PFW) at height after verifying and certifying the checkpoints as specified in the attached permit (Format No. HSE-6). He shall also undertake to ensure compliance to the conditions of the permit during the currency of the permit including adherence of personal protective equipments. Contractor's Safety Officer shall verify compliance status of the items of permit document after implementation of action is completed by Contractor's execution / field engineers at work site.
- b) Such PFW shall be initially issued for one single shift or expected duration of normal work and extended further for balance duration, if required.
- c) Contractors are expected to maintain a register for issuance of permit and extensions thereof including preserving the used permits for verification during audits etc.
- d) The Contractor shall ensure that Full body harnesses with double lanyards conforming IS Specifications is used by all personnel while working at height. The life lines should have enough tensile strength to take the load of the worker in case of a fall. The harness should be capable of keeping the workman vertical in case of a fall, enabling him to rescue himself.
- e) The Contractor shall ensure that a proper Safety Net System is used wherever the hazard of fall from height is present. The safety net, preferably a knotted one with mesh ropes conforming to relevant IS specifications shall have a border rope & tie cord of minimum 12mm dia. The Safety Net shall be located not more than 6.0 meters below the working surface extending on either side upto sufficient margin to arrest fall of persons working at different heights.
- f) In case of accidental fall of person on such Safety Net, the bottom most portion of Safety Net should not touch any structure, object or ground.
- g) Beam Clamps may be used for construction of localized temporary working platforms sheds for welding booths etc. at height in all types of steel structure due to faster installation and requirement of less scaffolding materials.
- h) Hanging Platform, manufactured by Standard HSE equipment vendors must be encouraged for painting of Buildings etc.
- i) All the tools used at height (like spanner, screw driver etc.) shall be provided with securing arrangement like back-pack/waist pouch to prevent accidental slippage from worker hand.
- j) The Contractor shall install temporary lightening arrester in tall structures during construction to save human life and to avoid damage to equipments & machineries. During the possibility of a thunderstorm, all the work at height where a person can be exposed to lightning shall be stopped.

### 3.3.5 Scaffoldings& Barricading

- a) Suitable steel scaffoldings only shall be provided to workmen for all works that cannot be safely done from the ground or from solid construction except such short period work that can be safely done using ladders or man-basket. When a ladder is used, an extra workman shall always be engaged for holding the ladder. The ladder shall be inspected before use for cracked or split stiles, missing, broken, loose or damaged rungs & splinters. The ladder shall be of adequate length to enable it to extend to at least 1.0m above the landing place or working point. Metallic ladders shall be only used as access.
- b) The Contractor shall ensure that the scaffolds used during construction activities shall be strong enough to take the designed load. Only metallic scaffold boards shall be allowed to use. Steel tubes shall be free from cracks, splits, Surface flaws & other defects. All couplers & fittings shall be properly oiled and maintained.
- c) All scaffolds shall be inspected by a safety officer. He shall paste a GREEN tag on each scaffold found safe and a RED tag on each scaffold found unsafe. Scaffolds with GREEN tag only shall be permitted to be used and Scaffolds with RED ones shall immediately be made inaccessible.
- d) The Contractor shall ensure positive barricading (indicative as well as protective) of the excavated, radiography, heavy lift, high pressure hydrostatic & pneumatic testing and other such areas. Sufficient warning signs shall be displayed along the barricading areas.
- e) Scaffolding shall be constructed using foot seals or base plates only. Base plates shall be used below each standard on surface. Sole plate of timber shall be used beneath the base plate to achieve greater load distribution.

### 3.3.6 Electrical installations

- a) All electrical installations/ connections shall be carried out as per the provisions of latest Indian codes/standard.
- b) All temporary electrical installations / facilities shall be regularly checked by the licensed/competent electricians of the Contractor.

The Contractor shall meet the following requirements:

- a. Ensure that electrical systems and equipment including tools & tackles used during construction phase are properly selected, installed, used and maintained as per provisions of the latest revision of the Indian Electrical/ applicable international regulations.
- b. Shall deploy qualified & licensed electricians.

- c. All switchboards / welding machines shall be kept in well-ventilated & covered shed/ with rain shed protection. The shed shall be elevated from the existing ground level to avoid water logging inside the shed. Installation of electrical switch board must be done taking care of the prevention of shock and safety of machine.
- d. No flammable materials shall be used for constructing the shed. Also, flammable materials shall not be stored in and around electrical equipment / switchboard. Adequate clearances and operational space shall be provided around the equipment.
- e. Fire extinguishers and insulating mats shall be provided in all power distribution centers.
- f. Temporary electrical equipment shall not be employed in hazardous area without obtaining safety permit.
- g. Proper housekeeping shall be done around the electrical installations.
- h. All temporary installations shall be tested before energizing, to ensure proper earthing, bonding, suitability of protection system, adequacy of feeders/cables etc.
- i. All welders shall use hand gloves irrespective of holder voltage.
- j. Multilingual (Hindi, English and local language) caution boards, shock treatment charts and instruction plate containing location of isolation point for incoming supply, name & telephone No. of contact person in emergency shall be provided in substations and near all distribution boards / local panels.
- k. ELCB tester /test meter shall be used for testing the ELCBs operation. ELCBs testing shall be carried out by using ELCB tester on monthly basis but in specific cases like heavy rain as decided by owner/EIC. Record of the testing shall be maintained.
- l. Regular inspection of all installations at least once in a month.

The following features shall also be ensured for all electrical installations during construction phase by the contractor:

- a. Each installation shall have a main switch with a protective device, installed in an enclosure adjacent to the metering point. The operating height of the main switch shall not exceed 1.5 M. The main switch shall be connected to the point of supply by means of armoured cable.
- b. The outgoing feeders shall be double or triple pole switches with fuses / MCBs. Loads in a three-phase circuit shall be balanced as far as possible and load on neutral should not exceed 20% of load in the phase.
- c. The installation shall be adequately protected against overload, short circuit and

earth leakage by the use of suitable protective devices. Fuses wherever used shall be HRC type. Use of rewirable fuses shall be strictly prohibited. ELCB/RCCB (Residual Current Circuit Breaker) must be fitted with all Electrical installation. The earth leakage device shall have an operating current not exceeding 30 mA.

- d. All connections to the hand tools / welding receptacles shall be taken through proper switches, sockets and plugs.
- e. All single-phase sockets shall be minimum 3 pin type only. All unused sockets shall be provided with socket caps.
- f. Only 3 core (P+N+E) overall sheathed flexible cables with minimum conductor size of 1.5 mm<sup>2</sup> copper shall be used for all single-phase hand tools.
- g. Only metallic distribution boxes with double earthing shall be used at site. No wooden boxes shall be used.
- h. All power cables shall be terminated with compression type cable glands. Tinned copper lugs shall be used for multi-strand wires / cables.
- i. Cables shall be free from any insulation damage.
- j. Minimum depth of cable trench shall be 750 mm for MV & control cables and 900 mm for HV cables. These cables shall be laid over a sand layer and covered with sand, brick & soil for ensuring mechanical protection. Cables shall not be laid in waterlogged area as far as practicable. Cable route markers shall be provided at every 25 M of buried trench route. When laid above ground, cables shall be properly cleated or supported on rigid poles of at least 2.1 M high. Minimum head clearance of 6 meters shall be provided at road crossings.
- k. Underground road crossings for cables shall be avoided to the extent feasible. In any case no underground power cable shall be allowed to cross the roads without pipe sleeve.
- l. All cable joints shall be done with proper jointing kit. No taped/temporary joints shall be used.
- m. An independent earthing facility should preferably be established within the temporary installation premises. All appliances and equipment shall be adequately earthed. In case of armored cables, the armour shall be bonded to the earthing system. IS: 3043 Code for earthing practices shall be followed at project site.
- n. All cables (green colour) and wire rope used for earth connections shall be terminated through tinned copper lugs.
- o. In case of local earthing, earth electrodes shall be buried near the supply point and earth continuity wire shall be connected to local earth plate for further distribution

to various appliances. All insulated wires for earth connection shall have insulation of greencolour.

- p. Separate core shall be provided for neutral. Earth / Structures shall not be used as a neutral in any case.
- q. ON/OFF position of all switches shall be clearly designated / painted for easy isolation in emergency.

### 3.3.7 Ergonomics and tools & tackles

- a) The Contractor shall assign to his workmen, tasks commensurate with their qualification, experience, and state of health.
- b) All lifting tools, tackles, equipment, trailers, trucks/dumpers, accessories including cranes shall be tested periodically by competent authority for their condition and load carrying capacity. Valid test & fitness certificates from the applicable authority shall be submitted to Engineer in charge for their review/acceptance before the lifting tools, tackles, equipment, trailers, trucks/dumpers, accessories and cranes are used. Third party inspection certificate is mandatory for all lifting tools & tackles before put into use.
- c) Load testing of Cranes by competent person must be made mandatory after each modification/alteration of crane configuration/change in boom length. All heavy equipments including cranes must be maintained in good condition & record of such maintenance shall be maintained.
- d) The contractor shall not be allowed to use defective equipment or tools not adhering to safety norms.
  - i. Tower Crane, Crane, Hydra mobile Crane (F-15 or equivalent), Hydraulic Rig & Boom  
Lift shall be inspected on fortnightly basis as per Format No. HSE-20, HSE-21, HSE- 22, HSE-23 & HSE-24.
  - ii. **The Contractor shall deploy experienced operator & may arrange training program for operators of hydra mobile crane, crane, excavator, mobile machinery, Tower Crane, etc. at site by utilizing services from renowned manufacturers.**
  - iii. Hydra mobile crane (F-15 or equivalent) having steering control mechanism shall be permitted at construction site only for the purpose of loading/unloading. However, continuous rigger availability during marching of hydraulic crane at site shall be ensured by contractor.

### 3.3.8 Occupational Health

- a) The contractor shall identify all operations that can adversely affect the health of its workers and issue & implement mitigation measures.
- b) The Contractor shall arrange Medical Camps at regular intervals at work sites and

labor colonies to assess health condition of workers.

- c) The Contractor shall ensure vaccination of all the workers including their families if residing at site, during the course of entire project span.

### **3.3.9 Hazardous substances**

- a) Hazardous, inflammable and/or toxic materials such as solvent coating, thinners, anti- termite solutions, water proofing materials shall be stored in appropriate containers preferably with lids having spillage catchment trays and shall be stored in a good ventilated area. These containers shall be labeled with the name of the materials highlighting the hazards associated with its use and necessary precautions to be taken.
- b) The work place shall be checked prior to start of activities to identify the location, type and condition of any asbestos materials which could be disturbed during the work. In case asbestos material is detected, usage of appropriate PPEs by all personnel shall be ensured.

### **3.3.10 Slips, trips & falls**

- a) The contractor shall establish a regular cleaning and basic housekeeping programme that covers all aspects of the workplace to help minimize the risk of slips, trips & falls. The contractor shall take positive measures like keeping the work area tidy, storing waste in suitable containers & harmful items separately, keeping passages, stairways, entrances & exits especially emergency ones clear, cleaning up spillages immediately and replacing damaged carpet/ floor tiles, mats & rugs at once to avoid slips, trips & falls.

### **3.3.11 Demolition/ Dismantling**

- a) The contractor shall adhere to safe demolishing/ dismantling practices at all stages of work to guard against unsafe working practices.
- b) Before carrying out any demolition/dismantling work, the contractor shall take prior approval of Engineer in charge and generate the Format No.HSE-9.

### **3.3.12 Road Safety**

- a) The Contractor shall ensure adequately planned road transport safety management system.
- b) The vehicles shall be fitted with reverse warning alarms & flashing lights / fog-lights and usage of seat belts shall be ensured.
- c) The Contractor shall also ensure a separate pedestrian route for safety of the workers and comply with all traffic rules & regulations, including maintaining speed limit of 20 KMPH or indicated by owner for all types of vehicles / mobile machinery. The maximum allowable speed shall be adhered to.
- d) In case of an alert or emergency, the Contractor must arrange clearance of all the routes, roads, access.

- e) Dumpers, Tippers, etc. shall not be allowed to carry workers within the site and also to & from the labour colony to & from project sites.
- f) The Contractor shall not deploy any such mobile machinery / Equipments, which do not have competent operator and / or experienced banks-man/signal-man. Such machinery/equipments shall have effective limit-switches, reverse-alarm, front & rear-end lights etc. and shall be maintained in good working order.
- g) The Contractor shall not carry-out maintenance of vehicles / mobile machinery occupying space on project / plant roads and shall always arrange close supervision for such works.
- h) Contractor's shall arrange /install visible road signs, diversion boards, caution boards, etc. on project roads for safe movement of men and machinery.

### **3.3.13 Welfare measures**

Contractor shall, at the minimum, ensure the following facilities at work sites:

- a) A crèche at site where 10 or more female workers are having children below the age of 6 years.
- b) Adequately ventilated / illuminated rooms at labour camps & its hygienic up-keeping.
- c) Reasonable canteen facilities at site and in labour camps at appropriate location depending upon site conditions. Contractor shall make use of "industrial" variety of LPG cylinder & satisfactory illumination at the canteens. Necessary arrangement for efficient disposal of wastes from canteens & urinals /toilets shall also be made and regular review shall be made to maintain the ambience satisfactorily hygienic & shall also comply with all applicable statutory requirements.
- d) Adequately lighted & ventilated Rest rooms at site (separate for male workers and female workers).
- e) Provision for suitable mobile toilets to be made available by Contractor for remote/scattered job locations.
- f) Urinals, Toilets, drinking water, washing facilities, adequate lighting at site and labour camps.
- g) The contractor at periodic interval shall arrange to prevent mosquito breeding by fumigation/spraying of insecticides at workplace/fabrication yard.

### **3.3.14 Environment Protection**

Contractor shall ensure proper storage and utilization methodology of materials that are detrimental to the environment. Where required, Contractor shall ensure that only the environment friendly materials are selected and emphasize on recycling of waste materials, such as metals, plastics, glass, paper, oil & solvents. The waste that cannot be minimized, reused or recovered shall be stored and disposed of safely. In no way, toxic spills shall be allowed to percolate into the ground. The contractor shall not use the empty areas for dumping the wastes.

The contractor shall strive to conserve energy and water wherever feasible.

The contractor shall ensure dust free environment at workplace by sprinkling water on

the ground at frequent intervals. The air quality parameters for poisonous gases, toxic releases, harmful radiations, etc. shall be checked by the contractor on daily basis and whenever need arises.

The contractor shall not be allowed to discharge chemicals, oil, silt, sewage, sullage and other waste materials directly into the controlled waters like surface drains, streams, rivers, ponds. A discharge plan shall be submitted to Engineer in charge for approval.

### **3.3.15 Rules & Regulations**

All persons deployed at site shall be knowledgeable of and comply with the environmental laws, rules & regulations relating to the hazardous materials, substances and wastes. Contractor shall not dump, release or otherwise discharge or disposes off any such materials without the express authorization of Engineer in charge. An indicative list of Statutory Acts & Rules relating to HSE is given under Appendix-D.

### **3.3.16 Weather Protection**

Contractor shall take appropriate measures to protect workers from severe storms, rain, solar radiations, poisonous gases, dust, etc. by ensuring proper usage of PPEs like Sun glasses, Sun screen lotions, respirators, dust masks, etc. and rearranging/ planning he construction activities to suit the weather conditions. Effective arrangement (without creating inconvenience to project facilities & permanent installations) for protecting workmen from hailstorm, drizzle in the form of temporary shelter shall be made at site.

### **3.3.17 Communication**

All persons deployed at the work site shall have access to effective means of communication so that any untoward incident can be reported immediately and assistance sought by them.

All health & safety information shall be communicated in a simple & clear language easily understood by the local workforce.

For information to all, typical subjects that should be communicated are: - Inside the company (Top to down)

- a. Quality Policy
- b. HSE Policy contents
- c. Environment Policy
- d. HSE Objectives
- e. Safety Cardinal Rules
- f. HSE Target – reached or missed
- g. Praises & Warnings to personnel for HSE Management
- h. Safety Walk Through Reports and safety defects / shortfalls (by management)
- i. HSE Audit results
- j. Revised Statutory Health & Safety provisions, if any
- k. H & S publicity



## l. Suggestions

Inside the Company (Bottom to up)

- a. Complaints
- b. Compliances on safety defects / shortfalls
- c. Suggestions
- d. Proposals for changes & improvements
- e. HSE Reports (including near-miss reports)

### **3.3.18** Confined Space Entry

The contractor shall generate a work permit (Format No. HSE -7) before entering a confined space. People, who are permitted to enter into confined space, must be medically examined. All necessary precautions mentioned therein shall be adhered to. An attendant shall be positioned outside a confined space for extending help during an emergency. Effective communication shall be maintained between personnel in confined space and outside by combination of visual/voice or portable radio. Compressed gas cylinders shall not be taken into confined space.

Entry Register for confined space to be maintained with the name and time of entry/exit.

### **3.3.19** Excavation

The Contractor shall obtain permission from competent authorities prior to excavation wherever required.

The Contractor shall locate the position of buried utilities (water line, cable route, etc.) by referring to project in consultation with Engineer in charge. The Contractor shall start digging manually to locate the exact position of buried utilities & thereafter use mechanical means.

The Contractor shall keep soil heaps at least 1.5 M away from edge or a distance equal to depth of pit (whichever is more)

All excavated pits greater than 10 Sq.M plan area and depth more than 1.5M shall have at least two access routes for ingress and egress. Also, additional access routes shall be provided such that distance between any two access routes shall not be more than 20M.

The Contractor shall maintain sufficient "angle of repose" during excavation – shall also provide slope or suitable bench as decided by Engineer in Charge/Employer.

The Contractor shall arrange "battering" or "benching" wherever required for preventing collapse of edge of excavations.

The Contractor shall identify & arrange de-watering pump or well-point system to prevent earth collapse due to heavy rain / influx of underground water.

The Contractor shall arrange protective fencing/ hard barricading with warning signal around excavated pits, trenches, etc. along with minimum 2 (two) entries, exits / escape ladders.

The Contractor must avoid "underpinning" / under-cutting to prevent collapse of chunk of earth during excavation

The Contractor shall use "stoppers" to prevent over-run of vehicle wheels at the edge of

excavated pits / trenches.

The Contractor shall arrange strengthening of “shoring” & “strutting” proactively to avoid collapse of earth / edges due to vehicular movement in close proximity of excavated areas / pits/ trenches, etc.

### **3.4 Tool Box Talks (TBT)**

Contractor shall conduct daily TBT with workers prior to start of work and shall maintain proper record of the meeting. A record shall be maintained in a format suggested by Engineer in charge.

The Contractor shall conduct TBT before start of every morning or evening shift or night shift activities, for alerting the workers on specific hazards and their appropriate dos & don'ts. The Contractor shall provide sufficient rests to the site workmen and their foremen to avert fatigue & thereby endangering their lives during the course of site works.

### **3.5 Training & Induction Programme**

- a) Initial induction of workers into Construction oriented activities and appraising them about the methodology of works and how to carry-out safely and the same should not be inter mixed with Tool Box Talks or HSE Training. In this regard careful action should be made & maintained for imparting HSE induction to every individual, irrespective of his task/designation/level of employment, whereas, HSE Training should be imparted to specific person/group of people who are to carry-out that specific task more than once – for example, Riggers must be trained for working at heights, welders must be trained for work in confined space, fitters/carpenters, masons must be trained for work at heights, etc.
- b) Contractor shall conduct Safety induction programme on HSE for all his workers and maintain records. The Gate Pass shall be issued only to those workers who successfully qualify the Safety induction programme.
- c) The Contractor shall brief the visitors about the HSE precautions which are required to be taken before their proceeding to site and make necessary arrangements to issue appropriate PPEs like Aprons, hard hats, ear-plugs, goggles & safety shoes etc., to his visitors. The Contractor shall always maintain relevant acknowledgement from visitor on providing him brief information on HSE actions.
- d) Contractor shall ensure that all his personnel possess appropriate training to carry out the assigned job safely. The training should be imparted in a language understood by them and should specifically be trained about
  - Potential hazards to which they may be exposed at their workplace
  - Measures available for prevention and elimination of these hazards The topics during training shall cover, at the minimum: -
  - Why safety should be considered during work - explanation
  - Education about hazards and precautions required
  - Employees' duties & responsibilities

- Emergency and evacuation plan
  - HSE requirements during project activities
  - Fire fighting and First-Aid
  - Use of PPEs
  - Occupational health issues – dos & don'ts
  - Local laws on intoxicating drinks, drugs, smoking in force
  - Common environmental subjects – lighting, ventilation, vibration, smoke/fumes etc.
- e) Records of the training shall be kept and submitted to Engineer in charge.

## DETAILS OF HSE MANAGEMENT SYSTEM BY CONTRACTOR

### **On Award of Contract**

The Contractor shall submit a comprehensive Health, Safety and Environmental Plan or programme for approval by Engineer in charge prior to start of work. The Contractor shall participate in the pre-start meeting with Engineer in charge to finalize HSE Plans which shall including the following:

- HSE policy & Objectives
- Job procedure to be followed by the Contractor for construction activities including handling of equipments, scaffolding, electric installations, etc. describing the risks involved, actions to be taken and methodology for monitoring each activity. Indicative list of procedures is enclosed as Annexure-H
- PMC/Owner review/audit requirement.
- Organization structure along with responsibility and authority, on HSE activities.
- Administrative & disciplinary steps involving implementation of HSE requirements
- Emergency evacuation plan/ procedures for site and labour camps
- Procedures for reporting & investigation of accidents and near misses.
- HSE Inspection
- HSE Training programme at project site
- HSE Awareness programme at project site
- Reference to Rules, Regulations and statutory requirements.
- HSE documentation viz reporting, analysis & record keeping.

SP: 53	Safety code for the use, Care and protection of hand operated tools.
IS: 838	Code of practice for safety & health requirements in electric and gas welding and cutting operations
IS: 1179	Eye & Face precautions during welding, equipment etc.
IS: 1860	Safety requirements for use, care and protection of abrasive grinding wheels. IS: 1989 (Pt -II) Leather safety boots and shoes
IS: 2925	Industrial Safety Helmets
IS: 3016	Code of practice for fire safety precautions in welding & cutting operation. IS: 3043 Code of practice for earthing
IS: 3764	Code of safety for excavation work
IS: 3786	Methods for computation of frequency and severity rates for industrial injuries and classification of industrial accidents
IS: 3696	Safety Code of scaffolds and ladders
IS: 4083	Recommendations on stacking and storage of construction materials and components at site
IS: 4770	Rubber gloves for electrical purposes
IS: 5121	Safety code for piling and other deep foundations
IS: 5216 (Pt-I)	Recommendations on Safety procedures and practices in electrical works IS: 5557 Industrial and Safety rubber lined boots
IS: 5983	Eye protectors
IS: 6519	Selection, care and repair of Safety footwear
IS: 6994 (Pt-I)	Industrial Safety Gloves (Leather & Cotton Gloves) IS: 7293 Safety Code for working with construction Machinery
IS: 8519	Guide for selection of industrial safety equipment for body protection IS: 9167 Ear protectors
IS: 11006	Flash back arrestor (Flame arrestor)
IS: 11016	General and safety requirements for machine tools and their operation IS: 11057 Specification for Industrial safety nets
IS: 11226	Leather safety footwear having direct moulded rubber sole
IS: 11972	Code of practice for safety precaution to be taken when entering a sewerage system
IS: 13367	Code of practice-safe use of cranes



**B. INTERNATIONAL STANDARDS ON HSE**

Safety Glasses	:	ANSI Z 87.1, ANSI ZZ 87.1, AS 1337, BS 2092, BS 1542, BS 679, DIN 4646/
58311 Safety Shoes	:	ANSI Z 41.1, AS 2210, EN 345
Hand Gloves	:	BS 1651
Ear Muffs	:	BS 6344, ANSI S 31.9
Hard Hat	:	ANSI Z 89.1/89.2, AS 1808, BS 5240, DIN 4840
Goggles	:	ANSI Z 87.1
Face Shield	:	ANSI Z 89.1
Breathing Apparatus	:	BS 4667,
NIOSH Welding & Cutting	:	ANSI Z49.1
Safe handling of compressed:	P-1	(Compressed Gas Association Gases in cylinders 1235 Jefferson Davis Highway, Arlington VA 22202 - USA)
Full body harness	:	EN-361
Lanyard	:	EN-354
Karabiner	:	EN-362 and EN-12275

## DETAILS OF FIRST AID BOX

SL. NO.	DESCRIPTION	QUANTITY
1.	Small size Roller Bandages, 1 Inch Wide (Finger Dressing small)	6 Pcs.
2.	Medium size Roller Bandages, 2 Inches Wide (Hand & Foot Dressing)	6 Pcs.
3.	Large size Roller Bandages, 4 Inches Wide (Body Dressing Large)	6 Pcs.
4.	Large size Burn Dressing (Burn Dressing Large)	4 Pkts.
5.	Cotton Wool (20 gms packing)	4 Pkts.
6.	Antiseptic Solution Dettol (100 ml.) or Savlon	1 Bottle
7.	Mercurochrome Solution (100 ml.) 2% in water	1 Bottle
8.	Ammonia Solution (20 ml.)	1 Bottle
9.	A Pair of Scissors	1 Piece
10.	Adhesive Plaster (1.25 cm X 5 m)	1 Spool
11.	Eye pads in Separate Sealed Pkt.	4 pcs.
12.	Tourniquet	1 No.
13.	Safety Pins	1 Dozen
14.	Tinc. Iodine/ Betadine (100 ml.)	1 Bottle
15.	Polythene Wash cup for washing eyes	1 No.
16.	Potassium Permanganate (20 gms.)	1 Pkt.
17.	Tinc. Benzoine (100 ml.)	1 Bottle
18.	Triangular Bandages	2 Nos.
19.	Band Aid Dressing	5 Pcs.
20.	Iodex/ Moov (25 gms.)	1 Bottle
21.	Tongue Depressor	1 No.
22.	Boric Acid Powder (20 gms.)	2 Pkt.
23.	Sodium Bicarbonate (20 gms.)	1 Pkt.
24.	Dressing Powder (Nebasulf) (10 gms.)	1 Bottle
25.	Medicinal Glass	1 No.
26.	Duster	1 No.
27.	Booklet (English& Local Language)	1 No. each
28.	Soap	1 No.

29.	Toothache Solution	1 No.
30.	Vicks (22 gms.)	1 Bottle
31.	Forceps	1 No.
32.	Snake –Bite Lancet	1No.
33.	Note Book	1 No.
34.	Splints	4 Nos.
35.	Lock	1 Piece
36.	Life Saving/Emergency/Over-the counter Drugs	As decided at site

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Box size: Suitable size first aid box to be used for first aid items  
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Note : The medicines prescribed above are only indicative. Equivalent medicines can also be used.

A prescription, in this regard, shall be required from a qualified Physician.



## TYPE OF FIRES VIS-À-VIS FIRE EXTINGUISHERS

<div>Fire Extinguisher</div> <div>Fire</div> <div>↓</div>	<div>→</div> <div>Water</div>	Foam	CO <sub>2</sub>	Dry Powder	Multi purpose (ABC)
Originated from paper, clothes, wood	?	?	can control minor surface fires	can control minor surface fires	?
Inflammable liquids like alcohol, diesel, petrol, edible oils, bitumen	x	?	?	?	?
Originated from gases like LPG, CNG, H <sub>2</sub>	x	X	?	?	?
Electrical fires	x	X	?	?	?

LEGEND :    ?    : CAN BE USED

          x        : NOT TO BE USED

**Note:** Fire extinguishing equipment must be checked atleast once a year and after every use by an authorized person. The equipment must have an inspection label on which the next inspection date is given. Type of extinguisher shall clearly be marked on it.

**List of Statutory Acts & Rules Relating to HSE**

- The Indian Explosives Act and Rules
- The Motor Vehicle Act and Central Motor Vehicle Rules
- The Factories Act and concerned Factory Rules
- The Petroleum Act and Petroleum Rules
- The Workmen Compensation Act
- The Gas Cylinder Rules and the Static & Mobile Pressure Vessels Rules
- The Indian Electricity Act and Rules
- The Indian Boiler Act and Regulations
- The Water (Prevention & Control & Pollution) Act
- The Water (Prevention & Control of Pollution) Cess Act
- The Mines & Minerals (Regulation & Development) Act
- The Air (Prevention & Control of Pollution) Act
- The Atomic Energy Act
- The Radiation Protection Rules
- The Indian Fisheries Act
- The Indian Forest Act
- The Wild Life (Protection) Act
- The Environment (Protection) Act and Rules
- The Hazardous Wastes (Management & Handling) Rules
- The Manufacturing, Storage & import of Hazardous Chemicals Rules
- The Public Liability Act
- The Building and Other Construction Workers (Regulation of Employment and Condition of Service) Act
- Other statutory acts Like EPF, ESIS, Minimum Wages Act.

LIST OF PROCEDURES (MINIMUM) TO BE FORMING PART OF HSE PLAN:-

- A. HSE Management Procedures:
- HSE Objectives & Performance
  - HSE Training and Competence (including Induction)
  - HSE Motivation & Award Scheme
  - HSE Audits
  - HSE Emergency Management
  - HSE Incidents Reporting and Management
  - First Aid & Management
  - Roles, Responsibility, accountabilities and Authorities
- B. Job procedures/Safe Operating procedures
- Setting Up Site & Signages
  - Working at Height
  - Confined Space Entry
  - Permit to Work
- Housekeeping
- Transportation of materials including Manual Handling
  - Earthmoving Operations & excavation
  - Scaffolding
  - Fire Prevention/Protection
  - Hazardous Substance handling & Storage
  - Personal Protective Equipment

## ACCIDENT / INCIDENT REPORT

(To be submitted by Contractor after every Incident / Accident within 24 hours to Engineer in charge/Employer)

**Report No.:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Project site:** \_\_\_\_\_ **Name of work:** \_\_\_\_\_

**Contractor's name:** \_\_\_\_\_ **Contractor's Job Engineer (name)** \_\_\_\_\_

<b>Non-disabling injury (Non-LTA)</b>	Hospitalized but resumed duty before end of 48 hrs	
<b>Disabling injury (other LTA)</b>	Hospitalized & failed to resume duty within next 48 hrs	
<b>Fatal (LTA):</b>	Death / Expiry	
<b>First Aid case (non LTA)</b>	Resume duty after first aid	

**Name of the injured:** \_\_\_\_\_ **Father's name of victim:** \_\_\_\_\_

**Sub Contractor's Name:** .....

**Gate Pass No.:** ..... **Age:** \_\_\_\_\_ **Yrs. Victim's medical fitness exam. (Pre-empl.) date:-** \_\_

**Date & time of Accident / Incident:** \_\_\_\_\_ **Names of**

**Witnesses:** (1\_ (2)\_\_\_\_ (3)\_\_\_\_\_ **Profession of victim:**

Bar bender		Carpenter		Meson	
Fitter		Helper		Gas cutter	
Grinder		Welder		Electrician	
Driver		Rigger		M/c. operator	
Engineer		Manager		Other/specify	

**Qualification**

No formal education		Non-Matriculate		Matriculate	
Graduate		Post- grad		Other/specify	

**Job Experience**

NIL		Less than 2 yrs		2-5 yrs	
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5-10 yrs		11-15 yrs		15 years and above	
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**Location where the incident happened:** \_\_\_\_\_

**Activity / Works that were continuing during incident / accident: -**

Excavation		Demolition		Concrete carrying	
Concrete pouring		Transportation of materials (manually)		Transportation of materials (mechanically)	
Work on or adjacent to water		Work at height (+2.0 mts)		Scaffold preparation	
Scaffold dismantling		Piling works		Welding	
Grinding		Gas-cutting		Pipe fit-ups & fabrication	
Structural fabrications		Machine works		Hydro-testing works	
Electrical works		Erection activities		Other/specify	

**What exactly the victim was doing just before the incident / accident? .....**

.....

.....

**Nature of injury:**

Bruise or Contusion		Abrasion (superficial wound)		Sprains or strains	
Cut or Laceration		Puncture or Open wound		Burn	
Inhalation of toxic or Poisonous fumes or gases		Absorption		Amputation	
Fracture		Other/specify			

**Parts of body involved in incident / accident**

Head		Face		Eyes	
Throat		Arm (above wrist)		Hand (including wrist)	
Fingers		Trunk (Abdomen / Back / Chest / Shoulder)		Throat	
Leg (above ankle)		Foot (incl. ankle)		Toes	
Multiple				Other/specify	

**Accident type:**

Struck against		Struck by		Fall from Elevation	
Fall on same level		caught in		caught under	
caught in between		Rubbed or abraded		Contact with (Electricity)	
Contact with (Temp./ extremes)		Contact with chemicals or oils		Vehicle accident	
Other/specify					

**Medical Aid provided:-** (indicate specific aids / treatment etc.)-

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.....

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Action taken to prevent recurrence of similar incident / accident: .....

.....

.....

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.....

.....

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\_\_\_\_\_

**Intimation to local authorities** (Dist. Collector / Local Police Station / ESI authority): Yes / No / NA. If yes, to whom

.....

Safety Officer  
 Manager (Signature and Name)  
 Stamp of Contractor

Site Head / Resident Construction  
 (Signature and Name)

**SUPPLEMENTARY INCIDENT / ACCIDENT INVESTIGATION REPORT**  
**TICK THE APPROPRIATE ONE AS APPLICABLE (furnish within 72 hours)**

Supplementary to Incident / Accident Report No.:(Copy enclosed)

**Report No.:**\_\_\_\_\_ **Date:**\_\_\_\_\_

Project site:\_\_\_\_\_ Name of work: \_\_\_\_\_

Contractor's name:\_\_\_\_\_ Contractor's Job Engineer (name) \_\_\_\_\_

<b>Non-disabling injury (Non- LTA)</b>	Hospitalized but resumed duty before end of 48 hrs.	
<b>Disabling injury (other LTA)</b>	Hospitalized & failed to resume duty within next 48 hrs.	
<b>Fatal (LTA):</b>	Death / Expiry	
<b>First Aid case (non LTA)</b>	Resume duty after first aid	

Name of the injured:\_\_\_\_\_ Father's name of victim: \_\_\_\_\_

Sub Contractor's Name: .....

Gate Pass No.: .....Age:\_\_\_\_\_Yrs. Victim's medical fitness exam. (Pre-empl.) date:- \_\_

**Date & time of Accident / Incident:** \_\_\_\_\_

Names of Witnesses: (1)\_\_\_\_\_ (2)\_\_\_\_\_ (3)\_\_\_\_\_

**Profession of victim:**

Bar bender		Carpenter		Meson	
Fitter		Helper		Gas cutter	
Grinder		Welder		Electrician	
Driver		Rigger		M/c. operator	
Engineer		Manager		Other/specify	

**Qualification**

No formal education		Non-Matriculate		Matriculate	
Graduate		Post- grad		Other/specify	

**Job Experience**

NIL		Less than 2 yrs.		2-5 yrs.	
5-10 yrs.		11-15 yrs.		15 years and above	

**Location where the incident happened:** \_\_\_\_\_

**Activity / Works that were continuing during incident / accident: -**

Excavation		Demolition		Concrete carrying	
Concrete pouring		Transportation of materials (manually)		Transportation of materials (mechanically)	
Work on or adjacent to water		Work at height (+2.0 mts)		Scaffold preparation	
Scaffold dismantling		Piling works		Welding	
Grinding		Gas-cutting		Pipe fit-ups & fabrication	
Structural fabrications		Machine works		Hydro-testing works	
Electrical works		Erection activities		Other/specify	

**What exactly the victim was doing just before the incident / accident? .....**

.....  
 .....

Particular of tools & tackles being used and condition of the same after incident/accident:

.....  
 .....

**Description of Incident/Accident (How the incident was caused) : .....**

.....  
 .....  
 .....

Nature of injury:

Bruise or Contusion		Abrasion (superficial wound)		Sprains or strains	
Cut or Laceration		Puncture or Open wound		Burn	
Inhalation of toxic or Poisonous fumes or gases		Absorption		Amputation	
Fracture		Other/specify			

**Parts of body involved in incident / accident**

Head		Face		Eyes	
Throat		Arm (above wrist)		Hand (including wrist)	
Fingers		Trunk (Abdomen / Back / Chest / Shoulder)		Throat	
Leg (above ankle)		Foot (incl. ankle)		Toes	
Multiple				Other/specify	



---

**Accident type**

Struck against		Struck by		Fall from Elevation	
Fall on same level		caught in		caught under	
caught in between		Rubbed or abraded		Contact with (Electricity)	
Contact with (Temp./ extremes)		Contact with chemicals or oils		Vehicle accident	
Other/specify					

Name & Designation of person who provided First-Aid to the victim: \_\_\_\_\_

Name & Telephone number of Hospital where the victim was treated \_\_\_\_\_

Mode of transport used for transporting victim – Ambulance / Private car / Tempo

/ Truck / Others How much time taken to shift the injured person to Hospital\_\_\_\_\_

In case of FATAL incident, indicate clearly the BOCW  
Registration No. of the  
victim/Company.....  
...

Comments of Medical Practitioner, who treated / attended the victim/injured  
(attached / described here) \_\_\_\_\_

What actions are taken for investigation of the incident, please indicate clearly –  
(Video film / Photography / Measurements taken etc ..... )

---

**Immediate cause** (Please tick the right applicable) –

Hazardous methods or procedures inadequately guarded		Poor housekeeping		Inadequate or improper PPE	
Environmental hazards (excess noise/ space constraint/ inadequate Ventilation		improper illumination/Moving on oval surface		Working on dangerous equipment	

Failure to secure		Horse-play		Failure to use PPE	
Inattention to surroundings		Improper use of hands & body-parts		By-passing safety devices	
Unsafe mixing or placement of tools & tackles		Bypassing standard procedures		Failure in communication	
Operating without authority		Improper use of equipment or tools & tackles		drug or alcoholic influence	
excessive haste		Others(specify)			

**Basic cause**

Over confidence		Impulsiveness		over-exertion	
Faulty judgement or poor understanding		Failing to keep attention constantly		Nervousness & Fear	
Fatigue		Defective vision		Ill health or sickness	
Slow reaction		Others (specify)			

**Root cause**

Inadequate Engg		Improper Design		Inadequate Planning & organization	
Inadequate knowledge		Inadequate skill		Inadequate training	
Inadequate supervision		Improper work procedure		Inadequate compliance with standard	
Substandard performance		Inadequate maintenance		Improper inspection	
Others (specify)					

---

Loss of man days and impact on site works, (if any) –

Remarks from Contractor's Safety Officer/ Engineer –

Was the victim performing relevant tasks for which he was engaged /employed?	Yes / No
Was the Supervisor present on work-site during the incident?	Yes /No
Have the causes of incident rightly identified?	Yes / No
Cause of Accident was _____	

Remedial measures recommended by **Safety Officer of Contractor** for avoiding similar incident in future

: .....

.....

.....

.....

.....

.....

.....

**Intimation to local authorities** (Dist. Collector / Local Police Station / ESI authority): Yes / No / NA. If yes, to whom

.....

---

Safety Officer  
Manager (Signature and Name)

Site Head / Resident Construction  
(Signature and Name)  
Stamp of Contractor

---

**NEAR MISS INCIDENT/ DANGEROUS OCCURRENCE SUGGESTED PROFORMA**  
(to be submitted within 24 hours)

- Near Miss : **Human injury escaped & no damage to property, equipment or interruption to work.**
- **Dangerous Occurrence:** Damage to property, equipment or interruption of work, but not resulting in personal injury/ illness, e.g. Fire incident, collapse of structure, crane failure, etc.

Report No.: \_\_\_\_\_

Name of Site:\_\_\_\_\_

Date: \_\_\_\_\_

Name of work:\_\_\_\_\_

Contractor: \_\_\_\_\_

---

Incident reported by :

Date & Time of Incident :

Location :

---

Brief description of incident

---

Probable cause of incident

---

Suggested corrective action

---

Steps taken to avoid recurrence

Yes ☐

No ☐

Safety Officer

Manager (Signature and Name)

Stamp of Contractor

Site Head / Resident Construction

(Signature and Name)

FORMAT NO. : HSE-5 REV: -0  
**MONTHLY HEALTH, SAFETY & ENVIRONMENTAL (HSE) REPORT**

(To be submitted by each Contractor)

Actual work start Date: \_\_\_\_\_ Project: \_\_\_\_\_ Name of the Contractor: \_\_\_\_\_

Name of Work: \_\_\_\_\_ For the Month of: \_\_\_\_\_ Report No: \_\_\_\_\_

Status as on: \_\_\_\_\_ Job No: \_\_\_\_\_

(Contractor in consultation with Engineer in charge shall generate the reports.)

ITEM		UPTO PREVIOUS MONTH	THIS MONTH	CUMULATIVE
1) Average number of Staff & Workmen (Average daily headcount, not man days)				
2) Total Man-hours worked				
3) Number of Induction programmes conducted				
4) Number of HSE meetings organized at site				
5) Number of HSE awareness programmes conducted at site				
6) Number of Toolbox Talks conducted				
7) Number of Lost Time Accidents (LTA)	Fatal			
	Other LTA			
8) Number of Loss Time Injuries (LTI)	Fatalities			
	Other LTI			
9) Number of Non-Loss Time Accidents				
10) Number of First Aid Cases				
11) Number of Near Miss Incidents				
12) No. of unsafe acts/ practices detected				
13) No. of disciplinary actions taken against staff/workmen				
14) Man-days lost due to accidents				
15) LTA Free man-hours i.e. LTA free man-hours counted from the Last LTA (enter date: )				
16) Frequency Rate (No. of LTA per 2 lacs man-hours worked)				
17) Severity Rate (No. of man days lost per 2 lacs man-hours worked)				
18) Loss Time Injury Frequency (No. of LTI per 2 lacs man-hours worked)				
19) No. of activities for which HIRAC completed				
20) No. of incentives/ awards given				
21) No. of occasions on which penalty imposed by				

Engineer in charge / Employer			
22) No. of Audits conducted			
23) No. of pending NCs in above Audits			
24) Compensation cases raised with Insurance			
25) Compensation cases resolved and paid to workmen			
26) No of Vehicular Accident cases			
27) No of fire/Explosion cases			
28) Whether workmen compensation policy taken		Yes	No
29) Whether workmen compensation policy is valid		Yes	No
30) Whether workmen registered under ESI Act, as applicable		Yes	No
31) Whether HIRAC Register prepared and updated		Yes	No
32) Whether Environment Aspect Impact Register prepared and updated		Yes	No
33) Whether Legal Register prepared and updated		Yes	No
Remarks, if any			

Date: Prepared by Safety Officer  
(Signature and Name)

Approved by Site Head / Resident Construction Manager  
(Signature and Name)

**PERMIT FOR WORKING AT HEIGHTS (ABOVE 2.0 METER)**

Permit No. ....Name of Main Contractor .....  
 Name of work executing agency / sub agency / vendor: .....  
 Date ..... Exact Location of work .....  
 Nature of work .....Duration of work (from) ..... (to) .....  
 Number of workers covered within this permit .....  
 (List enclosed with name & gate pass numbers.)

Sl. No.	Items / Subjects	Status of compliance (Yes / No)	
1	Work areas / Equipments inspected		
2	Work area cordoned off		
3	Adequate lighting is provided		
4	Precautions against public traffic taken		
5	Concerned persons in & around have been alerted & cautioned		
6	Hazards / risks involved in routine / non-routine task assessed and control measures have been implemented at specific task		
7	ELCB provided for electrical connection & found working		
8	Ladder safely attached / fixed		
9	Scaffoldings are checked and TAGs are found used correctly		
10	Working platforms are provided and are found sound /safe for use		
11	Safe access & egress arrangements (e.g. ladders, fall arresters, life-lines etc.) are satisfactorily incorporated		
12	a. Openings on platform / floors are effectively cordoned /covered		
	b. Safety Nets are provided wherever required		
13	Use of following safety gadgets by people working at area under this permit, is checked and found satisfactory - Safety helmet Safety harness (full body) with double lanyard Safety Shoes Safety Gloves Safety Goggles		
14	Housekeeping of work area found satisfactorily tidy / clean & clear		
15	Adequate measures have been taken for works being continued at the ground level, when simultaneous works are permitted overhead at that very location.		
16	Materials are not thrown from heights on to ground		
17	Medical examination of workers are made & found satisfactory		
18	Responsible job engineer / supervisor found physically present at work spot for overall administration of work as well as safety of people.		

Above items have been checked & compliance has been found in place. Hence work is permitted to start / continue at the above-mentioned location. Work shall not start till identified lapses are rectified.

Additional Precautions, if any .....  
.....

Work Permit issued by Contractor Engineer/RCM	Verification By Contractor Safety Officer
--	--

AT THE END OF THE DAY/WORK:  
All works at height are completed & workmen have returned safely from work location at (time)..... (date) .....

(Sig. Contractor Engineer)



### CONFINED SPACE ENTRY PERMIT

Project site \_\_\_\_\_ Name of the work \_\_\_\_\_

Name of Contractor \_\_\_\_\_ Exact location of work \_\_\_\_\_ Sr. No. \_\_\_\_\_

Date \_\_\_\_\_ Nature of work \_\_\_\_\_

#### Safety Requirements POSITIVE ISOLATION OF THE VESSEL IS MANDATORY

#### (A) Has the equipment been ?

Y	NR		Y	NR		Y	NR	
<input type="checkbox"/>	<input type="checkbox"/>	Isolated from	<input type="checkbox"/>	<input type="checkbox"/>	water flushed &/or	<input type="checkbox"/>	<input type="checkbox"/>	radiation sources
<input type="checkbox"/>	<input type="checkbox"/>	power/steam/air	<input type="checkbox"/>	<input type="checkbox"/>	steamed	<input type="checkbox"/>	<input type="checkbox"/>	removed
<input type="checkbox"/>	<input type="checkbox"/>	isolated from liquid or	<input type="checkbox"/>	<input type="checkbox"/>	Man ways open &	<input type="checkbox"/>	<input type="checkbox"/>	proper lighting
<input type="checkbox"/>	<input type="checkbox"/>	gases	<input type="checkbox"/>	<input type="checkbox"/>	ventilated	<input type="checkbox"/>	<input type="checkbox"/>	provided
<input type="checkbox"/>	<input type="checkbox"/>	depressurized &/or	<input type="checkbox"/>	<input type="checkbox"/>	cont. inert gas flow	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	drained	<input type="checkbox"/>	<input type="checkbox"/>	arranged	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	blanked/ blinded/	<input type="checkbox"/>	<input type="checkbox"/>	adequately cooled	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	disconnected						

#### (B) Expected Residual Hazards

<input type="checkbox"/>	<input type="checkbox"/>	lack of O <sub>2</sub>	<input type="checkbox"/>	<input type="checkbox"/>	combustible gas/ liquid	<input type="checkbox"/>	<input type="checkbox"/>	H <sub>2</sub> S / toxic gases
<input type="checkbox"/>	<input type="checkbox"/>	corrosive chemicals	<input type="checkbox"/>	<input type="checkbox"/>	pyrophoric iron /	<input type="checkbox"/>	<input type="checkbox"/>	electricity / static
<input type="checkbox"/>	<input type="checkbox"/>	heat/ steam / frost	<input type="checkbox"/>	<input type="checkbox"/>	scales	<input type="checkbox"/>	<input type="checkbox"/>	ionizing radiation
<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	high humidity	<input type="checkbox"/>	<input type="checkbox"/>	

#### (C) Protection Measures

<input type="checkbox"/>	<input type="checkbox"/>	gloves	<input type="checkbox"/>	<input type="checkbox"/>	ear plug / muff	<input type="checkbox"/>	<input type="checkbox"/>	goggles / face
<input type="checkbox"/>	<input type="checkbox"/>	protective clothing	<input type="checkbox"/>	<input type="checkbox"/>	dust / gas / airline	<input type="checkbox"/>	<input type="checkbox"/>	shield personal gas
<input type="checkbox"/>	<input type="checkbox"/>	grounded air	<input type="checkbox"/>	<input type="checkbox"/>	mask attendant with	<input type="checkbox"/>	<input type="checkbox"/>	alarm rescue
<input type="checkbox"/>	<input type="checkbox"/>	duct/blower	<input type="checkbox"/>	<input type="checkbox"/>	SCBA/air mask	<input type="checkbox"/>	<input type="checkbox"/>	equipment/team
<input type="checkbox"/>	<input type="checkbox"/>	/AC	<input type="checkbox"/>	<input type="checkbox"/>	safety harness &	<input type="checkbox"/>	<input type="checkbox"/>	communication
<input type="checkbox"/>	<input type="checkbox"/>	Firefighting	<input type="checkbox"/>	<input type="checkbox"/>	lifeline	<input type="checkbox"/>	<input type="checkbox"/>	equipment
<input type="checkbox"/>	<input type="checkbox"/>	arrangements	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	

Authorization / Renewal (It is safe to enter the confined space)

	No. of persons allowed	Name of persons allowed	Signature		Time		Signature
			Contractor's Supervisor	Contractor's Safety Officer	From	To	Workman

**Permit Closure :**

(A) Entry      ☐ was closed      ☐ stopped      ☐ will continue on ...

(B) ☐ Site left in a safe condition ☐ Housekeeping done

(C) Multilock ☐ removed      ☐ key transferred

☐ Ensured all men have come out ☐ Man-ways barricaded

Remarks, if any:

**DEMOLISHING/DISMANTLING WORK PERMIT**

Project : Sr. No. :  
 Name of the work : Date :  
 Name of contractor : Job No.:

Name of sub-contractor: No. of workers to be engaged:  
*(List enclosed with name & gate pass numbers.)*

Line No./ Equipment No./ Structure to be dismantled :

Location details of dismantling/ demolition with sketch : (clearly indicate the area)

S. No.

The following items have been checked & compliance shall be ensured during currency of the permit:

Item description	Done	Not Applicable
Services like power, gas supply, water, etc. disconnected	<input type="checkbox"/>	<input type="checkbox"/>
Dismantling/ Demolishing method reviewed &	<input type="checkbox"/>	<input type="checkbox"/>
approved Usage of appropriate PPEs ensured	<input type="checkbox"/>	<input type="checkbox"/>
Precautions taken for neighboring	<input type="checkbox"/>	<input type="checkbox"/>
structures First-Aid arrangements	<input type="checkbox"/>	<input type="checkbox"/>
made	<input type="checkbox"/>	<input type="checkbox"/>
Fire fighting arrangements ensured		
Precautions taken for blasting	<input type="checkbox"/>	<input type="checkbox"/>

(Contractor's Supervisor)

(Contractor's Safety Officer)

Permission is granted.

(Permit issuing authority-Client)

Name :  
 Date :

Completion report:

Dismantling/ Demolishing is completed on \_\_\_\_\_ Date at \_\_\_\_ Hrs.

Materials/ debris transported to identified location ☐

Tagging completed (as applicable) ☐

Services like power, gas supply, water, etc. ☐

restored (Permit issuing authority-Client)

CONTRACTOR's NAME

# HOUSEKEEPING ASSESSMENT& COMPLIANCE

(Sheet 1 of 2)

Project :  
 Name of the work :  
 Name of contractor :  
 Name of contractor : Fortnightly

Sr. No. :  
 Date :  
 Job No. :

Sl. No.	Subjects of Review	Satisfactory/ Yes	Non satisfactory / No	Remarks	Action
1.	Cleanliness at the Main entry / access of site				
2.	Ground condition / floor areas free from water- logging / oil spillage				
3.	Ground & elevated floors free from rubbish / wastes / accumulated debris / scraps.				
4.	Manholes / openings are covered / fenced				
5.	Trenches are barricaded / walkways are in place				
6.	Drains are cleaned / not choked / not occupied by dumped materials				
7.	Sufficient CAUTION boards / instructions displayed				
8.	Construction machinery are maintained & parked in orderly manner.				
9.	Movement of site people are not obstructed because of dumping / storing of construction materials				
10.	Access / egress to Electrical Distribution Boards / Panels clear from wires / cables / earth-strips etc.				
11.	Electrical panel rooms / sheds / MCC / Control rooms / Substations etc. are clean & tidy and not used for storing dress / clothes, tiffin-box or bicycles.				
12.	Passage behind Elec. panels are free for access				
13.	Fire extinguishers / fire-buckets are accessible without any difficulty.				
14.	Stair-steps, platforms & landings are clear & tidy				
15.	Sheds / rooms & work areas have got sufficient illumination as well as ventilation				
16.	Cables / Wires / welding leads are routed / hanged appropriately & are not creating unsafe condition.				
17.	Stacking / storing of insulation materials or their packing.				
18.	Removal or cleanliness of left-over sand, concrete, brick-bats, insulation-materials, excess earth, wastes etc.				
19.	Storing / stacking of sand, metal chips, re-bars, steel pipes, valves, fittings etc.				
20.	One escape route at ground & minimum two escape routes at elevation available,				

(Sheet 2 of 2)

Sl. No.	Subjects of Review	Satisfactory/ Yes	Non satisfactory/ No	Remarks	Action
21.	Captions / Posters / Slogans on various safety instructions are displayed legibly in local language				
22.	Cable trenches are water-free or regular arrangement for taking out accumulated water exists.				
23.	Windows of rooms / offices are regularly Cleaned				
24.	Facilities for cycle sheds, drinking water, washing, rest-rooms etc. are maintained in tidy manner.				
25.	Toilet, Urinals, Canteen / kitchen / pantry etc. are maintained & free from obnoxious smell.				
26.	Construction tools / tackles are stored systematically - the items are tagged / tested / certified by competent third party.				
27.	Sufficient numbers of Dust-bins / Waste-bins found at site and are regularly emptied.				

Additional remarks, if any -

.....  
 .....  
 .....

Inspected by  
Contractor Engineer

Verification By  
Contractor Safety Officer

FORMAT NO. : HSE-13 REV 0

### INSPECTION FOR SCAFFOLDING

Project : Sr. No. :  
Name of the work : Date :  
Name of contractor : Job No.:

(Sheet 1 of 2)

Sl. No	Description	Yes	No	N.A	Actions taken
1	Whether work permit is obtained to take up work at height above 1.5 Mts?				
2	Whether atmospheric condition is "stormy" or "raining" and works at heights have been permitted?				
3	Whether steel pipes scaffoldings are used for units /off-site areas?				
4	Whether scaffolding has been erected on rigid/firm/leveled surfaces / ground? Whether "foot-seals" or "base-plates" are used beneath the up-rights (vertical steel pipes)				
5	Whether scaffold construction is as per IS specification with toe-board and hand-rails (top-rail as well as mid-rail)?				
6	Whether distance between two successive up-rights are less than 2.5 Mts (height of scaffold & load carrying capacity governs the distance between two uprights)				
7	Whether all uprights are extended at least 900 mm above the top most working platform (to enable fitting of handrails)?				
8	Whether vertical distance of two successive ledgers is satisfactory? ( <i>varying between 1.3 Mts. To 2.1 Mts</i> )				
9	Whether the peripheral areas of working at height are cordoned-off? (for avoiding accident to people arising out of dropped / deflected materials)				
10	Whether platform is provided? Is it safely approachable?				
11	Whether end of scaffold platform / board are extended beyond transoms? (125mm to 150 mm)				
12	Whether CE / IS approved quality and worthy conditioned full-body safety harness (with double lanyard & karabiners) are used while working at heights?				
13	Whether life-line of safety harness is anchored to an independent secured support capable of withstanding load of a falling person?				
14	Whether the area around the scaffold is cordoned off to prohibit the entry of unauthorized person / vehicle?				
15	Whether clamps used are of good condition, of adequate strength and free from defects?				
16	Whether ladder is placed at secured and leveled surface?				
17	Whether water-pass and oil-spills are avoided around the scaffold structure?				
18	Whether ladder is extended 1.5mts. above the landing point at height?				
19	Whether more than one access/egress provided to the scaffold?				
20	Whether ladder used are of adequate length and overlapping of short ladders avoided?				
21	Whether metallic ladders are placed much away from near-by electrical				

	transmission line?				
22	Whether rungs of ladder are inspected and found in good order?				
23	Whether fall-arresters provided on both the access/egress routes?				
24	Whether diagonal (cross) bracings are provided at regular interval on the scaffold?				
25	Whether working platform on the scaffold has been made free from "jolt" or "gap"?				
26	Whether tools or materials are removed after completion of the day's job at heights?				
27	Whether a valid Permit for Work (PFW) is obtained before taking up work over asbestos or fragile roof?				
28	Whether sufficient precaution is taken while working on fragile roof?				



(Sheet 2 of 2)

Sl. No	Description	Yes	No	N. A	Actions taken
29	Whether provision is made to arrange duck ladder, crawling board for working on fragile roof?				
30	Whether scaffold has been inspected by qualified civil engineers prior to their use?				
31	Whether the scaffolding has been designed for the load to be borne by the same?				
32	Whether the erection and dismantling of the scaffolding is being done by trained persons and under adequate supervision?				
33	Whether safety net with proper working arrangement and life-line has been provided?				
34	Whether TAGS (Green for acceptable and Red for incomplete/unsafe scaffolds) are used on scaffolds?				
35	Whether sufficient illumination is provided in and around the scaffold and access?				
36	Whether emergency rescue / response arrangements are made in place				

Inspected by  
Contractor Engineer

Verification By  
Contractor Safety Officer

(sheet 1 of 2)

**PERMIT FOR ERECTION / MODIFICATION & DISMANTLING OF SCAFFOLDING**

Project : Sr. No. :  
 Name of the work : Date :  
 Name of contractor : Job No.:  
 Nature of activities : Duration: From.....To.....

SL. No.	SUBJECTS / ITEMS	DONE	NOT DONE	REMARKS
1	Specific task of Erection / Modification / Dismantling of scaffolds, identified & TAGGED accordingly (before as well as after carrying-out jobs).			
2	People engaged in doing the job are identified & are certified by Job Engineer of Main Contractor as experienced / trained.			Names to be noted
3	Concerned persons are alerted by the Job Engineer of Main Contractor in connection with possible hazards & what the workmen MUST do / MUST not do.			
4	Verification by Job Engineer of Main Contractor made for confirming that all persons permitted to carry-out the jobs are making use of Helmet, Safety Shoes, Goggles, Gloves & Double lanyard safety harness and other relevant PPEs.			
5	Area of work is effectively cordoned-off / barricaded / illuminated.			
6	For taking-up / lowering down Scaffolding members / clamps / couplings etc. appropriate ropes / pulleys/ chains etc. have been arranged for use (not to throw any item) & the same have been verified as "fit for purpose".			
7	Items / members of scaffold, being lowered are removed from the area & stacked correctly.			
8	Ropes, chains, pulley blocks etc. being used for lifting or lowering scaffold items, are inspected by the Job Engineer & their certifications as well as physical conditions have been found O.K, before signing this PERMIT.			
9	Safety Net / Life-line / Fall Arresters etc. are arranged in position and Job Engineer has found working conditions favorable for activities to start.			
10	Scaffold erection or dismantling tasks are being supervised by Experienced Engineer / Competent person.			
11	Only competent & experienced people have been selected / engaged in Scaffolding erection, modification or dismantling tasks.			
12	Adequate & effective actions for traffic and movement of people around the cordoned-off area taken to avoid inadvertent incident			

13	Working platforms are protected with handrails & toe-boards.			
14	Access & Exit (for reach & escape) are safe for use by people.			
15	Tools, tackles to be used for above jobs are verified by job Engineers of Main contractor as genuinely good and tied-up at height (to prevent their fall).			
16	Site important Telephone Nos. are made known to everyone			
17	SOP (Safe Operating Procedure) for the specific task is made & followed too.			
18	Emergency vehicle has been arranged at work locations.			

- This permit for work shall be available at specific work location all the time.
- After completion of work, permit shall be returned to safety cell of main contractor, without fail.
- This Permit shall be issued maximum upto (Monday to Sunday).
- Additional Precautions, if any
- .....  
**ACCORD OF PERMISSION** (to be ticked) - **YES** (     ) / **NO** (     )

Inspected by  
Contractor Engineer

Verification By  
Contractor Safety Officer]

FORMAT NO. : HSE-14 REV 0  
(sheet 2 of 2)

Everyday Site working conditions & performance of workmen shall be assessed / checked by Contractor Site Engr. and Safety Officer shall verify the same.

	Name / Sign.	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
Site Engr.								
Safety Off.								

**PERMIT FOR EXCAVATION**

(depth 2m and above)

Project :  
Name of the work :  
Name of contractor :  
Job Description :  
Size of excavation :

Sr. No. :  
Date :  
Job No.:  
Location:

(Sheet 1 of 2)

SL. NO.	Description of Item	COMPLIANCE STATUS			Remarks
		Yes	No	Not applicable	
1)	Suitable and sufficient risk assessments and method statements has been carried to ensure that the work shall be undertaken in accordance with specification and standard.				
2)	Are plans/details of underground services available and the same has been reviewed?				
3)	Has survey done to locate the services/obstacles etc.				
4)	Has the live services (electrical, water line, air line, telephone line, etc.) has been disabled for carrying out the job.				
5)	Is adequate barriers/fences to protect the excavation are in place?				
6)	Is Adequate warning signs are in place?				
7)	Is Assessment of ground conditions done and remedial action (if any) taken?				
8)	Safe access / egress (e.g. ramp / steps / ladders etc.) provided for site workmen & supervisors.				
9)	Is the excavation work being undertaken in proximity of structure, etc.? If Yes, its effect is considered?				
10)	Availability of competent person for supervising the excavation work?				
11)	Adequate safe arrangement to prevent collapse of edges (e.g. shoring / strutting / benching / sloping etc.) made at site.				
12)	Hard barricades (at least 1.0M away from edge & for excavation near site access roads) with warning signs/caution boards are provided				
13)	Accumulation / passage-ways of water at periphery of excavation / trench stopped/ restricted.				
14)	Is the equipment being used for excavation has been checked for adequacy and is in good working condition having all the safety features?				
15)	Age & fitness of workmen ensured by medical test before engagement in job ?				
16)	Arrangement of Monitoring of possible oxygen deficiency or obnoxious gases done & action taken?				

**PERMIT GRANTED -** Yes / No  
(List enclosed with name & gate pass numbers.)

Name & Signature of Site Engr.

Name & Signature of Area – In charge/RCM of

Contractor (Initiator)

Contractor (Issuing

authority) Verification by Contractor Safety Officer

**NOTES: -**

1. Slopes or benches for excavation beyond 2.0M depth shall be designed & approved by Contractor's site head.
2. Excavated earth to be kept at least 1.5M away from edges
3. Safety helmets, Safety shoes or gum-boots, gloves, goggles, Face shield, Safety Harness shall be essential PPEs.
4. Permit shall be made in **duplicate** and original shall be available at site of work.
5. Permit shall be issued for maximum **one week** only (Monday to Sunday)
6. After completion of works, permit shall be closed & preserved for record purpose

**GRANT OF PERMIT AND EXTENSIONS**

Sl. No.	Validity period From To	Working Time From To	Initiator (site Engr. of Main Contractor)	Issuing authority (Area In charge / RCM of Main Contractor)	Review by Engineer in Charge/ Employer (Remarks with date)
1.					
2.					
3.					
4.					
5.					
6.					
7.					

Additional safety instructions if any: - 1.

2.

3.

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**Inspection of Tower Crane**


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**Name of Contractor:****Project:****Name of Work:****Job No:****Vehicle Identification/Registration No:****Date:**

Sr. No.	Description	Observation	Remarks & Suggestions
1	Serial number plate & SWL marking		
2	Valid TPI Certificate		
3	Valid Insurance		
4	Safe access and egress are provided to the crane operator.		
5	Front glass of Operator cabin		
6	Operator crane cabin is provided with a locking mechanism so as to prevent unauthorised entry.		
7	A safety bar is fitted across the operator's cabin window where there is likelihood of the operator falling through it.		
8	Manufacturer Operating Manual and Maintenance Manual are made available.		
9	An updated Operation and Maintenance log book is available in the operator cabin.		
10	All mounting bolts are in good condition.		
11	Load chart provided		
12	SLI available		
13	Crane hooks have got smooth surface and no dent		
14	Hook-latch / Dog-clamp in hook is effective		
15	Over hoist limit switch		
16	Double body earthing of Tower Crane		
17	Jib angle indicator is provided (For Luffing Jib Tower Crane).		
18	Emergency stop button, which will terminate the operation of the crane engine, is installed in the operator cabin and correctly identified.		
19	Effective braking mechanisms for Hoisting, Derricking, Slewing, Trolley Travelling maintained:		
20	Trolley Travelling limiter to prevent over-travelling of trolley is functional.		

21	Limit switches to prevent over-derricking and over-lowering of jib (For Luffing Jib Tower Crane) is functional.		
22	Slewing limiter to restrict slewing of crane is functional.		
23	Over load Limiter to prevent overloading of crane is functional.		
24	Load Moment Limiter to prevent over-turning moment is functional.		
25	Anti-collision devices are tested to stop the tower crane's operation such that the crane-to-crane interference must be maintained at not less than 3 m.		
26	Condition of boom		
27	Counter weight placement and pins		
28	Winches, pulleys and wire ropes are in good working condition.		
29	Colour coding		
30	Leakage in hydraulic cylinder		
31	Fire Extinguisher		
32	Tower crane is adequately grounded or protected against lightning.		
33	Wind anemometer is installed and is in good working condition.		
34	Aviation lamp is functional (Reqd. for 30mt and above)		
35	Pre Medical Check-up& Periodic Medical check-up (every 6 months) including vision test for Operator		
36	Safety Induction for Operator		
37	Others		

**Signature & Name of Operator:**

**Signature and name of Job Engineer**

**Signature & Name of Contractor's Safety Officer**



**Crane Inspection Checklist**

**Name of Contractor:**

**Project:**

**Name of Work:**

**Job No:**

**Vehicle Identification/Registration No:**

**Date:**

Sr. No.	Description	Observation	Remarks & Suggestions
1	Crane hooks have got smooth surface and no dent		
2	Hook-latch / Dog-clamp in hook is effective		
3	Over hoist limit switch		
4	Over Load Indicator		
5	Over Boom limit switch		
6	Boom angle indicator		
7	Colour coding		
8	Condition of boom		
9	Condition of wire rope		
10	Rope drum / sheaves are in good working condition		
11	Swing break & lock		
12	Swing Alarm		
13	Over hoist break & lock		
14	Boom break & lock (For Telescopic Boom)		
15	Leakage in hydraulic cylinder		
16	Condition of Outrigger (For Tyre Mounted Crane)		
17	Outrigger fully extended Marking (For Tyre Mounted Crane)		
18	Condition of Tyre (For Tyre Mounted Crane)		
19	Wheel chokes are present and are used whenever required (For Tyre mounted)		
20	Battery & lamps		
21	Moving & rotating parts guarded		
22	Load chart provided		
23	Reverse horn (For Tyre Mounted Crane)		
24	Body Condition of crane		
25	Front glass of Operator cabin		

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26	Both side Mirror		
27	Number Plate (For Tyre Mounted Crane)		
28	Fire Extinguisher		
29	Horn		
30	Windshield and wipers		
31	Working of light & Indicator		
32	SLI		
33	Spark Arrestor( For Running Refinery/ Petrochemical/Chemical Plant)		
34	Foot-steps and hand-holds are in good working condition for exit /enter in to cabin		
35	TPI Certificate		
36	RC Document (For Tyre Mounted Crane)		
37	Fitness Certificate of Vehicle by authority		
38	Insurance		
39	PUC		
40	HMV License for Operator		
41	Pre Medical Check-up& Periodic Medical check- up (every 6 months) including vision test for Operator		
42	Safety Induction for Operator		
43	Others		

**Signature & Name of Operator:**

**Signature & Name of Contractor's Concern Engineer**

**Signature & Name of Contractor's  
Safety Officer**

**FORMAT NO. : HSE-22 REV 0**

**Hydra Crane Inspection Checklist**

**Name of Contractor:**

**Project:**

**Name of Work:**

**Job No:**

**Vehicle Identification/Registration No:**

**Date:**

Sr. No.	Description	Observation	Remarks & Suggestions
1	Identification number of Hydra crane boldly scribed in front and rear end of machine		
2	Hydra Operator has got adequate document in support of his competency (i.e. HMV driving license, knowledge & training)		
3	Marking of SWL on hook position is clearly visible		
4	Test & examination of Hydra crane by statutory / competent authority is carried out & document is valid		
5	Colour Coding		
6	RC Document		
7	Fitness Certificate of Vehicle by authority		
8	Valid Insurance		
9	Valid PUC		
10	Pre Medical Check-up& Periodic Medical check-up (every 6 months) including vision test for Operator		
11	Safety Induction for Operator		
12	Crane hooks have got smooth surface and no dent		
13	Hook-latch / Dog-clamp in hook is effective		
14	Over hoist limit switch		
15	Over Load Indicator		
16	SLI		
17	Condition of boom		
18	Condition of wire rope		
19	Rope drum / sheaves are in good working condition		
20	Leakage in hydraulic cylinder		
21	Tyre condition		
22	Battery		

23	Moving & rotating parts guarded		
24	Break		
25	Parking Break		
26	Front horn		
27	Reverse horn		
28	Hydra cabin body and frame of machine is in good order		
29	Both side Mirror		
30	Fire Extinguisher		
31	Front glass pane of the Hydra operator's cabin is clean & clear (i.e. not cracked / damaged / broken)		
32	Windshield and wipers condition		
33	Working of front & back lights, turn Indicators, parking lights & fog lamps		
34	Spark Arrestor (For Running Refinery/ Petrochemical/ Chemical Plant)		
35	Wheel chokes are present and are used whenever required		
36	Foot-steps and hand-holds are in good working condition for exit /enter in to cabin		
37	Others		

**Signature & Name of Operator**

**Signature & Name of  
Contractor's Concern  
Engineer**

**Signature & Name of Contractor's Safety Officer**

**FORMAT NO. : HSE-23 REV 0**

**Hydraulic Rig Inspection Checklist**

**Name of Contractor:**

**Project:**

**Name of Work:**

**Job No:**

**Vehicle Identification/Registration No:**

**Date:**

<b>Sr. No.</b>	<b>Description</b>	<b>Observation</b>	<b>Remarks &amp; Suggestions</b>
1	Control panel is clean & all buttons/switches are clearly visible (no paint over spray, etc.)		
2	All switch & mechanical guards are in good condition and properly installed		
3	All Safety Indicator lights work		
4	Drive controls function properly & accurately labelled (up, down, right, left, forward, back)		
5	Motion alarms are functional		
6	Safety decals are in place and readable		
7	Any defects such as cracked welds, fuel leaks, hydraulic leaks, damaged control cables or wire harness, etc.		
8	Braking devices are operating properly		
9	Winches, pulleys and wire ropes are in good working condition.		
10	Function of interlocks and limit switch		
11	The manufacturer's operations manual (in all languages of the operators)		
12	Oil level, Hydraulic Oil Level, Fuel Level, Coolant Level		
13	Battery Charge		
14	Outriggers in place or functioning. Associated alarms working		
15	Moving & rotating parts guarded		
16	Load chart provided		
17	Fire Extinguisher		
18	Spark Arrestor, if operated by using fuel ( For Running Refinery/ Petrochemical/ Chemical Plant)		

19	Serial number plate		
20	SLI		
21	TPI Certificate		
22	Colour Coding		
23	Insurance		
24	Pre-Medical Check-up & Periodic Medical check-up (every 6 months) including vision test for Operator		
25	Safety Induction for Operator		
26	Others		

**Signature & Name of Operator:**

**Signature & Name of Contractor's Concern Engineer**

**Signature & Name of Contractor's Safety Officer**

**Boom Lift Inspection Checklist****Name of Contractor:****Project:****Name of Work:****Job No:****Vehicle Identification/Registration No:****Date:**

<b>Sr. No.</b>	<b>Description</b>	<b>Observation</b>	<b>Remarks &amp; Suggestions</b>
1	Operating and emergency controls are in proper working condition, EMO button or Emergency Stop Device		
2	Functional upper drive control interlock (i.e. foot pedal, spring lock, or two hand controls)		
3	Emergency Lowering function operates properly		
4	Lower operating controls successfully override the upper controls		
5	Both upper and lower controls are adequately protected from inadvertent operation.		
6	Control panel is clean & all buttons/switches are clearly visible (no paint over spray, etc.)		
7	All switch & mechanical guards are in good condition and properly installed		
8	All Safety Indicator lights work		
9	Drive controls function properly & accurately labelled (up, down, right, left, forward, back)		
10	Motion alarms are functional		
11	Safety decals are in place and readable		
12	Guardrails and anchor points are in place, and in good condition		
13	Work platform & extension slides are clean, dry, & clear of debris		
14	Work platform extension slides in and out freely with safety locking pins in place to lock setting on models with extension platforms.		
15	Any defects such as cracked welds, fuel leaks, hydraulic leaks, damaged control cables or wire harness, etc.		
16	Braking devices are operating properly		
17	The manufacturer's operations manual is stored on AWP (in all languages of the operators)		
18	Oil level, Hydraulic Oil Level, Fuel Level, Coolant Level		
19	Battery Charge		

20	Outriggers in place or functioning. Associated alarms working		
21	Tyres and wheels are in good condition, with adequate air pressure if pneumatic		
22	Wheel chokes are present and are used whenever required		
23	Moving & rotating parts guarded		
24	Load chart provided		
25	Fire Extinguisher		
26	Spark Arrestor, if operated by using fuel (For Running Refinery/ Petrochemical/ Chemical Plant)		
27	Serial number plate with Load capacity		
28	TPI Certificate		
29	Colour Coding		
30	Insurance		
31	Pre-Medical Check-up& Periodic Medical check-up (every 6 months) including vision test for Operator		
32	Safety Induction for Operator		
33	Others		

**Signature & Name of Operator:**

**Signature & Name of Contractor's Concern Engineer**



**Annexure- X**  
**(Special Conditions of Contract)**

**Additional Special Conditions of Contract**

- (i) The guidelines of NGT, Environment department and local administration issued from time to time will be strictly followed by contractor.
- (ii) **Protection of installed / New works:** Protection of floors, glass, sanitaryware's etc and all other installed works should be protected at all times and damage to the installed works shall be rectified by contractor at his own cost and nothing extra shall be paid on this account. Protection of new work like floor protection by bubble wrap/PVC sheet etc. shall be included in quoted price nothing extra shall be paid on this behalf.
- (iii) **Bio Toilets and its expenses:** Bio toilets shall be installed at site with the prior approval of Engineer in Charge and excreta generated shall be disposed of at designated location suggested by Engineer in Charge. No payment shall be done on this account.
- (iv) **Debris / material Lying at site:** Site shall be cleaned before commencement of the works and all debris / material lying at site shall be disposed off from the site at designated location (inside/outside of project site) by the Engineer in Charge. Nothing shall be paid on this account. Any debris generated during the period of construction shall be disposed off by the contractor at his own risk and cost. Nothing extra shall be paid on this account. The debris shall not be thrown from the floors but shall be removed from trolleys/skip hoist/GI Chute and disposed off by mechanical transport outside the project as directed by the Engineer in charge. Nothing extra shall be paid for trolleys/skip hoist/GI Chute etc.
- (v) **Bush/Jungle cleaning:** Site shall be cleaned from bushes/jungle before commencement of the works and shall be disposed off from the site at designated location (inside/outside of project site) by the Engineer in charge. Nothing extra shall be paid on this account.
- (vi) **Water accumulated** at site shall be pumped out before commencement of works and shall be disposed of from site as per direction of Engineer in Charge.
- (vii) **The rate shall hold good for all heights, depths, leads, lift etc.** including the cost of scaffolding nothing extra shall be paid on any account.
- (viii) **Treatment of Reinforcement Bars at stockyard:** In addition to CPWD specification, reinforcement stacked at stockyard or designated location shall be treated as by anti-corrosive chemical treatment as per reputed manufacturer specification. Nothing extra shall be paid on this account.
- (ix) **Joint Measurement Record:** Joint measurement record shall be signed off before commencement of works along with backed up measurements, photos etc. and shall be signed off by Engineer in Charge.
- (x) **Testing and approval of Fire door** along with all hardware and accessories shall be

done by the contractor, all related cost shall be included in quoted price nothing extra shall be paid on this behalf.

- (xi) All packing/fillings of gaps at masonry between RCC slab/beam/wall/columns, sleeves, pipe openings, chase cut for electrical, plumbing, HVAC works etc. for left out works and works to be executed in future shall be completed as per instructions and directions of Engineer in Charge. All related cost shall be included in rate, nothing extra shall be paid on account.
- (xii) Contractor shall ensure below mentioned financial progress with respect to time

<b>Sr. No.</b>	<b>Cumulative Time duration</b>	<b>Cumulative Financial Progress</b>	<b>Amount to be withheld in case of non-achievement of milestone</b>
1	On completion of 33% Time	35%	16 lacs
2	On completion of 66% Time	70%	16 lacs
3	On completion of 90% Time	90%	10 lacs
4	On completion of 100% Time	100%	5 lacs

## INDEX

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<b>Name of Work:</b>	<b>Balance Work for Civil, Structure, Finishing, MEP Works, External Development &amp; External Services for AIR 1 at Uniworld City, Kolkata, (West Bengal)</b>
<b>Title</b>	<b>Technical Specifications</b>

## **1.0 GENERAL**

The work in general shall be executed as per the description of the item, specifications attached and CPWD Specifications (Latest version). Wherever any reference to any Indian Standard Specifications is made in the document relating to this contract, the same shall be inclusive of all amendments issued there to or revision thereof, if any, up to the date of receipt of tender. The rates quoted by the contractor shall be inclusive of all items, included in these specifications and special conditions and nothing extra shall be payable whatsoever unless otherwise specified.

However, wherever required by Engineer in charge, the contractor shall submit a detailed methodology for execution of the specific work and shall get the same approved before the start of that specific work.

For the specialized works contractor shall engage specialized agencies with prior approval of Engineer-In-Charge.

Wherever it is mentioned “at all levels” in Schedule of Rates/ Technical Specifications for any item, the same shall be considered for “at all heights” irrespective of height of the structural element viz. Columns, Walls, Retaining walls etc. Contractor to quote his rates accordingly and nothing extra shall be paid on this account.

Where CPWD specifications are not available, the work shall be carried out with prior approval of Engineer in charge.

## **2.0 CARRIAGE OF MATERIAL**

The work shall be carried out as per CPWD specifications, Vol. -1, Sub-head No - 1.

## **3.0 EARTHWORK**

The work shall be carried out as per CPWD specifications, Vol. -1, Sub-head No - 2.

## **4.0 MORTAR**

The work shall be carried out as per CPWD specifications, Vol. -1, Sub-head No - 3.

## **5.0 CONCRETE WORK**

The work shall be carried out as per CPWD specifications, Vol. -1, Sub-head No - 4.

## **6.0 REINFORCED CEMENT CONCRETE WORK**

The work shall be carried out as per CPWD specifications, Vol. -1, Sub-head No - 5.

## **7.0 MASONARY WORK**

The work shall be carried out as per CPWD specifications, Vol. -1, Sub-head No - 6.

## **8.0 STONE WORK**

The work shall be carried out as per CPWD specifications, Vol. -1, Sub-head No - 7.

## **9.0 CLADDING WORK**

The work shall be carried out as per CPWD specifications, Vol. -1, Sub-head No - 8.

## **10.0 WOOD WORK**

**Name of Work:** **Balance Work for Civil, Structure, Finishing, MEP Works, External Development & External Services for AIR 1 at Uniworld City, Kolkata, (West Bengal)**  
**Title** **Technical Specifications**

The work shall be carried out as per CPWD specifications, Vol. -1, Sub-head No - 9.

**11.0 STEEL WORK**

The work shall be carried out as per CPWD specifications, Vol. -1, Sub-head No - 10.

**12.0 FLOORING WORK**

The work shall be carried out as per CPWD specifications, Vol. -1, Sub-head No - 11.

**13.0 ROOFING WORK**

The work shall be carried out as per CPWD specifications, Vol. -1, Sub-head No - 12.

**14.0 FINISHING WORKS**

The work shall be carried out as per CPWD specifications, Vol. -2, Sub-head No - 13.

**15.0 REPAIRS TO BUILDINGS**

The work shall be carried out as per CPWD specifications, Vol. -2, Sub-head No - 14.

**16.0 DISMANTLING AND DEMOLISHING**

The work shall be carried out as per CPWD specifications, Vol. -2, Sub-head No - 15.

**17.0 ROAD WORK**

The work shall be carried out as per CPWD specifications, Vol. -2, Sub-head No - 16.

**18.0 ALUMINIUM WORK**

The work shall be carried out as per CPWD specifications, Vol. -2, Sub-head No - 21.

**19.0 WATERPROOFING**

The work shall be carried out as per CPWD specifications, Vol. -2, Sub-head No - 22. In addition below specification shall be carried out

**General Notes**

1. Surface Requirement to do the effective waterproofing
2. All surfaces to be waterproofed should be made sound, clean and dry.
3. Concrete surfaces should have a light steel-trowel followed by a fine hair-broom or equivalent finish, which is dry and free of dust, oil and other contamination.
4. Sharp projection, moss and lichen must be removed physically.
5. Grouting periphery of spout pipes with water insensitive epoxy, pressure grouting of construction joints and honey comb areas with cement grout, proper preparation of the concrete surface by mechanical means / hydro blasting to ensure a good bond between the topping and the substrate.
6. Specialized agency to be approved by Client / who shall give Guarantee for 10 years for the Waterproofing works at site
7. Main Contractor shall give both material and performance guarantee for 10years in the format approved by Clients

**1. Waterproofing of Raft Slab /Isolated Footings, Lift Pits, Confined Retaining Walls (complying with BIS 16471:2017):**

<b>Name of Work:</b>	<b>Balance Work for Civil, Structure, Finishing, MEP Works, External Development &amp; External Services for AIR 1 at Uniworld City, Kolkata, (West Bengal)</b>
<b>Title</b>	<b>Technical Specifications</b>

Supplying & installing positive side waterproofing treatment for “Raft Slab/Isolated Footings/Stitch Slab/Base Slab” by using a 2mm thick, self-adhesive, cold applied, flexible waterproofing membrane, comprising of a self-adhesive rubberized asphalt with pre-laminated geotextile of 250 gsm for additional protection and bonding of protection layer. 2mm thick self-adhesive fully bonded membrane should be installed in strict accordance with the manufacturer's instructions and the contractor should produce a method statement from the manufacturer/supplier. The 2mm thick self-adhesive membrane, and shall have the following minimum properties:

- (i) Lap Adhesion: > 1600 N/M
- (ii) Thickness: 2mm
- (iii) Tear Resistance: > 400N
- (iv) Puncture Resistance: >900N

The self-adhesive membrane shall be applied as per the following procedure

- a) Clean the PCC surface free from dust with a brush. Remove any sharp protrusions on the PCC wall by chipping and local repairs.
- b) Apply solvent-based local primer on the PCC surface and allow to dry
- c) Roll out the membrane, cut it to manageable lengths and stick it to the surface by peeling off the release paper on the back of the membrane. Press membrane in place. Adjacent rolls to come on 75 mm overlaps lines on the membrane. Roll the laps and joints by hand roller. A fully bonded HDPE membrane is not considered as it requires a minimum concrete thickness of 300mm to bond to concrete whereas the stitch slab thickness

No Screed Protection Required for 2mm thick self-adhesive membrane as it's protected with geotextile allowing Faster Construction.

## **2. Waterproofing of Open Cut/ Open Dig / Un-Confined Retaining Wall (Complying to BIS 16471:2017):**

### **Option 1 (Pre-formed fully bonded self-adhesive membrane):**

Supplying & Installing 2mm thick self-adhesive, cold applied, flexible waterproofing membrane, comprising of a self-adhesive rubberized asphalt with pre-laminated geotextile of 250 gsm for additional protection and bonding of protection layer. The membrane should be installed in strict accordance with the manufacturer's instructions and the contractor should produce a method statement from the manufacturer/supplier. The self-adhesive membrane shall have the following minimum properties:

- (i) Lap Adhesion: > 800 N/M ;
- (ii) Thickness: 2mm;
- (iii) Tear Resistance: > 400N;
- (iv) Puncture Resistance: >9000N.

The self-adhesive membrane shall be applied as per the following procedure

- a) Clean the RCC surface free from dust with a brush. Remove any sharp protrusions on the RCC wall by chipping and local repairs.
- b) Apply solvent-based local primer on the surface and allow it to dry
- c) Roll out the membrane, cut it to manageable lengths and stick it to the surface by peeling off the release paper on the back of the membrane. Press membrane in place. Adjacent rolls to come on 50 mm overlaps lines on the membrane. Roll the laps and joints by hand roller.

### **Membrane Termination:**

<b>Name of Work:</b>	<b>Balance Work for Civil, Structure, Finishing, MEP Works, External Development &amp; External Services for AIR 1 at Uniworld City, Kolkata, (West Bengal)</b>
<b>Title</b>	<b>Technical Specifications</b>

Rates to include self-adhesive membrane Termination on retaining wall which includes providing a chase of (20 x 20) mm at a distance of 300 mm from ground level or 150 mm from podium/roof slab level for membrane termination. The self-adhesive membrane should be dressed into the chase and pointed with mortar or as approved by the supplier prior to backfilling. All systems to be installed as per supplier's recommendations, etc. complete with all lead and lift for all materials & labor & as directed by the Engineer in-charge.

#### **Retaining Wall Membrane Protection:**

Protection of membrane with Supply & spot bonding 7-8mm thick dimpled HDPE protection board, spot bonded onto the self-adhesive membrane with liquid mastic. and shall be applied prior to backfilling. The backfilling shall be done within 2-3 days of fixing the protection board.

#### **Waterproofing of Open Cut/ Open Dig / Un-Confined Retaining Wall (Complying to BIS 16471:2017):**

##### **Option 2 (Liquid Applied Post Formed fully bonded membrane):**

Providing and Applying waterproofing for retaining walls with a single component, eco-friendly, cold applied, non-tar, non-bitumen-based Polyisoprene based fully bonded liquid applied waterproofing system which can be applied on damp/wet substrate, by following methods as per the specifications listed below and testing of treatment as per the requirements.

**The first part** consists of all surface area should be cleaned up with wire brush & air blower. All surfaces to be waterproofed should be sound, clean, and dry. Concrete should be ideally 28 days old

**The second part** shall be supplying and applying a primer coat of single component polyisoprene on prepared RCC absorbent surfaces such as porous concrete that will require sealing to prevent absorption of waterproof coating. Single component polyisoprene can be diluted with water for penetration on the concrete surface as per the manufacturer's specifications and the system shall be such that it can be applied on damp/moist substrate so as to ensure that waterproofing work can be executed during all periods

**The third part** consists of providing and applying high performance, eco-friendly, water-based, no tar, no bitumen, cold applied single component polyisoprene waterproof coating, in three coats @ minimum consumption of 1.5 kg/sqm to achieve a minimum 1.2mm thickness. The single component shall be a non-toxic, eco-friendly product and can be applied on moist substrates as podium substrates may not be dry at all times allowing a faster construction schedule over a uniform surface. Polyisoprene coating shall meet the requirement of ASTM C 836 and shall be applied a minimum 1.5 kg/sqm to achieve the required minimum of 1.2mm thickness. Polyisoprene which can be applied on moist surfaces should have the following minimum properties:

- i) Solid % (as per IS 101/IS 1964) : >78%
  - ii) Tensile Strength (as per ASTM D412) - >3 MPa
  - iii) Elongation (as per ASTM D412) > 400%
  - (iv) Hardness (as per ASTM D2240) - > 60 Shore A
  - v) Drying Time - 45-50 min depending on temperature/humidity
  - (vi) Recovery after 100% elongation - >85% (as per ASTM D412)
- shall be applied as per manufacturer specification.

Rates to include membrane Termination on retaining wall which includes providing a chase of (20 x 20) mm at a distance of 300 mm from ground level or 150 mm from podium/roof slab level for membrane termination. The liquid applied membrane should be dressed into the chase and pointed with mortar or as approved by the supplier prior to backfilling. All systems to be installed as per supplier's recommendations, etc. complete with all lead and lift for all materials & labor & as directed by the Engineer in charge.

<b>Name of Work:</b>	<b>Balance Work for Civil, Structure, Finishing, MEP Works, External Development &amp; External Services for AIR 1 at Uniworld City, Kolkata, (West Bengal)</b>
<b>Title</b>	<b>Technical Specifications</b>

#### **Retaining Wall Membrane Protection:**

Protection of membrane with Supply & spot bonding 7-8mm thick dimpled HDPE protection board, spot bonded onto the liquid applied polyisoprene membrane with liquid mastic. and shall be applied prior to backfilling. The backfilling shall be done within 2-3 days of fixing the protection board.

#### **Waterproofing of Construction Joints**

Providing and laying swellable Water Stops at starter and all construction joints for preventing water migration at construction joints below grade. Construction Joint should be the swellable type of minimum 20mm X 10mm in red color and shall have resistance to deuteriation from saltwater and shall be placed at all vertical & horizontal construction joints detailing. Swellable rubber-based water stops shall have volumetric expansion > 190%, Elongation > 300%, Shore A Hardness > 30, Tensile strength > 2 Mpa, , Water head resistance > 30 m. It shall be fixed to the concrete using a gun-grade adhesive / or mechanically fixed by binding wire with steel reinforcement, as recommended by the manufacturer. Later post-construction, groove cutting of the construction joints 25mm X 25mm size internally / externally, cleaning with compressed air and thereafter filling with polymer-modified cementitious mortar, all as per manufacturers recommendations, etc, complete.

#### **Wet Area Waterproofing (Toilets, Kitchen, Balconies, Refuge area)**

##### **4A Horizontal Area:**

Providing and applying to waterproof and filling for Toilet in following parts as per the specifications listed below and as approved by the Engineer in charge. Waterproof coating shall be breathable so as to allow vapor transmission to release moisture and shall be durable by reinforcing the waterproofing coating with fiberglass matt to increase film tensile strength and wear resistance. It should be flexible enabling bridging of hairline cracks and accommodating minor joint movements. and shall be trafficable to withstand moderate foot traffic and shall be easy to apply with brush, roller or airless spray applied. and more importantly, is solvent-free so that operators do not need extra respiratory protection.

**The First part** consist of all surface area should cleaned up to visible of hair cracks / aggregate texture. Cleaning of RCC member should be done by hacking tool, wire brush, wire grinder & air blower etc. Open cracks & construction joints should be sealed with cement mortar with BIS approved integral waterproofing compound. All clean & treated area should test for water tightness by flooding water. All wet spots & water leakage area should mark for treatment.

**Second part** is Providing and laying waterproofing treatment in sunken portions of WCs, bathrooms, kitchen etc., by applying the flexible, two-component, acrylic cementitious coating, at minimum consumption of 1.8 kg per sqm for 2-3 coats so as to achieve a minimum thickness of 1mm, as per manufacturer's specifications and installed by manufacturer's approved applicators. This waterproof coating shall be capable of bonding to both porous and non-porous substrates in the following method. First step shall be supplying and installing primer coats of two-component flexible cementitious coatings, to clean surfaces for better adhesion @ 0.9 kg/sqm with a brush, roller or trowel and ensuring that all surfaces of the concrete surface is covered. Then wait for 2 hours for it to dry. The second step shall be supplying and installing a second coat of two-component flexible acrylic cementitious coating at the rate of 0.9 kg/m<sup>2</sup> per coat by brush, roller or trowel. Leaving it to cure for at least 10-12 hours. Waterproof coating shall have following minimum properties:

- (a) Elongation >150% (ASTM D412);
- (b) Tensile Strength > 1.6 N/sqmm (ASTM D412);
- (c) Crack bridging >2mm (ASTM C836);



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(d) Adhesion to concrete surface: >1.5MPa (ASTM D4541).

The Third Part consisting of laying avg. 50mm thick, screed concrete admixed with Integral Waterproofing Compound of approved makes.

#### **4B) Vertical Areas**

**The First part** consist of all surface area should cleaned up to be visible of hair cracks / aggregate texture. Cleaning of RCC member should be done by hacking tool, wire brush, wire grinder & air blower etc. Open cracks & construction joints should be sealed with cement mortar with additive. All clean & treated area should be tested for water tightness by flooding water. All wet spots & water leakage area should mark for treatment.

**Second Part** is providing and laying water proofing treatment in sunken portion of WCs, bathroom, kitchen etc., by applying flexible, two component, acrylic cementitious coating, of at minimum consumption of 1.8 kg per sqm for 2 coats so as to achieve minimum thickness of 1mm, as per manufacturer's specifications and installed by manufacturer's approved applicators. This waterproof coating shall be capable of bonding to both porous and non-porous substrate in following method. First step shall be supplying and installing primer coat of two component flexible cementitious coating, to clean surfaces for better adhesion @ 0.9 kg/sqm with brush, roller or trowel and ensuring that all surfaces of the concrete surface is covered. Then wait for 2 hours for it to dry. Second step shall be supplying and installing second coat of at the rate of 0.9 kg/m<sup>2</sup> per coat by brush, roller or trowel. Leaving it to cure for at least 10-12 hours. Waterproof coating shall have following minimum properties:

- (a) Elongation >150% (ASTM D412);
- (b) Tensile Strength > 1.3 N/sqmm (ASTM D412);
- (c) Crack bridging >1mm (ASTM C836);
- (d) Adhesion to concrete surface: >1.5MPa (ASTM D4541)

**The third part** consists of Providing and laying avg. 10-12mm thick, CM1:4 plaster admixed with Integral Waterproofing Compound approved makes as per manufacturer's specification up to 3' height and shower area up to 7' height.

#### **4C) Treatment to Periphery of Pipes:**

Sealing of Core cutting areas with micro concrete in the sequence below to ensure water tightness at the junctions.

- Core cutting and hacking to be done by the main contractor.
- Wash thoroughly this hacked-off area to expose the clean concrete surfaces between the outlet pipe and concrete.
- Place and fix the pipe mechanically to make necessary shuttering from the bottom.
- Pour micro concrete, 4 parts micro concrete, and 1 part of water to fix and seal the pipe. Remove the shuttering after one day / two days and curing done for 7 days.

#### **5. Terrace/roof Slab Waterproofing**

Providing and Applying waterproofing for Terraces with a single component, eco-friendly, cold applied, non-tar, non-bitumen-based single component Polyisoprene, by following methods as per the specifications listed below and testing of treatment as per the requirements. by following methods as per the specifications listed below and testing of treatment as per the requirements.

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**The First part** consist of all surface area should cleaned up with wire brush & air blower. All surfaces to be waterproofed should be sound, clean and dry. Concrete surfaces should have a light steel-trowel followed by a fine hair broom or equivalent finish which is dry and free of dust, oil and other contaminants. All high spots should be removed. After treatment wash down thoroughly with clean water and allow drying. All metal surfaces should be made clean of paint, oils, rust and other contaminants. Concrete should be ideally 28 days old

**Second part** shall be supplying and applying primer coat of single component polyisoprene on prepared RCC absorbent surfaces such as porous concrete will require sealing to prevent absorption of waterproof coating. Single component polyisoprene can be diluted with water for penetration in concrete surface as per manufacturer's specifications and system shall be such which can be applied on damp/moist substrate as long as substrate is free from ponded water so as to ensure that waterproofing work can be executed during all periods

**The third part** consisting of providing and applying high performance, eco-friendly, water based, no tar, no bitumen, cold applied, single component polyisoprene waterproof coating, three coats @ minimum consumption of 1.8 kg/sqm including primer coat to achieve minimum 1.5mm thickness. Single component shall be nontoxic, eco-friendly product and can be applied on moist substrates as podium substrates may not be dry at all times allowing faster construction schedule over uniform surface of the slab. Polyisoprene coating shall meet the requirement of ASTM C 836 and shall be applied @ a minimum of 1.8 kg/sqm to achieve the required minimum 1.5mm WFT. Polyisoprene which can be applied on moist surfaces should have the following minimum properties

- i) Solid % (as per IS 101/IS 1964): >78%
  - ii) Tensile Strength (as per ASTM D412) - >4 MPa
  - iii) Elongation (as per ASTM D412) > 400%
  - (iv) Hardness (as per ASTM D2240) - > 60 Shore A
  - v) Drying Time - 45-50 min depending on temperature/humidity
  - (vi) Recovery after 100% elongation - >85% (as per ASTM D412)
- shall be applied as per manufacturer specification.

**The fourth part** consists of providing thermal insulation (IF REQUIRED, OPTIONAL ITEM) with 50mm thick extruded polystyrene. XPS polystyrene is a rigid foam board with a closed-cell structure and has low thermal conductivity or high resistance to heat flow; lightweight and easy to handle, resistant to bacteria growth, and should have a minimum thickness of 40mm and shall have closed cell structure so as to ideal for insulation of roofs. XPS should have a compressive strength of 180 KPa (as per ASTM D 1821); Flexural Strength of >325 KPA (as per ASTM C 203); Water vapor permeance of 86 as per ASTM E96; Water Absorption of

**The fifth part** involves providing a separation layer by laying polyester geotextile, of a minimum of 150 gsm. The geotextile separation layer should have a weight of a minimum of 150 gsm; static puncture resistance of > 200N; and should be laid over the entire insulation layer before laying the screed to the slope.

**The Sixth Part** consists of laying the screed to slope M15 Grade (1:2:4) with a minimum 50mm at the rain outlet (for easy flow of water/rainwater). The treated surface shall be kept ponded for a continuous period of 7 days to detect any seepage/ leakage/ dampness if any, the surface then shall be cleaned to withstand weather and domestic use. RMC including all infra in pumping position to be supplied by client/contractor (average thickness 75-100mm)

#### **6. Landscape Garden/Hardscape/Extended Basement/ Podium Waterproofing**

Providing and Applying waterproofing for podium, extended basement slab, a landscaped podium with a single component, eco-friendly, cold applied, non-tar, non-bitumen-based Polyisoprene, by following methods

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**The first part** consists of all surface areas that should be cleaned up to be visible hair cracks/aggregate texture. Cleaning of RCC members should be done by hacking tool, wire brush, wire grinder & air blower, etc. Open cracks & construction joints should be sealed with cement mortar mixed with Masterproof IWP1 or approved equivalent. All clean & treated areas should be tested for water tightness by flooding water. All wet spots & water leakage areas should mark for treatment. The application shall be done by an approved specialized agency, and a comprehensive warranty shall be given by a specialist applicator.

**The second part** shall be supplying and applying single component polyisoprene on prepared RCC absorbent surfaces such as porous concrete will require sealing to prevent absorption of waterproof coating. Single component polyisoprene can be diluted with water for penetration in the concrete surface as per the manufacturer's specification

**The third part** consists of providing and applying high performance, eco-friendly, water-based, no tar, no bitumen, cold applied, single component polyisoprene waterproof coating, in two to three coats @ minimum consumption of 1.5 kg/sqm to achieve a minimum 1.2mm thickness. The single-component shall be a non-toxic, eco-friendly product and can be applied on moist substrates as podium substrates may not be dry at all times allowing a faster construction schedule over a uniform surface of the slab. Polyisoprene coating shall meet the requirement of ASTM C 836 and shall be applied a minimum of 1.5 kg/sqm to achieve the required minimum 1.2mm WFT. Polyisoprene which can be applied on moist surfaces should have following minimum properties,

- i) Solid % (as per IS 101/IS 1964) : >78%;
- ii) Tensile Strength (as per ASTM D412) - >4 MPa;
- iii) Elongation (as per ASTM D412) > 400%;
- (iv) Hardness (as per ASTM D2240) - > 60 Shore A; v) Drying Time - 45-50 min depending on temperature/humidity;
- (vi) Recovery after 100% elongation - >85% (as per ASTM D412) shall be applied as per manufacturer specification.

**Fourth part** (only for hardscape areas, extended basement without landscaping) includes providing separation layer with laying polyester geo textile, 250 gsm Geotextile separation layer should have weight of minimum 250 gsm; static puncture resistance of > 250N; Dynamic puncture resistance of 40MM; and should be laid over the entire insulation layer before laying screed to slope.

**The Fifth Part** consisting of the slope making part consists of providing and laying of 75 mm average thick screed concrete of M20 in slope as per manufacturers specification. Fourth part (only for landscape areas) consist of Providing & laying rolled matrix soil filter cum drainage system, of minimum 7-8mm thickness having a compressive strength of 180 KN/sqm, 8mm height with geotextile on top, complete as directed. The minimum properties should be Compressive strength >180 KN/m<sup>2</sup>. For hardscape areas,

## **7. Water Retaining Structures (OHT/UGT)**

Treatment to concrete defects like Construction Joints, Cold Joints, Honey Combs & Porous Concrete. All construction joints, honey combs, cold joints, of concrete shall be treated by hacking and opening the affected area till sound concrete, fixing nozzles and grouting the same, under pressure with cement slurry mixed with Masterproof IWP 1 plus non shrink additive of approved make and sealing all the construction joints with Master Latex mortar approved make.

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Providing and laying water proofing treatment in potable water tanks by applying 2 coats of flexible, acrylic cementitious coating at minimum consumption of 1.8 kg per sqm for 2 coats so as to achieve minimum thickness of 1mm and minimum elongation of 150%, as per manufacturer's specifications and installed by manufacturer's approved applicators. This waterproof coating shall be capable of bonding to both porous and non-porous substrate and shall have water pressure resistance of 7 bar as per DIN 1048. The waterproofing layer shall be allowed to air cure for 4 hours. b) Second layer of two component flexible cementitious coating shall be applied by brush and will be allowed to air cure for 4 hours followed with water curing for 48 hours. The rate includes preparation of surface, treatment and sealing of all joints, corners, junctions of pipes and masonry with Master proof IWP1, polymer mixed slurry.

**Food Grade Epoxy Coating:** - Providing and applying 2 coats of two component, epoxy coating by mixing 2 components using slow speed heavy duty drilling machine fixed with mixing paddle, applying first coat using brush or roller and allowing it to dry for 16-18 hrs, applying second coat and allowing it to dry completely, etc and complete as per manufacturer's specification. The properties of nontoxic, food grade epoxy coating membrane are: - Pot life: 30 min; Mixed density: >1.1– 1.55 Gms/ml at 27° C; Time between the coats: 6-8 Hrs; Walkability: 24 Hrs; Full cure: 7 days; Bond strength: > 1.5 N / Sqmm; Dry film thickness: 130 microns.

#### **7. Water Retaining Structures - STP Tanks**

**First Step** shall be Treatment to concrete defects like Construction Joints, Cold Joints, Honey Combs & Porous Concrete. All construction joints, honey combs, cold joints, of concrete shall be treated by hacking and opening the affected area till sound concrete, fixing nozzles and grouting the same, under pressure with cement slurry mixed with non shrink additive of approved make and sealing all the construction joints with Master Latex mortar.

**Second Step** shall be Providing and laying water proofing treatment in potable water tanks by applying 2 coats of two component, flexible, cementitious coating at minimum consumption of 1.8 kg per sqm for 2 coats so as to achieve minimum thickness of 1mm and minimum elongation of 150%, as per manufacturer's specifications and installed by manufacturer's approved applicators. This waterproof coating shall be capable of bonding to both porous and non-porous substrate and shall have water pressure resistance of 7 bar as per DIN 1048. The waterproofing layer shall be allowed to air cure for 4 hours. b) Second layer of 2 component, flexible cementitious coating shall be applied by brush and will be allowed to air cure for 4 hours followed with water curing for 48 hours. The rate includes preparation of surface, treatment and sealing of all joints, corners, junctions of pipes and masonry with Masterproof IWP 1, polymer mixed slurry

**Coal Tar Epoxy Coating:** - Providing and applying 2 coats of coal tar two component, epoxy coating by mixing 2 components using slow speed heavy duty drilling machine fixed with mixing paddle, applying first coat using brush or roller and allowing it to dry for 16-18 hrs, applying second coat and allowing it to dry completely, etc and complete as per manufacturer's specification. The properties of coal tar epoxy coating membrane are: - Pot life: 30 min; Mixed density: >1.2— 1.55 Gms/ml at 27° C; Time between the coats: 6-8 Hrs; Walkability: 24 Hrs; Full cure : 7 days; Bond strength : > 1.5 N / Sqmm; Dry film thickness : 130 microns.

#### **20.0 WOODEN LAMINATED FLOORING**

The work shall be carried out as per CPWD specifications, Vol. -1, Sub-head No - 11 and other relevant IS codes.

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The respective items of flooring as given in SOR shall be inclusive of protecting and keeping the flooring clean till handing over. No extra amount shall be payable to the contractor on this account

Installation of these flooring shall be carried out as described in the respective item of Schedule of Rates (SOR) and as per manufacturer's specifications.

The warrantee of these flooring shall be as per manufacturer's specifications floorings like carpet flooring, wooden laminate flooring, raised/ false flooring

#### **21.0 SANITARY INSTALLATIONS**

The work shall be carried out as per CPWD specifications, Vol. -2, Sub-head No - 17 and other relevant IS codes.

#### **22.0 WATER SUPPLY**

The work shall be carried out as per CPWD specifications, Vol. -2, Sub-head No - 18 and other relevant IS codes.

#### **23.0 DRAINAGE**

The work shall be carried out as per CPWD specifications, Vol. -2, Sub-head No - 19 and other relevant IS codes.

#### **24.0 ELECTRICAL WORKS**

The work shall be carried out as per CPWD specifications, Part -1, Internal and other relevant IS codes.

#### **25.0 FIRE DETECTION AND ALARM SYSTEM**

The work shall be carried out as per CPWD specifications, Part -6, Fire detection and alarm system and other relevant IS codes.

#### **26.0 HEATING VENTILLATION AND AIRCONDITIONING**

The work shall be carried out as per CPWD specifications, HVAC and other relevant IS codes.

1. General condition: Please refer CPWD General Specification for HVAC Work 2017 Chapter 1.

2. System and requirements: Please refer CPWD General Specification for HVAC Work 2017 Chapter 2.

3. System and requirements: Please refer CPWD General Specification for HVAC Work 2017 Chapter 2.

4. VRV/VRF and Package Unit: Please refer CPWD General Specification for HVAC Work 2017 Chapter 4.

5. Central Air conditioning plant: Please refer CPWD General Specification for HVAC Work 2017 Chapter 5.

6. AHU, FCU and Air Distribution System: Please refer CPWD General Specification for HVAC Work 2017 Chapter 6.

<b>Name of Work: Title</b>	<b>Balance Work for Civil, Structure, Finishing, MEP Works, External Development &amp; External Services for AIR 1 at Uniworld City, Kolkata, (West Bengal) Technical Specifications</b>
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7. Cooling Towers: Please refer CPWD General Specification for HVAC Work 2017 Chapter 7.
8. Circulating Water Pumps: Please refer CPWD General Specification for HVAC Work 2017 Chapter 8.
9. Ducting: Please refer CPWD General Specification for HVAC Work 2017 Chapter 9.
10. Water Plumbing Works: Please refer CPWD General Specification for HVAC Work 2017 Chapter 10
11. Insulation Works: Please refer CPWD General Specification for HVAC Work 2017 Chapter 11
12. Controls: Please refer CPWD General Specification for HVAC Work 2017 Chapter 12.
13. Electrical Works: Please refer CPWD General Specification for HVAC Work 2017 Chapter 13.
14. Central Heating System: Please refer CPWD General Specification for HVAC Work 2017 Chapter 14.
15. Mechanical Ventilation & ETAC: Please refer CPWD General Specification for HVAC Work 2017 Chapter 15.
16. Cold Rooms: Please refer CPWD General Specification for HVAC Work 2017 Chapter 16
17. Inspection, Testing and commissioning: Please refer CPWD General Specification for HVAC Work 2017 Chapter 17.
18. Building Management System: Please refer CPWD General Specification for HVAC Work 2017 Chapter 18

#### **27.0 WET RISER & SPRINKLER SYSTEMS**

The work shall be carried out as per CPWD specifications, Part -5, Internal and other relevant IS code.

#### **28.0 CCTV**

The work shall be carried out with prior approval of Engineer in charge.

#### **29.0 ACCESS CONTROL**

The work shall be carried out with prior approval of Engineer in charge.

#### **30.0 LPG**

The work shall be carried out with prior approval of Engineer in charge.

#### **31.0 INTERCOM**

The work shall be carried out with prior approval of Engineer in charge.

#### **32.0 LIFTS/ELEVATORS**

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The work shall be carried out with as per CPWD specification. In addition of CPWD Lifts specifications, additional parameter attached in this document shall be considered.

### **33.0 HORTICULTRE AND LANDSCAPING**

The work shall be carried out as per Delhi Schedule Of Rates, Analysis Of Rates And Specifications (Horticulture & Landscaping) -2020 and other relevant IS codes. Cricket Pitch, Tennis court and play equipments shall be executed as per manufacturer specification.

## LIST OF APPROVED MAKES

LIST OF APPROVED MAKES OF MATERIALS IS LISTED BELOW. HOWEVER, APPROVED EQUIVALENT MATERIALS OF ANY OTHER SPECIALIZED MAKES MAY BE USED, IN CASE IT IS ESTABLISHED THAT THE BRANDS SPECIFIED BELOW ARE NOT AVAILABLE IN THE MARKET SUBJECT TO APPROVAL BY THE ENGINEER IN CHARGE.

Sr. No.	Material Name	Manufacturer/ Supplier/Make
1	Cement	
i		Ultra Tech
ii		Lafarge
iii		ACC
iv		Ambuja
2	Reinforcement Steel {TMT Fe 500, Fe 550}	
i		TATA
ii		RINL (Vizag Steel)
iii		SAIL
iv		JSW
3	Structural Steel [Tubular sections, Hollow Steel sections & Rolled Steel sections]	
i		TATA
ii		RINL (Vizag Steel)
iii		SAIL
iv		JSW
4	Polycarbonate Sheet 6mm thick	
i		Lexan
ii		Anchor
iii		Kenwood
iv		Century
v		GE
vi		Danpalon
vii		Polygal
5	AAC blocks	
i		BILTECH
ii		Ultra Tech, Magicrete
iii		JK
iv		SHIRKE
v		ECOLOITE
6	Waterproof solid core flush door	
i		Anchor
ii		Century
iii		Kenwood
iv		EURO
v		Greenlam
vi		Merino
vii		Duraply
viii		Kutty
7	Lamination sheets' (1mm & 1.50 mm thick)	
i		Greenlam
ii		Century
iii		Merino
iv		Royale Touche
v		Sundek
	Door Fixtures & Fastenings	



Sr. No.	Material Name	Manufacturer/ Supplier/Make
8	i Main internal door	
	a) Stainless steel	
i		Haffle
ii		DORMA
iii		GEZE
iv		GODREJ
v		Hattich
vi		Doorset
9	Aluminium Sections	
i		Jindal
ii		Hindalco
iii		Superfine
iv		Bhoruka
v		Shri Narmada
vi		Agravanshi
vii		Global Aluminium
viii		Indo Alusya
10	Vitrified tiles (600mm x 600mm) incl. Anti-skid , Matt etc. {ONLY MOTHER PLANT TILES TO BE PROCURED}	
i		Kajaria
ii		Johnson
iii		Nitco
iv		RAK
v		Asian
vi		ORIENT
vii		SOMANY
11	Oil bound Distemper to internal walls, Acrylic Distemper	
i		Asian
ii		Nerolac
iii		Berger
iv		Dulux
12	Synthetic Enamel Paint, Plastic Emulsion Paint, Oil Bound Distemper, Acrylic Distemper and Primer	
i		Asian
ii		Nerolac
iii		Berger
iv		Dulux
13	Polymer based External Paint, Textured Paint	
i		Apex from Asian Paints
ii		Excel from Nerolac Paints
iii		Shalimar
iv		Berger
iv		Unitile
iv		Spectrum
iv		Heritage
		Dulux
14	Water resistant white cement based wall care putty	
i		J K White
ii		Birla White
iii		Ultra Tech

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	iv	Wall plast
15	Gypsum Plaster	
	i	Saint Gobain / India Gypsum
	ii	Conmix
	iii	Ultratech
	iv	USG Boral
	v	Ferrouscrete
	vi	Lafarge
16	Glass	
	i	Saint Gobain
	ii	Modi Asahi
	iii	Pil Kington
	iv	Emiretus
	v	Modiguard
15-a	Aluminium Ingot	Nalco
	i	Balco
	ii	Hindalco
17	APP/ SBS membrane water proofing	
	i	Tikidan
	ii	APEX
	iii	IWL
	iv	Sika
	v	Shalimar
	vi	Tremco
18	Expansion Joint treatment	
	i	Chowgule Construction Chemicals Pvt. Ltd.
	ii	Bizzar Expansion
	iii	LBH Expansion Joints India Pvt Limited
	iv	NTE India Pvt. Ltd.
	v	SANFIELD (INDIA) LIMITED
	vi	a) SNPG-600
	vii	b) SRFL -600
	viii	KANTAFLEX
19	Anti Termite Chemical	
	i	NOCIL
	ii	PCI
	iii	Premier Pest Control
	iv	Dursban
20	Concrete Curing Compound	
	i	Fosroc
	ii	Sikka
	iii	Basf
	iv	Pidilite
	v	CICO
21	NON-SHRINKING GROUTS	
	i	Fosroc
	ii	Sikka
	iii	Basf
	iv	Pidilite
	v	CICO
22	CONCRETE ADMIXTURES	

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	i	Fosroc
	ii	Sikka
	iii	Basf
	iv	Pidilite
23	CONSTRUCTION CHEMICALS(POLY SULPHIDE SEALENTS)	
	i	CHOWKSEY
	ii	CICO
	iii	FOSROC
	iv	PIDILITE
	v	STP
24	BITUMEN	
	i	INDIAN OIL
	ii	HINDUSTAN PETROLEUM
	iii	BHARAT PETROLEUM
25	FIRE INTUMESCENT COATING	
	i	3M
	ii	PROMET
	iii	HEMPEL
	iv	JOTUN
26	SMOKE INTUMESCENT SEAL	
	i	3M
	ii	FISCHER
	iii	HILTI
	iv	SIKA
27	EPOXY COATING	
	i	BASF
	ii	SIKA
	iii	FOSROC
28	POLYSULPHIDE SEALENTS	
	i	BASF
	ii	SIKA
	iii	FOSROC
	iv	PIDILITE
	v	CHOWKSEY
29	ALUMINIUM SHUTTERING	
	i	MFE FORMWORK
	ii	KUMKANG
	iii	S-FORM
	iv	MAINI
30	PRE CAST CONCRETE (incl. DRAIN COVERS,KERB STONES etc..)	
	i	B.G. SHIRKE
	ii	SIPOREX
	iii	SUPREME CONCRETE
	iv	KK MANHOLE AND GRATINGS CO.
31	FLOOR HARDNER	
	i	FOSROC
	ii	SIKA
	iii	PIDILITE
	iv	GE
32	PRE COATED SHEETS	

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	i	JSW STEEL
	ii	TATA BLUE SCOOP
33	RE BAR CHEMICAL	
	i	HILTI
	ii	3M
	iii	FISCHER
34	FIRE AND SMOKE CURTAINS	
	i	VEILOFIRE
	ii	STOBEICH
	iii	FIRE TECHNOLOGIES
	iv	US SMOKE & FIRE
35	GI RECESSED MANHOLE COVERS_INTERLOCK TYPE	
	i	ARC ENGG.
	ii	TASNEEM ENTERPRISES
	iii	SHOMYA FAB.
	iv	MNC DRAIN SOLUTION
	v	PROSPERITY EXIM
36	CC PAVERS	
	i	NITCO
	ii	ULTRA
	iii	UNISTONE
	iv	PAVIT
	v	DURACRETE
	vi	KK MANHOLE AND GRATINGS CO.
	vii	Pave Espania
37	FRICTION DAMPER	
	i	QUAKETEK
38	WELDING ELECTRODES	
	i	L&T
	ii	MODI
	iii	OERLIKON
	iv	ADVANI
	v	ESAB
	vi	ADOR
39	ANCHOR FASTNERS	
	CHEMICAL FASTENERS	
	i	FISCHER
	ii	HILTI
	MECHANICAL FASTENERS	
	i	FISCHER
	ii	HILTI
40	ELECTRO FORGED GRATINGS	
	i	GREATWELD STEEL GRATINGS
	ii	KANADE ANAND UDYOG
	iii	PINAX STEEL INDUSTRIES
	iv	CELLCOM GRATINGS
	v	OMKAR GRATINGS
41	BIPOLAR CONCRETE PENETRATING CORROSION INHIBITING ADMIXTURE	
	i	CLEAN COATS
	ii	KRISHNA CONCHEM PRODUCTS

Sr. No.	Material Name	Manufacturer/ Supplier/Make
iii		SUNANDA SPECIALITY
iv		STP LTD.
42	BITUMEN FOR LANDSCAPE WORKS	
i		RK EXPORT HOME
ii		SOPREMA
iii		ROADSTAR BITUMEN HOME
43	PLASTER OF PARIS	
i		SAKARNI
ii		JK
iii		BIRLA

Sr. No.	Material Name	Manufacturer/ Supplier/Make
<b>A</b>	<b>CARPENTRY WORKS</b>	
1	Commercial Plywood/ Marine Plywood-ISI make	
i		Century
ii		KIT ply
iii		Anchor
iv		Archid ply
v		Dura
2	Plain/ Laminated Particle Board	
i		Ecoboard
ii		Novapan
iii		Green
3	Plain /Laminated Medium Density Fiber Board	
i		Nuwood
ii		Duratuff
iii		Green
iv		Ecoboard
v		Novapan
4	Block Board	
i		KIT ply
ii		Green
iii		Anchor
iv		Century
5	GYPSUM BOARD	
i		India Gypsum
ii		Boral
iii		Conmix
6	Mineral Fibre False Ceiling	
i		Armstrong
ii		Saint Gobain
iii		USG
7	Metal Ceiling Tiles and Grid	
i		Techno Ceiling Products
ii		Hunter Douglas
iii		Armstrong
iv		Luxalon
v		Durlum
8	Soft Board	
i		Jolly Board
9	Calcium Silicate Board	
i		Ramco
ii		Aerolite
iii		USG Boral
iv		Saint Gobain
10	Veneer 3.5mm to 4mm	
i		Greenlam
ii		Century
iii		Merino
11	Lamination sheets' (1.50 mm thick)	
i		Greenlam
ii		Marino
iii		Sundeck
iv		Century

Sr. No.	Material Name	Manufacturer/ Supplier/Make
v		Royal Touch
12	Laminates 1mm	
i		Royale Touche
ii		Century mica
iii		Greenlam
iv		Merino
13	Wooden Fire Doors	
i		HELSPAN
ii		VEILOFIRE
iii		GANDHI AUTOMATION
iv		NAVAIR
v		VEILOFIRE
vii		Shiv Shakti
14	GI Fire Doors / MS PAINTED FIRE DOORS	
i	METAL FIRE DOORS	NAVAIR
ii		Sukriti
iii		GANDHI AUTOMATION
iv		MPP
v		Matrix
<b>B</b>	<b>HARDWARE</b>	
1	Drawer Channels	
a)	Local Make	
i		Earl Bihari
ii		Windor
iii		Enox
v		ozone
b)	Imported	
i		Geze. Hafele
ii		Hettich
iii		Dorma
2	Screws	
i		Nettlefold
ii		GKW
3	Hardware for Glass doors and partitions, Floor Springs, Patch Fitting, Floor Lock, Top Pivot	
a		Geze
i		Hafele
ii		hettich
iii		Dorma
4	Adhesive	
i		Fevicol SH
ii		Vamicol
iii		Araldite of Ciba Geigy
5	Wood Preservative	
i		Woodguard
ii		Termiseal
iii		ASCU (PS2) oil based
<b>C</b>	<b>WALL FINISHES</b>	
1	Polyurethane Paint	
i		Thorax coating UK
ii		SIKA
iii		BASF

Sr. No.	Material Name	Manufacturer/ Supplier/Make
iv		GE
v		CICO
vi		FOSROC
2	Fire Retardant Paint	
i		Shalimar Paints
ii		Noble paints
3	Textured Paint	
i		Spectrum
ii		Terraco
iii		Renova
iv		Asian Paints
		Nerolac
		Berger
		Dulux
4	Wallpapers	
i		Marshall
ii		M B international
iii		Arte
iv		Ego
<b>D</b>	<b>MISCELLANEOUS</b>	
1	Wall Acoustical material	
i		Armstrong
ii		Anutone
iii		Techno Ceiling Products
2	Insulation material Glass wool	
i		TWIGA
ii		Phenol herm
iii		Kimmco
iv		LLOYD INDIA
v		ROCK WOOD
3	Antistatic Vinyl flooring	
i		Armstrong
ii		Wonder floor
iii		Nora
iii		Polyflor
iv		Gerflor
v		Tarkett
4	Artificial Leather	
i		Pride
ii		National
iii		Stanley
5	Float Glass/ Back painted Glass	
i		Saint Gobain
ii		Gleverbel
iii		ASAHI
iv		PILKINGTON
v		TATA
6	Modular demountable Glass Partitions	
i		Methis
ii		JEB
7	Mirror	Mirror
i		Modi Guard



Sr. No.	Material Name	Manufacturer/ Supplier/Make
	ii	Asahi
	iii	Saint Gobain
8	Writing Board	
	i	White Mark
	ii	Alkosign
	iii	Altop
	iv	Alkon
9	Lockers and Storage Compactor	
	i	Godrej
	ii	Kompress
	iii	Steelage`
10	Hand Dryer	
	i	Ascon
	ii	Kimberly Clarke
	iii	Technocrats
	iv	EURONIX
11	Fabric protection	
	i	Scotchguard Birla 3M
	ii	Fabguard Dove Corp.
12	Frosted Film	
	i	Garware
	ii	3M
	iii	IQUE
13	Wooden Flooring	
	i	Pergo
	ii	Tarkett
	iii	Armstrong
	iv	Ego
14	SS Railing	
	i	Neki
	ii	Ozone
	iii	Enox
	iv	D LINE
	v	JINDAL
	vi	SALEM
15	Slotted angel racks	
	i	MEK
	ii	Godrej
	iii	Vishwakarma
16	Rubber gasket	
	i	Mona
	ii	Hanu Industries
	iii	Bohra rubber
	iv	Roop Polymer
	v	Anand
17	Synthetic Resin	
	i	DuPont Corian
18	HPL Toilet cubicals	
	i	Merino
	ii	Greenlam
	iii	Niveeta Cubix
19	HPL Lockers	

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	i	Merino
	ii	Greenlam
	iii	Niveeta Cubix
20	Aluminium Skirting	
	i	Windor
	ii	Doyle Asia
	iii	Bottomline
	iv	HAFFELE
	v	IQUBX
	vi	HETTICH
	vii	LINDNER
21	Vinyl Graphics Films	
22	Roller Blinds	
	i	Vista
	ii	Wall Track
	iii	hunter douglas
	iv	Phifer
23	ALUMINIUM COMPOSITE PANEL (ACP)	
	i	ALUCOBOND
	ii	REYNOBOND
24	ALUMINIUM COMPOSITE PANEL PVDF COATING	
	i	VALSPAR
	ii	AKZONOBEL
	iii	PPG
25	STRETCH MEMBRANE/ TENSILE FABRIC/ STRTCH FABRIC/MESH FABRIC	
	i	SERGE FERRARI
	ii	CHUKOH, JAPAN
	iii	SAINT GOBAIN, US
26	POWDER COATING	
	i	JOTUN
	ii	AKZONOBEL
	iii	BERGER
	iv	PPG
27	REFELCTIVE GLASS/ HIGH PERFORMANCE SOLAR TOUGHENED GLASS	
	i	SAINT GOBAIN
	ii	ASAHI
	iii	PILKINGTON
28	FIRE RATED GLASS	
	i	SAINT GOBAIN
	ii	PILKINGTON
	iii	FIRELITE
	iv	GLAVERBEL
	v	ASAHI
29	PVB LAMINATION	
	i	DUPONT
	ii	SAFLEX
30	LAMINATION FOR GLASS RAILING & FINS	
	i	DUPONT
	ii	OR APPROVED EQUIVALENT
31	WEATHER SEALENTS	

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	i	DOW CORNING
	ii	GE
	iii	WACKER
32	STRUCTURAL SEALENT	
	i	DOW CORNING
	ii	GE
	ii	WACKER
33	BAKER ROD	
	i	DOW CORNING
	ii	GE
	iii	WACKER
	iv	SUPREME
34	EPDM AND SILICON GASKETS	
	i	SCHUCO
	ii	SAPA BUILDING SYSTEM
	iii	EUROPEAN FAÇADE PRODUCT
	iv	REYNERS
35	SPACER TAPE ( OPEN PU CELL)	
	i	NORTON
	ii	BOW
36	SILICON SEALENT	
	i	GE
	ii	DOW CORNING
	iii	WACKER
37	SS SPIDER FITTING	
	i	OZONE
	ii	DORMA
	iii	HAFELE
	iv	LISUS
38	AUTOMATIC REVOLVING DOORS/SLIDING DOORS	
	i	DORMA
	ii	KABA
	iii	HAFELE
39	SS CLAMPS	
	i	DORMA
	ii	HILTI
	iii	FISCER
40	ROCK WOOL FIRE STOP	
	i	ROCKWOOL INDIA
	ii	ROXUL
	iii	LLOYD
41	POLYCARBOBNATE SHEET	
	i	DANPALON
	ii	GE PLASTIC
42	SS FRICTION STAY HINGES, ROLLERS FOR SLIDING, FLUSH LOCK FOR SLIDING, WOOL PILE WITH SILENT FILM, WINDOW HINGES, DOOR HINGES	
	i	DORMA
	ii	OZONE
	iii	GEZE
	iv	SCHUCO

Sr. No.	Material Name	Manufacturer/ Supplier/Make
v		REYNERS
43	CARPET TILE	
i		HERITAGE
ii		MOHAWK
iii		SHAW
44	STAMP CONCRETE PIGMENT/APPLICATOR	
i		UNITED FLOORING
ii		CONCRETE BY DESIGN
iii		FLEX STONE
45	FALSE FLOORING	
i		UNIFLOOR
ii		EVEREST
iii		UNITILE
iv		KINGSPAN
46	ACID RESISTANT TILES	
i		JOHNSON
ii		REGENCY CERAMICS LTD
iii		Steuler Industrial Solutions
iv		Eurocare Industries
47	TacTiles	
i		EMINENT GUJARAT
ii		PELICAN CERAMICS
iii		JOHNSON
iv		SOMANY
48	TILE GROUT	
i		FERROUS
ii		LATICRETE
iii		BAL ENDURA
iv		PIDILITE
49	TILE ADHESIVE	
i		ARDEX ENDURE
ii		FERROUSCRETE
iii		LATICRETE
iv		KERAKOLL
50	GLASS MOSAIC	
i		MRIDUL TILES
ii		BISAZZA
iii		NITCO
iv		DALAL TILES
v		UNITILE
51	EPOXY FLOORING	
i		SIKA
ii		BASF
iii		FOSROC
52	STONE SEALERS	
i		LATICRETE
ii		ARDEX ENDURA
iii		MYK SCHOMBURG
iv		CHOKSEY CHEMICALS
v		FERROUS CRETE
53	STONE ADHESIVE	
i		KERAKOLL

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	ii	BALENDURA
	iii	ARDEX ENDURA
54	HDPE MEMBRANE	
	i	SIKA
	ii	BASF
	iii	SOPREMA
	iv	GRACE
	v	FOSROC
55	WATER BAR	
	i	SIKA
	ii	BASF
	iii	SOPREMA
	iv	GRACE
	v	FOSROC
	vi	TREMCO
	vii	Fixopan
	viii	Jyoti
56	GEO TEXTILE MEMBRANE	
	i	VIRENDER TEXTILE
	ii	MANAS TEXTILE
	iii	ACETURF
	iv	OVILITE IND.
57	XPS	
	i	DOW CORNING
	ii	OWEN
	iii	SUPREME
58	HDPE STUDDER DRAIN BOARD	
	i	VIRENDER TEXTILE
	ii	DELTA
	iii	OVILITE IND.
59	THERMAL INSULATION _OVERDECK	
	i	SIKA
	ii	BASF
	iii	GRACE
60	CEMENTITIOUS ACRYLIC WATERPROOFING	
	i	SIKA
	ii	BASF
	iii	SOPREMA
	iv	SUPER SNOWCEM
	v	Tremco
61	FRAMING FOR MGO/CALCIUM SILICATE	
	i	SAINT GOBAIN
	ii	USG BORAL
	iii	LAFARGE
62	ACOUSTIC TILES	
	i	Armstrong
	ii	Lindner
	iii	Saint Gobain
63	OPEN CELL CEILING	
	i	Armstrong
	ii	Lindner
	iii	Hunter Douglas

Sr. No.	Material Name	Manufacturer/ Supplier/Make
64	BAFFLE CEILING	
i		Armstrong
ii		Lindner
iii		Iqubx
iv		Hunter Douglas
65	METAL CEILING	
i		Armstrong
ii		Lindner
iii		Hunter Douglas
66	WOOD VENEER CEILING	
i		Armstrong
ii		Lindner
iii		Hunter Douglas
67	STRETCH CEILING	
i		BARISOL
ii		EUROCELL
iii		CLIPSO
68	THERMAL INSULATION_UNDERDECK_XPS	
i		DOW CORNING
ii		OWENS
iii		SUPREME
69	HIGH PRESSURE LAMINATE	
i		MERINO
ii		FUNDERMAX
iii		TRESPA
iv		VERSITO
70	LAMINATE	
i		MERINO
ii		CENTURY
iii		DURO
iv		GREENPLY
71	DOOR HARDWARE	
i		DORMA
ii		Gese
iii		Haffelle
iv		Hetich
v		Godrej
72	MODULAR/ DEMOUNTABLE WOOD PANELLING	
i		ARMSTRONG
ii		HUNTER DOUGLAS
iii		IQUBX
73	ROLLING SHUTTERS_MANUAL AND OPERATED	
i		GANDHI AUTOMATION
ii		AVIANS
iii		METAFLEX
74	ACOUSTIC PANELS	
i		ARMSTRONG
ii		PYROK
iii		TRANQUIL GLOBAL
iv		DECOUSTICS
v		ANUTONE
vi		KNOFF

Sr. No.	Material Name	Manufacturer/ Supplier/Make
vii		USG BORAL
viii		GYROC
ix		RENOLIT
x		SERGE FERRARI
75	WOOD ADHESIVE	
i		FEVICOL SH
ii		FEVICOL SPPEDEX
iii		JEEVANJOR (VEMICOL)
76	DOOR SEALS	
i		ENVIRO SEALS
ii		OZONE
iii		3M
iv		HAFFELE
77	OPENABLE WALL PARTITIONS	
i		AZAZO
ii		DORMA
iii		HAFFELE
iv		HUFCOR
v		GEZZE
78	MODULAR TOILET PARTITIONS	
i		MERINO
ii		DORMA
iii		GREENLAM
79	MODULAR FURNITURE / LOSE FURNITURE	
i		WIPRO
ii		ROCKWORTH
iii		GODREJ
80	CUSTOMISED FURNITURE	
i		As per factory inspection and Owner/PMC approval
81	PRIMER _ INORGANIC ZINC SILICATE	
i		SIKA
ii		CIPY
iii		STP
82	SYNTHETIC ENAMEL AND PRIMER	
i		ASIAN
ii		BERGER
iii		DULUX
iv		DUPONT
v		JOTUN
vi		NEROLAC
83	PLASTIC EMULSION AND PRIMER	
i		ASIAN
ii		BERGER
iii		DULUX
iv		DUPONT
v		JOTUN
vi		NEROLAC
84	PUTTY	
i		BIRLA
ii		JK
iii		BERGER

Sr. No.	Material Name	Manufacturer/ Supplier/Make
iv		NEROLAC
v		WALL PLAST
vi		ASIAN
vii		DULUX
85	ACRYLIC POLYMER EXTERIOR WATERPROOF TEXTURED PAINT	
i		ASIAN
ii		BERGER
iii		ICI DULUX
iv		SKK
v		SPECTRUM
vi		HERITAGE
vii		OIKOS
viii		SHERWIN WILLIUMS
ix		JOTUN INDIA PVT.LTD
x		NEROLAC
xi		Tremco
86	FIRE RETARDANT PAINT AND PRIMER	
i		JOTUN
ii		PACIFIC
iii		PROMAT
87	OIL BOUND DISTEMPER AND PRIMER, ACRYLIC DISTEMPER, CEMENT PRIMER	
i		ASIAN PAINTS
ii		DULUX
iii		BERGER
iv		J&N , NEROLAC
v		JOTUN INDIA PVT.LTD
vi		NEROLAC
88	CHLORINATED RUBBER PAINT	
i		BERGER
ii		ASIAN
iii		DULUX
89	WOOD PRIMER AND POLISH	
i		SHALIMAR
ii		ASIAN
iii		DULUX
iv		MRF
90	POWDER COATING PAINT	
i		JOTUN
ii		AKZONOBEL
iii		BERGER
91	ACRYLIC SOLID SURFACE	
i		3M
ii		DELITE
iii		DUPONT
iv		SAMSUNG STARON
92	GRAPHIC FILMS	
i		3M
ii		AVERY DENNISON
iii		LIUMAR
93	ARCHITECTURAL HVAC FABRIC DUCT	



Sr. No.	Material Name	Manufacturer/ Supplier/Make
i		DUCTSOX
ii		PRIHODA
iii		FABRIC AIR
iv		ATA FLEXAIR
94	STAINLESS STEEL EV STOPS AND STREET FURNITURE	
i		OZONE
ii		DLINE
iii		APPROVED FABRICATED BY CONTRACTOR
95	CEMENT BOARD/BISON BOARD	
i		EVEREST
ii		NCL
iii		SAINT GOBAIN
iv		RAMCO
96	ADHESIVE TAPE	
i		3M
ii		NORTON
iii		AVERY DENNISON
97	HIGH PERFORMANCE EPOXY BASED RESIN ANCHOR SYSTEM	
i		BASF
ii		FOSROC
98	EPOXY MORTAR	
i		FOSROC
ii		SIKA
iii		MYK LATICRETE
99	SOLVENT BASED SILICONE REPELLENT COATING	
i		DR. FIXIT PIDILITE WR
ii		FAIRMATE
iii		FERROSCRETE
iv		MYK SCHOMBURG
100	CURTAIN TRACK	
i		WINDOWTECH
ii		DECOREX
101	RECEPTACAL BOX	
i		MAXICOM
ii		COMBINED UTILITIES
102	Magnetic Lacquered Glass Board	
103	PVC WATER STOPPER	
i		SIKA
ii		FOSROC
iii		SYNTEX
104	MOULDED DOORS	
i		CORBETT
ii		KUTTY
iii		CENTURY
105	Prefabricated Walls	
i		Everest
ii		Vishakha Industries
iii		HTL

Sr. No.	Material Name	Manufacturer/ Supplier/Make
<b>EXTERNAL DEVELOPMENT</b>		
1.1	DRAIN CHANNEL	
i		EVERLAST
ii		THERMOSET
iii		KK MANHOLE
iv		LIDCO
v		GEBERIT
1.2	KERB STONE	
i	300mm x 250mm x 100mm	BASANT BEATONS
ii		NITCO
iii		VYARA
iv		KAJARIA CERAMICS
v		KK MANHOLE
1.3	CONCRETE COBBLES / PEBBLES	
i		BASANT BEATONS
ii		VYARA
iii		NIMCO Precast Pvt. Ltd.
1.4	PAVING BLOCKS	
i		BASANT BEATONS
ii		PAVIT
iii		NITCO
iv		VYARA
v		NIMCO Precast Pvt. Ltd.
1.5	PAVING TILES	
i		BASANT BEATONS
ii		PAVIT
iii		NITCO
iv		VYARA
v		NIMCO Precast Pvt. Ltd.
1.6	CHEQUERED TILES	
i		BASANT BEATONS
ii		PAVIT
iii		NITCO
iv		VYARA
v		NIMCO Precast Pvt. Ltd.
vi		Hindustan
vii		Modern
1.7	GRASS PAVERS	
i		BASANT BEATONS
ii		NITCO
iii		VYARA
iv		NIMCO
v		Ultra
vi		Unistone
vii		Pavit
viii		Duracrete
1.8	TREE GUARDS	
i		VYARA
ii		NIMCO Precast Pvt. Ltd.
iii		Supplier to be approved by PMC / Developer after receipt of Samples.
1.9	SPEED BREAKERS	

Sr. No.	Material Name	Manufacturer/ Supplier/Make
i		VYARA
ii		Supplier to be approved by PMC / Developer after receipt of Samples.
1.10	DRAIN COVER / CHAMBER COVER / MANHOLE COVER	
i		EVERLAST COMPOSITES LLP
ii		PRINCE
iii		VYARA
iv		RAWJI
1.11	FRP GRATINGS / DRAINAGE MATS	
i		PRINCE PIPING SYSTEMS
ii		EVERLAST COMPOSITES LLP
iii		RAWJI INDUSTRIAL CORPORATION
1.12	CONCRETE PLANTERS	
i		VYARA
ii		Supplier to be approved by PMC / Developer after receipt of Samples.
1.13	FRP ROOFING SHEETS	
i		RAWJI
ii		Supplier to be approved by PMC / Developer after receipt of Samples.
1.14	PRECAST CONCRETE COVER	
i		AS LOCALLY AVAILABLE
1.15	WATERPROOFING COMPOUND (Acrylic based)	
i		FOSROC
ii		McBAUCHEMIE
iii		SUNANDA
iv		PIDILITE
v		CICO
vi		STP Ltd.
vii		Tremco
1.16	GEOFABRIC 180 GSM	
i		OVILITE
ii		TUFLEX
iii		ROOFTEC
iv		TEXCO
1.17	WEATHERPROOF SEALANT (SURFACE & GROOVE TREATMENT)	
i		WACKER
ii		DOW CORNING
iii		Supplier to be approved by PMC / Developer after receipt of Samples.
1.18	SYNTHETIC ENAMEL PAINT	
i		ICI DULUX
ii		ASIAN PAINTS
iii		BERGER PAINTS
iv		NEROLAC
1.19	WHITE CEMENT	
i		JK CEMENT
ii		BIRLA WHITE
iii		NIHON
1.17	WATERPROOFING COMPOUND (Acrylic based)	

Sr. No.	Material Name	Manufacturer/ Supplier/Make
i		FOSROC:
ii		McBAUCHEMIE:
iii		SIKA:
iv		PIDILITE:
v		SUNANDA:
vi		Tremco
1.18	DRAINAGE CELLS / DRAINAGE BOARD	
i		OVILITE
ii		PRINCE
iii		EVERLAST
2	Expansion Joint	
i		Chowgule Construction Chemicals Pvt. Ltd.
ii		Bizzar Expansion
iii		LBH Expansion Joints India Pvt Limited
iv		NTE India Pvt. Ltd.
v		SANFIELD (INDIA) LIMITED
3	Texture Paint	
i		Asian Paints
ii		Nippon Paints
iii		Berger Paints
iv		Bizzar Texture & Designer Paint
v		Nerolac
vi		Dulux
4	Indoor Outdoor Sports & Play Surfaces	
i		Go Sportz
ii		Sunflex Sports Infrastructure Pvt. Ltd.
iii		P.K. Versi Turf Pvt. Ltd.
iv		Moldo Sports
v		Syncotts International
5	Parking Floor & Wall Coating	
i		Go Sportz
ii		Sunflex Sports Infrastructure Pvt. Ltd.
iii		P.K. Versi Turf Pvt. Ltd.
iv		Bizzar Paints
6	Slopping Roof Magalore Tiles	
i		Supplier to be approved by PMC / Developer after receipt of Samples & Technical Specifications..
7	Self Adhesive Waterproofing Membrane	Grace India
i		Texa India Ltd.
ii		Supplier to be approved by PMC / Developer after receipt of Samples & Technical Specifications..
8	EPDM (Roofing Membrane)	CARLILSE
i		FIRE StoNE
ii		Supplier to be approved by PMC / Developer after receipt of Samples & Technical Specifications..

Sr. No.	Material Name	Manufacturer/ Supplier/Make
<b>PLUMBING &amp; SANITARY WORK</b>		
1	SANITARYWARE and ACCESSORIES	
i		American Standard
ii		Kohler
iii		Jaquar
iv		Kerovit
v		Grohe
vi		Parryware
2	W. C. Connectors	
i		Kohler
ii		Jaquar
iii		Kerovit
3	Flushing Cisterns	Jaquar
i		Kohler
ii		Giberit
iii		Viega
viii		DURALITE
4	S.S. Sinks	Jayna
i		Nirali
ii		Prestige
v		AMC
vi		Salem Steel
5	C P Fittings	
i		American Standard
ii		Kohler
iii		Jaquar
iv		Kerovit
6	Infra red based electronic Flushing system for urinal	
i		Toshi
ii		Euronics
iii		ROCA
iv		Kohler
7	Hand Drier	
i		Jaquar
ii		Kohler
iii		Toshi
iv		Euronics
8	HDPE Pipe & Fitting	
i		Jain Irrigation
ii		Supreme
iii		Oriplast
iv		PRINCE
9	CPVC Pipes and Fittings	
i		Astral
ii		Prince
iii		Supreme
iv		Finolex
v		Flowguard
10	G.I. and M.S. Pipes	
i		TATA
ii		JINDAL Hissar
iii		SAIL

Sr. No.	Material Name	Manufacturer/ Supplier/Make
v		ZENITH
11	G.I. Fittings	
i		Zoloto
ii		KS Brand
iii		DRP M
12	C.I. Soil, Waste & Vent Pipes incl. Fittings	
12a	Sand Casted Pipes	
i		NECO
ii		Saint Gobain
iii		R.I.F.
iv		SKF
13	C.I. (LA) Class Pipes & Fittings	
i		ELECTRO STEEL
ii		INDIA IRON & STEEL Co.
iii		KESORAM SPUN PIPE & FOUNDRIES
iv		NATIONAL
v		KARTAR
vi		Lanco
vii		Electrosteel
viii		Kapilansh
ix		RAJPURA
14	Stoneware Pipes	
ii		Burn Pottaries
iii		Perfect Polteries
15	UPVC SWR Pipes	
i		Astral
ii		Prince
iii		Supreme
iv		Finolex
v		Flowguard
16	RCC Pipes	
i		Jain
ii		KK
iii		Indian Hume Pipe Co.
iv		Premiere Prestressed Products
v		Indian Hume Pipe Co.
viii		Or as approved
17	GM Gate. Globe, Check Valves	
i		Zoloto
ii		Sant Brass Metal
iii		Leader
iv		Danfoss
v		Audco
18	CI Butterfly Valves	
i		Zoloto
ii		Danfoss
iii		Kirloskar Brothers
iv		Leader
v		Advance
vi		Audco
19	CI Sluice Valves	

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	i	Kirloskar Brothers
	ii	Danfoss
	iii	Intervalve
	iv	IVC
	v	Zoloto
	vi	Advance
	vii	Audco
20	Gully Traps	
	i	Perfect
	ii	RK
	iii	Anand
21	Air Vent Valve	
	i	Jainsons Industries (JSI)
	ii	CIM
	iii	DRP
	iv	Zoloto
22	Flanges (Table 'H'/Class 150)	
	i	Aanya Steel
	ii	Skyland Metals
	iii	Rishabh Steel
23	Thermal Insulation	
	i	K-Flex
	ii	Thermaflex
	iii	Armacell
24	Anti Corrosive Bitumastic Paint	
	i	Asian Paints
	ii	Burger Paints
	iii	Shalimar
	iv	ICI Dulux
	v	J&N
25	Electronic Digital Type Water Meter	
	i	Honeywell,
	ii	Electronet
	iii	Aster
	iv	Forbes Marshal
	v	L&T
	vi	Siemens
26	Geyser	
	i	A.O.Smith
	ii	Recold
	iii	Bajaj
	iv	Venus
	v	Jaquar
	vi	Havells
27	CI Check Valves	
27a	Conventional Swing / Lift	
	i	Kirloskar
	ii	IVC
27b	Wafer type	
	i	Danfoss
	ii	Univas
27c	Dual Plater type	

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	i	Advance
28	CI Manhole Frame & Cover	
	i	NECO
	ii	Raj Iron Foundary
	iii	Bombay Iron Works
	iv	Hepco
29	C.I. / G.I. Grating	
	i	NECO
	ii	Kapilansh
	iii	Hepco
30	PUMPS	
	i	Grundfos
	ii	KSB
	iii	CRI
	iv	D.P Holland
	v	WILO
	vi	Kirloskar
	vii	Crompton
31	Submersible Drainage / Sewage Pumps	
	i	CRI,
	ii	D.P Holland
	iii	KSB
	iv	Wilo
	v	Grundfos
32	Water Heaters / Storage Geysers	
	i	Racold
	iii	Venus
	iv	Bajaj
	v	Crompton
	vi	Spherehot
33	Insulation for Hot Water Piping	
33a	Fiberglass	
	i	Twiga
	ii	Afico
	iii	Kimmco
	iv	Rockwool
33b	Nitrile Rubber	
	i	Armaflex
	ii	Vidoflex
	iii	K Flex
	iv	Superlon
34	Hyropneumatic System	
	i	Grundfos
	ii	CRI
	iii	Kirloskar
	iv	WILO
	v	HBD
35	Sealant	
	i	Dow corning
	ii	Acqua Bond
	iii	GE
36	Pressure reducing Valves	



Sr. No.	Material Name	Manufacturer/ Supplier/Make
	i	Donfoss
	ii	Honeywell
	iii	VB
37	Float Valve (Gunmetal ) upto 40mm	
	i	Donfoss
	ii	Leader
	iii	Kartar
	iv	Sant
38	Float Valve (CI ) 50mm and above	
	i	Donfoss
	ii	Leader
	iii	KSB
39	Water Meter (Analogue)	
	i	Kapstan
	ii	Deshmesh
	iii	Kranti
	iv	Kent
	v	Rockwin
	vi	Forbes Marshall
	vii	Benchtop
40	Epoxy Paint / Enamel Paint	
	i	Asian Paints
	ii	ICI DULUX
	iii	NEROLAC
	iv	BERGER
	v	Jenson Nicholson
	vi	Shalimar
41	DI Manholes with Frame	
	i	NECO
	ii	Municast
	iii	Vibhor
42	Welding Electrode	
	i	ADOR
	ii	ESSAB
	iii	MARUTI WELD
	iv	GEE
43	Swimming Pool and accessories except Pump and Piping	
	i	Aquarian Systems
	ii	Thermax
	iii	Gujarat Ion Exchnage & Chemicals Ltd.
	iv	Netsol Water
44	PP Filter Press / Cavity Pump	
	i	Aquarian Systems
	ii	Thermax
	iii	Gujarat Ion Exchnage & Chemicals Ltd.
45	Water Treatment Plant except Pumps and Piping	
	i	Aquarian Systems
	ii	Thermax

Sr. No.	Material Name	Manufacturer/ Supplier/Make
iii		Gujarat Ion Exchnage & Chemicals Ltd.
iv		Netsol Water
46	STP & ETP except Pump & Piping	
i		Aquarian Systems
ii		Thermax
iii		Gujarat Ion Exchnage & Chemicals Ltd.
47	PP Drainage pipe	
i		Astral
ii		Huliot
iii		Polo Plast
48	Underground Drainage & Sewage Pipe	
i		Supreme
ii		Astral
iii		Ashirwad
iv		Prince
49	SMC Panel Water Storage Tank	
i		Sintex Plastics
ii		Devi Polymers
iii		Amcon Fibreglass & Plastics
50	Grease Trap (Pre Fabricated Type)	
i		Aco
ii		Kessel
iii		Wade
51	Foot Rest	
i		KGM
ii		Patel
iii		PRANALI INDUSTRIES
52	FRP Manhole Cover with Frame	
i		Everlast
ii		Thermoset
iii		Supreme
53	Diesel Engine	
i		Cummins
ii		Kirloskar
iii		Greaves
54	Forged Steel Fittings	
i		JSI
ii		VS
iii		Forge
iv		DRP
55	Cast Steel Gate Valve	
i		Castle
ii		Zoloto
iii		L&T
56	Gun Metal Air release valve	
i		Sant
ii		Zoloto
iii		Castle
iv		JSI
57	Pressure switch	

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	i	Danfoss
	ii	Viking
	iii	Honeywell
58	VFD for Hydropneumatic System (For RO Water Supply Distribution)	
	i	Danfoss
	ii	ABB
	iii	Siemens
	iv	Delta
59	Dosing Pump	
	i	Grundfos
	ii	Asia LMI
	iii	E-Dose
	iv	Pentair
60	Rota Meter / ORP Meter	
	i	Aster
	ii	Electronet
	iii	Hach
	iv	Forbes Marshall
61	pH Meter / Conductivity (TDS) Meter	
	i	Forbes Marshall
	ii	Hach
	iii	Aster
	iv	Electronet
	v	ABS
	vi	Siemens
62	Multi Grade Pressure sand Filter & Activated Carbon Filter (MSEP)/Softener Vessel (MSRL)	
	i	Fabricated
63	UV with Monitor	
	i	Aquarian Systems
	ii	Alfa
	iii	Sukrit
	iv	Cole-Parmer
64	Manual Multiport Valve	
	i	Initiative
	ii	Prahar
	iii	Pantier
65	Level Indicator	
	i	Minilec,
	ii	Techtral
	iii	Technika
	iv	SA Control,
	v	Advance
66	Level Controller	
	i	Cirrus,
	ii	Advance
	iii	Nivo Control
	iv	Elegant
67	Solenoid Valve	
	i	Honeywell
	ii	Danfoss

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	iii	Anergy
68	Softener Resin	
	i	Purolite
	ii	Thermax
	iii	Ion Exchange
69	R.O. Membrane	
	i	GE
	ii	Hydronautic
	iii	DOW
	iv	Torray
70	R.O. Pressure Tube	
	i	Pentair Code line
	ii	Gopani
	iii	aventure
71	Micron Cartridge Filter	
	i	Initiative
	ii	Gopani
	iii	Pratham
72	CIP Tank	
	i	Sintex
	ii	Polycon
	iii	Sheetal
73	Dosing tank (chemical grade)	
	i	Sintex
	ii	Polycon
	iii	Sheetal
	iv	Frontier
74	Overhead Tank Controlling System [Motorized Valve / Solenoid Valve / Level Sensor & Assembled Level Control Panel]	
	i	Lehry Instrumentation
	ii	AIP Valve
	iii	Grundfos
	iv	Merson
75	Air Blowers	
	i	Aquarian Systems
	ii	Everest
	iii	Kay International
76	Centrifuge	
	i	Apollo
	ii	Snfi
	iii	DFS
77	Centrifuge Feed Pump	
	i	Roto Pump
	ii	UT Pump
78	Float Valve	
	i	Leader
	ii	Sant
	iii	CIM
79	Magnetic Flow Meter / Electromagnetic Type Flow Meter	
	i	Korne Marshall

Sr. No.	Material Name	Manufacturer/ Supplier/Make
ii		Ztech
iii		LIFA
iv		Cirus
v		Yokogawa
vi		ABB
80	Online Digital Rotometer/Flow Meters/pH meter/DO meter	
i		Aster
ii		Electronet
iii		Gtech
81	Actuators	
i		Marsh
ii		L&T
iii		Honeywell
82	Diffusers	
i		Aquarian Systems
ii		MM Aqua
iii		Scogen
83	UF Membrane	
i		GE
ii		Toray
iii		Hydranautics
iv		Qua
84	PLC System	
i		Allen Bradely
ii		Honeywell
iii		Delta
iv		Siemens
v		Orman
85	Bar Screens [Coarse & Fine]	
i		Aquarian Systems
ii		Jash
iii		Johnson
86	FRP Dual Media Filter for ETP & Softener Vessel (FRP)	
i		Adventure
ii		Pentair (Structure)
iii		Aquanomics
87	Online Monitoring System	
i		Xylem
ii		Hach
iii		KSP Hydro (Hemera)
88	Agiatore/Clarifier	
i		Aquarian Systems,
ii		Alicon
iii		Rotomotive
iv		Dorrolie
v		Coron
89	Ozonator	
i		Ozonics
ii		Creative
iii		ORAIPL

Sr. No.	Material Name	Manufacturer/ Supplier/Make
90	Electrical Hot Water Generator	
i		Rapid Cool
ii		National
iii		KEPL
iv		Ross
91	Dial Thermometers	
i		H-Guru
ii		Fiebig
iii		waree
92	Hot Water Re Circulation Pump / Hot Water Return Pump	
i		ITT Lowara
ii		Willo
iii		Grundfos
93	Plate Heat Exchanger	
i		Kalvion,
ii		Alfa Laval
iii		Tranter
iv		Xylem
v		GEA
94	Softener with Brine Tank	
i		Thermax
ii		Ion Exchange
iii		Doshi ion exchange
95	D.I. pipe	
i		Jindal Saw
ii		Lanco
iii		Electrosteel
96	Foot valve with Strainer	
i		Sant
ii		Kartar
97	Y type suction strainer	
i		Dasmesh
ii		Gradprit
iii		Kartar

**Note-** Electrical items. i.e. Cables, wires, MCB's, Electric motors, Panels, Starters , Solar systems. should be used as per Electrical approved make list

Sr. No.	Material Name	Manufacturer/ Supplier/Make
1	LED Tube/Lamp/Bulb	
i		Philips
ii		Havells
iii		Crompton
iv		Toshiba
v		Osram
vi		GE
vii		Wipro
2	LED Internal Light Fixture	
i		Philips
ii		Havells
iii		Crompton
iv		Toshiba
v		Osram
vi		GE
3	LED Street Light Fittings	
i		Philips
ii		Havells
iii		Wipro
iv		Crompton
4	LED Flood Light	
i		Philips
ii		Havells
iii		Wipro
iv		Crompton
5	LED Pathway Light	
i		Philips
ii		Havells
iii		Wipro
iv		Crompton
v		HPL
6	LED Gate Light	
i		Philips
ii		Havells
iii		Wipro
iv		Crompton
v		HPL
7	LED Underwater Light	
i		Philips
ii		Havells
iii		Wipro
iv		Crompton
v		HPL
8	Ceiling Fans	
i		Crompton
ii		Orient
iii		Havells
iv		Khaitan
9	Exhaust Fans	
i		Crompton
ii		Orient
iii		Havells

Sr. No.	Material Name	Manufacturer/ Supplier/Make
iv		Khaitan
v		Usha
vi		Bajaj
10	Modular Switch, Socket & Sheet	
i		Schneider Zencelo
ii		Wipro Artisa
iii		Legrand Arteur
iv		MK- Blenze
11	Modular TV, Telephone & Data Socket	
i		Schneider Zencelo
ii		Wipro Artisa
iii		Legrand Arteur
iv		MK- Blenze
12	Industrial Sockets	
i		Schneider
ii		Hensel
iii		Legrand
iv		Neptune
v		HPL
vi		Havells
13	DB, MCB, RCCB, RCBO,ELCB	
i		Schneider
ii		Siemens
iii		ABB
iv		L&T
v		Wipro
vi		Hager
vii		Legrand
viii		Havells
14	MPCB	
i		ABB
ii		L&T
iii		Schneider
iv		Siemens
15	HRC Switch Fuse Units	
i		Schneider
ii		Siemens
iii		ABB
iv		L&T
v		Wipro
vi		Hager
vii		Legrand
viii		Havells
16	Lamp Holder	
i		Havells
ii		Bajaj
iii		wipro
iv		Anchor
v		HPL
17	Video door phone	
i		Zicom
ii		Legrand



Sr. No.	Material Name	Manufacturer/ Supplier/Make
iii		Panasonic
iv		Hikvision
v		Honeywell
18	Copper Wires : 1100V/660V Grade FRLS	
i		Finolex
ii		Polycab
iii		KEI
iv		Havells
19	RG6, RG11 Coaxial T V & Telephone Cable	
i		Finolex
ii		Polycab
iii		Delton
iv		KEI
20	CAT 6 Cable	
i		Finolex
ii		Dlink
iii		Polycab
iv		Legrend
v		Belden
vi		AMP
vii		Systimax
viii		Avaya
21	CAT 6 I/O Socket	
i		Dlink
ii		Lucent
iii		Molex
iv		Legrend
v		Belden
vi		AMP
vii		Systimax
xi		Avaya
22	PVC Conduits & Accessories	
i		Polycab
ii		AKG
iii		BEC
iv		Precision
v		Finolex
vi		Sudhakar
23	MS Black enameled /galvanised ERW conduit	
i		BEC
ii		Steel Craft
ii		AKG
24	MS PIPES and GI PIPES	
i		JINDAL
ii		TATA
iii		SURYA
iv		SAIL
25	XLPE Cables & Accessories	
i		Polycab
ii		Havells
iii		Finolex
iv		KEI

Sr. No.	Material Name	Manufacturer/ Supplier/Make
v		Cables corporation of India
vi		RPG Cables Ltd.
vii		Universal cables Ltd.
viii		Gemscab Industries Ltd
ix		Gloster cables
x		Ravin cables pvt ltd
26	Control cable/ Fire survival, Communication Cables	
i		Polycab
ii		Havells
iii		Finolex
iv		KEI
v		Laap
vi		Delton
vii		Fusion Polymer
viii		Rallison
27	Cables Glands & Lugs	
i		Dowell
ii		Comet
iii		Centurion
iv		Bentec
v		Jainson
vi		Baliga lighting eqpts Ltd
vii		FCG Power IND Pvt Ltd
28	Bimetalic Cable Lug	
i		Comet
ii		Cosmos
iii		Dowells
iv		Jainsons
29	PVC Glands	
i		Comet
ii		Dowells
iii		Gripwel
v		Jainsons
vi		HMI
30	Aluminum Raceways	
i		Jindal
ii		Bemtec
iii		Indiana
iv		HILTI
v		Gripple
vi		Legrand
vii		Slotco
viii		MEM
31	MS/GI Cable Tray & Raceways	
i		Indiana
ii		Ricco
iii		Pilco
iv		Hi Reach
v		Slotco
vi		SPC Electrotech Pvt.Limited
32	Load break switch	
i		Legrand

Sr. No.	Material Name	Manufacturer/ Supplier/Make
ii		L&T
iii		HPL
iv		Panasonic
v		Siemens
vi		Havells
vii		ABB
33	Changeover Switch	
i		Siemens
ii		Schneider
iii		Socomec
iv		L&T
v		ABB
vi		Havells
vii		HPL
34	ATS	
i		Siemens
ii		Schneider
iii		Socomec
iv		L&T
v		ABB
35	ACCL	
i		Pork device
ii		Havells
iii		Salzer
iv		L & T
v		Electron
36	Electrical Measuring Meters	
i		L&T
ii		HPL
iii		Siemens
iv		Socomec
v		Neptune
vi		Conzerv
vii		Schneider
viii		Secure
37	Capacitors	
i		L&T
ii		Epcos
iii		Neptune
iv		Schneider
v		Siemens
38	Lightning Arrestor	
i		Altec
ii		Duval Messien
iii		ABB
iv		Erico
v		Crompton
vi		Jmv Lps Pvt.Ltd
vii		Indelac
viii		Obo Betterman
39	Main LT PANEL and AFC Panel	
i		Tricolite

Sr. No.	Material Name	Manufacturer/ Supplier/Make
ii		Adlec System
iii		Advance Panel & Switchgear Pvt. Ltd. New Delhi
iv		Jakson
v		Ambit Switch gears- Noida
vi		Sudhir Power
vii		Indian Electrical
viii		L&T
ix.		SPC Electrotech Pvt.Limited
40	L.T. Feeder Pillar	
i		Tricolite
ii		Adlec System
iii		Advance Panel & Switchgear Pvt. Ltd. New Delhi
iv		Jakson
v		Ambit Switch gears- Noida
vi		Sudhir Power
vii		Indian Electrical
viii		L&T
ix.		SPC Electrotech Pvt.Limited
41	AIR Insulated / Sandwich Bus Duct & Rising Main	
i		C&S
ii		L & T
iii		Schneider
iv		Zucchini Legrand
v		Adlec System
vi		Tricolite
vii		Jakson
viii		Advance Panel & Switchgear Pvt. Ltd. New Delhi
ix		Zeta
x		SPC Electrotech Pvt.Limited
42	Metering Cubicle	
i		Tricolite
ii		Adlec System
iii		Advance Panel & Switchgear Pvt. Ltd. New Delhi
iv		Jakson
v		Ambit Switch gears- Noida
vi		Sudhir Power
vii		Indian Electrical
viii		SPC Electrotech Pvt.Limited
43	HT Panel Indoor/Out door VCB/RMU	
i		Siemens
ii		Schneider
iii		L & T
iv		Crompton
v		ABB
vi		SPC Electrotech Pvt.Limited
44	11KV isolator & D.O. fuse.	Shall be as per Local Discom Authority Approval List as and where required

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	i	Topaz
	ii	Siemens
	iii	ABB
	iv	L&T
	v	Schneider
	vi	GE
45	Distribution Transformer	Shall be as per Local Discom Authority Approval List as and where required
	i	Siemens
	ii	ABB
	iii	Kirloskar
	iv	Crompton
	v	VoltAmp
	vi	Crompton Greaves
	vii	Universal
	viii	Schneider Electric
	ix	Vijay Electrical
46	D G Set- Engine	
	i	Kirloskar
	ii	Cummins
	iii	Cromptons
	iv	Perkins
	v	Caterpillar
47	D G Set- Alternator	
	i	Stamford
	ii	Kirloskar
	iii	Leroy Somer
	iv	Caterpillar
	v	Trident
	vi	Toyo Donkey power
48	Elevator/ Escalator/Lifts	
		(Contractor to ensure the make of list as per lifts already installed at the project)
49	Water Pumps	
	i	KIRLOSKAR
	ii	CROMPTON
	iii	GRUNDFOS
	iv	WILO
	v	EBARA
	vi	Lubi
50	Solar Water Heating Systems	
	i	COMFONOMICS
	ii	TATA SOLAR
	iii	SURYA
	iv	BHEL
	v	Solarhart
	vi	Photon
	vii	BIPSUN
	viii	RACOLD
	ix	Solimpeks
	x	KK Tech Eco Product Pvt. Ltd.

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	xi	Ecoguard
	xii	Composite Nirman Materail Pvt. Ltd.
51	Air Source Heat Pump	
	i	Aquarian Systems
	ii	Phillips
	iii	Murphy
	iv	SYSKA
	v	A.O. Smith
52	Insulating Mats- LT & HT Rating	
	i	Jyoti
	ii	Padmini
	iii	Premier Polyfilm
	iv	Tata Rubber Corporation
	v	Suntex
53	Fire Sealent and Fire Retardent Paint	
	i	3M India
	ii	Hilti
	iii	OBO Betterman
	iv	Starvac Flammadar
	v	M Seal
54	Surge protection device	
	i	JMV
	ii	DHEN
	iii	OBO
	iv	MERSEN
55	Solar PV Cleaning System	
	i	OORJA
	ii	SOLBRIGHT
	iii	ECOPPIA
56	Solar Inverter/Power conditioning unit	
	i	Solis
	ii	Delta
	iii	Tata Power
	iv	Havells
	v	Luminous
	vi	BHEL
	vii	Moaserbear
57	SPV Modules-Mono Perc	
	i	Reneways
	ii	Adani
	iii	Tata Power
	iv	Jakson
	v	BHEL
	vi	Moaserbear
58	SPV Modules Bifacial	
	i	Reneways
	ii	Adani
	iii	Tata Power
	iv	Jakson
	v	BHEL
	vi	Moaserbear
59	FUEL CELL SYSTEM	

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	i	BLOOM ENERGY
	ii	FC TECNRGY
60	EXIT SIGNAGES	
	i	Legrand
	ii	ABB
	iii	Philips
	iv	MK
	v	D-Lite
	vi	Cease Fire
	vii	Cooper
	ix	Bajaj
61	HDPE - Pipe	
	i	Duraline
	ii	Rex Poly Extrusion
	iii	Tirupati Plasomatics
62	Lighting Poles	
	i	Bajaj
	ii	Bombay Tubes & poles
	iii	Surya
	iv	Philips
	v	Wipro
	vi	Keselec
	vii	BPP pole
63	Anchor Fastner	
	i	Fischer
	ii	Hilti
	iii	Power fastener
64	Occupancy Sensors	
	i	Honywell
	ii	Schneider
	iii	Johnson
	iv	Siemens
	v	Wipro
	vi	Philips
65	Lighting Control Equipment/ Dimmers	
	i	Lutron
	ii	Crystron
	iii	Schneider
	iv	Wipro
	v	Legrand
	vi	Panasonic
66	Aviation Obstruction Light LED Type	
	i	Bajaj
	ii	Philips
	iii	Wipro
	iv	Havells
	v	Instapower Ltd
67	Terminal Blocks	
	i	Connectwell
	ii	Elmax
	iii	Wago
68	POP UP Boxes	

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	i	Legrand
	ii	MK
	iii	ABB
69	Push Button & Indicating Lamp	
	i	L&T
	ii	Schneider
	iii	Kaycee
	iv	ABB
	v	Siemens
70	66kV and 33 KV OUTDOOR SWITCHYARD PACKAGE	
	i	ABB
	ii	CG Power and Industrial Solutions LTD
	iii	L&T
	iv	SIEMENS
	v	SREX POWER INDIA PVT. LTD.
	vi	STERLING & WILSON INDIA
71	66kV and 33 KV GIS (Indoor)	
	i	ABB INDIA
	ii	SCHNEIDER ELECTRIC INDIA
	iii	SIEMENS
72	CATHODIC PROTECTION SYSTEM	
	i	BSS TECH CP INDIA PVT. LTD.
	ii	CATHODIC CONTROL COMPANY
	iii	CORROSION CONTROL SERVICES PVT. LTD.
73	ELECTRICAL CONTROL SYSTEMS (MICRO-GRID / SCADA)	
	i	HONEYWELL
	ii	DEIF INDIA PVT LTD
	iii	ROCKWELL AUTOMATION
	iv	SCHNEIDER ELECTRIC INDIA PVT LTD
	v	SIEMENS
74	NEUTRAL GROUNDING RESISTORS-H.V.	
	i	IRESKO ELECTRICALS PVT. LTD. INDIA
	ii	NATIONAL SWITCHGEARS
	iii	RESITECH ELECTRICALS PVT LTD
	iv	RSI SWITCHGEAR PVT LTD
	v	S.R. NARKHEDE ENGINEERING PVT LTD
75	Protection Relays	
	i	ABB
	ii	Alstom
	iii	Easun Reyrolle
	iv	L&T
	v	Schneider
	vi	Areva
76	AUX. / Bimetalic Relays	
	i	ABB



Sr. No.	Material Name	Manufacturer/ Supplier/Make
ii		Schneider
iii		Easun Reyrolle
iv		L&T
v		Siemens
77	Flame Proof Panel Light LED & Accessories	
i		Baliga Lighting Eqpts Ltd.
ii		FCG Power Industries
iii		Flame proof Eqpts Pvt.Ltd
78	Instrument Transformers CT & PT -MV	
i		Gilbert & maxwell
ii		Kappa
iii		L&T
iv		AE
v		Matrix precise
79	Instrument Transformers CT & PT -HV	
i		Kappa
ii		Pragati
iii		Schneider
iv		Siemens
v		ABB
80	Fuses	
i		Cooper
ii		L&T
iii		Siemens
iv		ABB
v		Schneider
vi		GE
81	Cable Termination & jointing kit( Heat Shrinkable)	
i		3M India
ii		Raychem
iii		Yamuna gases & Chemicals
iv		M Seal
82	Contactors	
i		ABB
ii		C & S
iii		L & T
iv		Schneider
v		Siemens
vi		GE
83	Selector Switches	
i		Kaycee
ii		L & T
iii		Siemens
iv		Salzer
v		Neptune
84	Air Circuit Breaker- ACB	
i		Siemens - 3WL
ii		Schneider- Masterpact
iii		L & T- U power
iv		ABB -E max
v		GE
vi		C&S Electric limited

Sr. No.	Material Name	Manufacturer/ Supplier/Make
85	MCCB	
i		L&T D sine
ii		Schneider compact
iii		Siemens VL
iv		ABB Tmax
86	High Mast Lighting System	
i		Bajaj
ii		CG Power
iii		Philips
87	U.P.S. System	
i		APC
ii		Emerson
iii		Delta
iv		Numeric
v		Eaton
vi		Toshiba
88	Batteries	
i		Exide
ii		Amaron
iii		Amar Raja
iv		Panasonic
v		Amco
vi		HBL
vii		Hitachi
89	Battery Charger	
i		Max
ii		Mohamai
iii		Amar Raja
iv		HBL
v		Chloride Power System
90	Switch Board Fixed for Pakage equipments	
i		Adlec
iii		Advance Panel
iv		Tricolite
v		Jackson
vi		Neptune
vii		SPC Electrotech
91	Gang Operated air breaker Switch unit 11KV	Shall be as per Local Discom Authority Approval List as and where required
i		Pactil
ii		Isotech
iii		Mitsubishi
92	11 KV pallet type lighting accessories	Shall be as per Local Discom Authority Approval List as and where required
i		BHEL
ii		WSI
iii		PACTIL

Sr. No.	Material Name	Manufacturer/ Supplier/Make
93	11 KV Insulator	Shall be as per Local Discom Authority Approval List as and where required
i		BHEL
ii		WSI
iii		PACTIL
94	11 KV Elastomeric Rubber Floor Mat	
i		Suntax
ii		Tycoon
iii		Polymax
95	Time Switches	
i		L&T
ii		Schneider
iii		Siemens
iv		Legrand
96	Chemical Earthing	
i		Altec
ii		Erico
97	Butterfly Valves	
i		Audco
ii		Advance
iii		Sant
98	Balanceing Valve	
i		Advance
99	Ball Valve/Gate Valve	
i		Audco
ii		Advance
100	Check valve( NRV)	
i		Audco
ii		Advance
101	Flexible Coupling with SS guard	
i		Resistoflex
ii		Kanwal
102	Strainer for water line	
i		Sant
ii		Venus
iii		Emerald
103	Pressure Guage	
i		Fiebig
ii		H.Guru
104	Temperature Gauge	
i		Fiebig
ii		H.Guru
105	Insulation	
i		UP Twiga
ii		Lloyd
iii		Rock Wool
106	Rotary Gear Pump	
i		Rotodel
ii		Delta
107	Bulk oil Tank	
i		Indo Asiatic

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	ii	Rapid Cool
	iii	Raunaq Enterprises
108	Flame proof motor	
	i	Crompton
	ii	KEC
109	Red Oxide Primer Paint	
	i	Shalimar
	ii	Asian
	iii	Nerolac
	iv	Berger
	v	Dulux
110	Rust Preventing Polymeric tape	
	i	Pypekote
111	Flow meter ( Diesel )	
	i	Kent
	ii	AquaMetro
112	Bucket/ Y -Strainer	
	i	Emerald
	ii	Stainwell
	iii	Aquo Metro
113	Adaptor	
	i	kayess
114	Stainless Steel Bellow	
	i	Kanwal
	ii	Alfa flexi
115	Flame Proof Level switch	
	ii	Minilec
	iii	Veksler
116	Fire Extinguisher	
	i	Minimax
	ii	Newage
	iii	Superex
117	MS Conduit Accessories	
	i	Sharma
	ii	Rama
	iii	Noble
118	Hume Pipe	
	i	Pragati
	ii	Daya Spun
	iii	Jain Spun
119	RCC Frame & Cover	
	i	KK Manhole
120	Pumps	
	i	Grundfos
	ii	KSB
	iii	Wilo
	iv	Mather Platt
	v	Xylem
	vi	Kirloskar
	vii	Armstrong
	viii	Crompton
	ix	Lubi

Sr. No.	Material Name	Manufacturer/ Supplier/Make
121	Electrical Motors	
i		Siemens
ii		ABB
iii		KSB
iv		Crompton
v		Mather & Platt
vi		Grundfos
vii		Kirloskar
viii		Lubi
ix		Marathon
122	CI Y Strainer	
i		Sant
ii		Kartar
iii		Zoloto
iv		Emerald
v		AIP
vi		DRP
vii		DS Engg.
123	Smoke Detector	
i		Siemens
ii		Securiton
iii		Honeywell
iv		BOSCH
v		TYCO
vi		Johnson Control
vii		Copper
viii		Daksh
124	Heat Detector	
i		Siemens
ii		Securiton
iii		Honeywell
iv		BOSCH
v		TYCO
vi		Johnson Control
vii		Daksh
125	MCP	
i		BOSCH
ii		Honeywell
iii		Siemens
iv		TYCO
v		Johnson Control
vi		Notifier
vii		Daksh
viii		Copper
126	Sound / Strobe	
i		BOSCH
ii		Honeywell
iii		Siemens
iv		TYCO
v		Johnson Control
vi		Copper
vii		Daksh

Sr. No.	Material Name	Manufacturer/ Supplier/Make
127	Response Indicator	
i		BOSCH
ii		APOLLO
iii		Honeywell
iv		Siemens
v		TYCO
vi		Johnson Control
vii		Daksh
128	Controller with Amplifier for Fire Alarm	
i		BOSCH
ii		TYCO
iii		Honeywell
iv		Henriche
v		Siemens
vi		Johnson Control
viii		Daksh
129	Goose neck Microphone	
i		BOSCH
ii		Honeywell
iii		Henriche
130	Speaker	
i		BOSCH
ii		Honeywell
iii		Henriche
iv		Siemens
v		TYCO
vi		Johnson Control
131	Wooden Rack	
i		BOSCH
ii		Honeywell
iii		Henriche
132	Fire Extinguishers	
i		Ceasefire
ii		Firex
iii		Safex
iv		New Age
v		Minimax
vi		Kalpex
vii		Kanex

**Note:** All above make for electrical works shall comply from WBSEDCL norms also (West Bengal State Electricity Distribution Company Limited)

Sr. No.	Material Name	Manufacturer/ Supplier/Make
<b>FIRE LIFE &amp; SAFETY WORK</b>		
1	Fire Alarm Control Panel	
i		Siemens
ii		Securition
iii		Honeywell
iv		L&T
v		Johnson Control
2	G I Pipes	
i		Jindal- Hissar
ii		TATA
iii		SAIL
3	G I Fittings	
i		Zoloto
iv		KS Brand
v		DRP M
4a	M S Pipes	
i		TATA
ii		Jindal Hissar
iii		SAIL
iv		Zenith Birla
4b	MS FITTINGS	
i		TATA
ii		Jindal Hissar
iii		SAIL
5	M S Structural Elements	
i		TATA
ii		Jindal
iii		SAIL
iv		Unik
6	SS Fire Hydrant Landing Valve	
i		Safex
ii		New Age
iii		Minimax
iv		Ceasefire
vi		Life Guard
7	Flexible Hose with Gunmetal Male & Female coupling	
i		New Age,
ii		Safex
iii		Ceasefire
iv		Minimax
8	Fireman's Axe	
i		New Age
ii		Ceasefire
iii		Safex
iv		Minimax
9	Fire Hose Reel with drum, hanging bracket etc.	
i		New Age

Sr. No.	Material Name	Manufacturer/ Supplier/Make
ii		Ceasefire
iii		Safex
iv		Minimax
10	Fire Hose Cabinet	
i		New Age
ii		Ceasefire
iii		Safex
iv		Minimax
11	Butterfly Valve	Advance
i		Intervalve
ii		Sant
iii		Audco
iv		Zoloto
12	CI Dual Plate Check Valve	
i		Zoloto
ii		Audco
iii		Advance
iv		Kirloskar
13	Control Valve with turbine type automatic Alarm	
i		HD
ii		Viking
iii		Gem
iv		Star
v		Victaulic
vi		TYCO
vii		Mather & Platt
14	Sprinkler Head-Pendant / Sideall/ Upright	
i		TYCO
ii		HD
iii		Viking
15	Flexible Pipe	
i		HD
ii		Minimax
iii		Viking
iv		Resistoflex
v		Life Guard
16	Short Branch Pipe	
i		New Age
iv		Minimax
v		Safeguard
vi		Ceasefire
17	Ball Valve	
i		Zoloto
ii		Sant
iii		Audco
iv		Advance
18	Gun Metal Gate Valve	
i		Zoloto



Sr. No.	Material Name	Manufacturer/ Supplier/Make
ii		Sant
iii		Audco
iv		Advance
19	SS dial type Pressure Gauge	
i		H Guru
ii		Fiebig
iii		Emerald
20	Pumps	
i		Wilo
ii		KSB
iii		Armstrong
iv		XYlem
v		Kirloskar
vi		Grundfos
21	CI Y Strainer	
i		Sant
ii		Kartar
iii		Zoloto
iv		Emerald
vi		DRP
22	Electric Motors	
i		Siemens
ii		ABB
iii		KSB
iv		Crompton
v		Mather & Platt
vi		Grundfos
vii		Kirloskar
viii		Lubi
ix		Marathon
23	Smoke Detector	
i		Siemens
ii		Securiton
iii		Honeywell
iv		BOSCH
v		TYCO
vi		Johnson Control
vii		Copper
24	Heat Detector	
i		Siemens
ii		Securiton
iii		Honeywell
iv		BOSCH
v		TYCO
vi		Johnson Control
25	MCP	
i		BOSCH
ii		Honeywell

Sr. No.	Material Name	Manufacturer/ Supplier/Make
iii		Siemens
iv		TYCO
v		Johnson Control
26	Sound / Strobe	
i		BOSCH
ii		Honeywell
iii		Siemens
iv		TYCO
v		Johnson Control
27	Response Indicator	
i		BOSCH
ii		APOLLO
iii		Honeywell
iv		Siemens
v		TYCO
vi		Johnson Control
28	Controller with Amplifier for Fire Alarm	
i		BOSCH
ii		TYCO
iii		HD
iv		Honeywell
v		Henriche
vi		Siemens
vii		Johnson Control
29	Goose neck Microphone	
i		BOSCH
ii		Honeywell
iii		Henriche
30	Speaker	
i		BOSCH
ii		Honeywell
iii		Henriche
iv		Siemens
v		TYCO
vi		Johnson Control
31	Wooden Rack	
i		BOSCH
ii		Honeywell
iii		Henriche
32	Fire Extinguishers	
i		Ceasefire
ii		Firex
iii		Safex
iv		New Age
v		Minimax
33.	Armoured Cables	
i		Polycab
ii		Finolex

Sr. No.	Material Name	Manufacturer/ Supplier/Make
iii		KEI
iv		Havels
v		Rallison
vi		Lapp
vii		Belldon
viii		Delton
ix		KEI
x		Skytone
34	FRLS Cable	
i		Polycab
ii		Finolex
iii		KEI
iv		Havels
v		Rallison
vi		Lapp
vii		Belldon
viii		Delton
ix		KEI
x		Skytone
35	Anti Vibration Mounting Pads	
i		Dunlop
ii		Resistoflex
iv		Kanwal
v		Easyflex
36	Anti corrosive pipe treatment (As per IS:10221 – 1982)	
i		Pypkote (IWL)
ii		Tapex
iii		Coatek
iv		Makpolycoat
37	Mechanical Seal	
i		Sealol
ii		Burgman
iii		Hindustan
38	Dash Fasteners	
i		Hilti
ii		Fisher
39	Paint Primer	
i		Asian Paints
ii		Berger
iii		Nippon Paint
iv		ICI Dulux
v		NEROLAC
40	Enamel Painting of pipes etc.	
i		Asian Paints
ii		Berger
iii		ICI Dulux
iv		NEROLAC

Sr. No.	Material Name	Manufacturer/ Supplier/Make
v		Nippon Paint
41	Welding Electrodes	
i		Adani
iii		ESAB
iv		Advani
v		Ador
42	Control Valve	
i		HD
iii		Viking
iv		Tyco
v		Mather & Platt
43	Deluge Valve	
i		HD
ii		Monsher
iii		Viking
44	Water Curtain Nozzle	
i		HD
ii		Monsher
iii		Viking
45	Powder coated sprinkler rosette	
i		HD
ii		Monsher
iii		Viking
iv		Tyco
v		Newage
46	Concealed Sprinkler	Tyco
i		HD
iii		Viking
47	Water Flow Switch	
i		System Sensor
ii		Viking – potter
iii		Honeywell
48	Inspecting & Testing Assembly	
i		Giacomini
ii		HD
iii		Tyco
49	UL & FM Approved grooved fittings :	
i		Victaulic
ii		Viking
iii		Tyco
50	Ultrasonic Flow Meter	
i		ABB
ii		Endress Houser
iii		Siemens
51	Temper Switch	
i		Danfoss
ii		Viking
iii		Honeywell

Sr. No.	Material Name	Manufacturer/ Supplier/Make
52	Server Room Flooding – Total Flooding	
i		KalpEX
ii		Sevo
iii		Siemens
53	Online Monitoring System	
i		Comfonomics
ii		Xylem
iii		Hach
iv		KSP Hydro (Hemera)
54	NETWORK REPEATER PANEL	
i		EDWARD-EST
ii		NOTIFIER
iii		CERBERUS-SIEMENS
iv		HONEYWELL-XLS-3000-XL
v		SIMPLEX
vi		Tyco
vii		Johnson Control
55	SLC / NETWORK / FIBER CARD	
i		EDWARD-EST
ii		NOTIFIER
iii		CERBERUS- SIEMENS
iv		HONEYWELL-XLS-3000-XL
v		SIMPLEX
vi		Tyco
vii		Johnson Control
56	MULTISENSORY / ADVANCED MULTI-SENSOR DETECTOR	
i		EDWARD-EST
ii		NOTIFIER
iii		CERBERUS- SIEMENS
iv		HONEYWELL-XLS-3000-XL
v		SIMPLEX
vi		Tyco
vii		Johnson Control
57	THERMAL DETECTOR	
i		EDWARD-EST
ii		NOTIFIER
iii		CERBERUS- SIEMENS
iv		HONEYWELL-XLS-3000-XL
v		SIMPLEX
vi		Tyco
vii		Johnson Control
58	PHOTOELECTRIC DETECTOR	
i		EDWARD-EST
ii		NOTIFIER
iii		CERBERUS- SIEMENS
iv		HONEYWELL-XLS-3000-XL
v		SIMPLEX

Sr. No.	Material Name	Manufacturer/ Supplier/Make
vi		Tyco
vii		Johnson Control
59	FLAME DETECTOR	
i		EDWARD-EST
ii		NOTIFIER
iii		CERBERUS- SIEMENS
iv		HONEYWELL-XLS-3000-XL
v		SIMPLEX
vi		Tyco
vii		Johnson Control
60	LASER DETECTORS	
i		EDWARD-EST
ii		NOTIFIER
iii		CERBERUS- SIEMENS
iv		HONEYWELL-XLS-3000-XL
v		SIMPLEX
vi		Tyco
vii		Johnson Control
61	IONIZATION DETECTORS	
i		EDWARD-EST
ii		NOTIFIER
iii		CERBERUS- SIEMENS
iv		HONEYWELL-XLS-3000-XL
v		SIMPLEX
vi		Tyco
vii		Johnson Control
62	DUCT DETECTORS	
i		EDWARD-EST
ii		NOTIFIER
iii		CERBERUS- SIEMENS
iv		HONEYWELL-XLS-3000-XL
v		SIMPLEX
vi		Tyco
vii		Johnson Control
63	BEAM DETECTOR	
i		EDWARD-EST
ii		NOTIFIER
iii		CERBERUS- SIEMENS
iv		HONEYWELL-XLS-3000-XL
v		SIMPLEX
vi		Tyco
vii		Johnson Control
64	ASPIRATING DETECTOR	
i		EDWARD-EST
ii		NOTIFIER
iii		CERBERUS- SIEMENS
iv		HONEYWELL-XLS-3000-XL
v		SIMPLEX

Sr. No.	Material Name	Manufacturer/ Supplier/Make
vi		Tyco
vii		Johnson Control
65	FAULT ISOLATORS	
i		EDWARD-EST
ii		NOTIFIER
iii		CERBERUS- SIEMENS
iv		HONEYWELL-XLS-3000-XL
v		SIMPLEX
vi		Tyco
vii		Johnson Control
66	MONITOR / CONTROL / RELAY MODULES	
i		EDWARD-EST
ii		NOTIFIER
iii		CERBERUS- SIEMENS
iv		HONEYWELL-XLS-3000-XL
v		SIMPLEX
vi		Tyco
vii		Johnson Control
67	TWO WAY PHONE / JACK	
i		EDWARD-EST
ii		NOTIFIER
iii		CERBERUS- SIEMENS
iv		HONEYWELL-XLS-3000-XL
v		SIMPLEX
vi		Tyco
vii		Johnson Control
68	DIGITAL VOICE CONTROLLER / AMPLIFIER	
i		EDWARD-EST
ii		NOTIFIER
iii		CERBERUS- SIEMENS
iv		HONEYWELL-XLS-3000-XL
v		SIMPLEX
vi		Tyco
vii		Johnson Control
69	BATTERY	
i		AMARON
ii		EXIDE
iii		LUMINOUS
70	POWER SUPPLY	
i		EDWARD-EST
ii		NOTIFIER
iii		CERBERUS- SIEMENS
iv		HONEYWELL-XLS-3000-XL
v		SIMPLEX
vi		Tyco
vii		Johnson Control
71	GRAPHIC SOFTWARE	
i		EDWARD-EST

Sr. No.	Material Name	Manufacturer/ Supplier/Make
ii		NOTIFIER
iii		CERBERUS- SIEMENS
iv		HONEYWELL-XLS-3000-XL
v		SIMPLEX
vi		Tyco
vii		Johnson Control
72	PA SERVER	
i		BOSCH
ii		HONEYWELL
iii		MERSHON
iv		ATEIS
v		Tyco
vi		Siemens
vii		Johnson Control
73	NETWORK AUDIO ADAPTOR	
i		BOSCH
ii		HONEYWELL
iii		MERSHON
iv		ATEIS
v		Tyco
vi		Siemens
vii		Johnson Control
74	IP CONTROLLER	
i		BOSCH
ii		HONEYWELL
iii		MERSHON
iv		ATEIS
v		Tyco
vi		Siemens
vii		Johnson Control
75	AMPLIFIER	
i		BOSCH
ii		HONEYWELL
iii		MERSHON
iv		ATEIS
v		Tyco
vi		Siemens
vii		Johnson Control
76	ROUTER	
i		BOSCH
ii		HONEYWELL
iii		MERSHON
iv		ATEIS
v		Tyco
vi		Siemens
vii		Johnson Control
77	CALL STATION	
i		BOSCH



Sr. No.	Material Name	Manufacturer/ Supplier/Make
ii		HONEYWELL
iii		MERSHON
iv		ATEIS
v		Tyco
vi		Siemens
vii		Johnson Control
78	CEILING SPEAKER	
i		BOSCH
ii		HONEYWELL
iii		MERSHON
iv		ATEIS
v		Tyco
vi		Siemens
vii		Johnson Control
79	WALL SPEAKER	
i		BOSCH
ii		HONEYWELL
iii		MERSHON
iv		ATEIS
v		Tyco
vi		Siemens
vii		Johnson Control
80	CD PLAYER	
i		SONY
ii		PANASONIC
81	OFC CABLE	BOSCH
i		POLYCAB
ii		SCHNEIDER
iii		BELDEN
iv		D Link
v		SYSTEMAX
vi		Legrand
vii		AMP
viii		Siemon
ix		R&M
82	FIRE SURVIVAL CABLE	
i		BELDEN
ii		RR KABEL
iii		POLYCAB
iv		RAMCRO
v		LEONI
vi		FR-TECH
vii		LAPP
83	MS / GI CONDUIT	
i		BEC
ii		AKG
iii		STEEL KRAFT
iv		JPC

Sr. No.	Material Name	Manufacturer/ Supplier/Make
v		TATA
vi		JINDAL
vii		NIC
84	COMPUTER	
i		HP
ii		DELL
iii		IBM
85	MONITOR	
i		SONY
ii		SAMSUNG
iii		LG
iv		PHILLIPS
86	PRINTER	
i		HP
ii		EPSON
iii		COMPAQ
iv		CANON
87	DIESEL ENGINE	
i		Greaves (CGL)
iii		CATERPILLAR
iv		Kirloskar
v		Cummins

Sr. No.	Material Name	Manufacturer/ Supplier/Make
<b>HVAC</b>		
1.	Water Cooled Screw Chiller	
i		Trane
ii		York
iii		Daikin
2.	Chilled/ Condenser Pumps:	
i		Bell & Gossett
ii		Grundfos
iii		Armstrong
3.	Cooling Towers	
i		Advance
ii		Paharpur
iii		Bell
4.	Hot Water Generator	
i		Rapid Cool
ii		Emerald
iii		Thermax
5.	Air Handling Units:	
i		System Air
ii		Flaktwood
iii		Daikin
iv		Carrier
v		DRI
vi		Waves
6	Cooling Coil	
i		As per Technical specification and
7.	Fan Coil Unit & Cassette Unit	
i		Sinko
ii		Trane
iii		Daikin
iv		YORK
8.	Split AC	
i		Daikin
ii		O General
iii		Hitachi
iv		Mitsubishi Electric
viii		Toshiba
9.	Precision Air Handling Unit (PAHU)	
i		Stulz
ii		Clivet
iii		Emerson
iv		Schneider
10.	M.S. Pipes:	
10a	Upto 150mm dia	
i		Tata
ii		Jindal
iii		SAIL
10b	Above 150mm dia	
i		Tata
ii		Jindal
iii		Sail
iv		MSL
v		Mukut Steel
11.	Butterfly Valves	
i		Danfoss
ii		Advance
iii		Audco

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	iv	IVC
12.	Motorized Butterfly Valves	
	i	Belimo
	ii	Audco
	iii	Danfoss
	iv	ADVANCE
13.	Check Valves	
	i	Advance
	ii	Audco
	iii	Danfoss
	iv	Sant
14.	Ball valve	
	i	Zoloto
	ii	Audco
	iii	RC
	iv	Sant
	v	L&T Valves
15.	Balancing Valves (Manual)	
	i	Danfoss
	ii	Audco
	iii	Advance
	iv	CASTLE
16.	2-way Modulating Valves with	
	i	Belimo
	ii	Danfoss
	iii	Honeywell
	iv	Flowcon
17.	Expansion Bellows	
	i	Resistoflex
	ii	Cori
	iii	Areaflex
	iv	Easyflex
18.	Pot/Y-Strainers	
	ii	Rapid Cool
	iii	Sant
	iv	Emerald
19.	Suction Guide with Strainer	
	i	Anergy
	ii	Armstrong
	iii	Emerald
20.	Pressure Gauge (Industrial Type)	
	i	H.Guru
	ii	Emerald
	iii	Feibig
	iv	Baumer
21.	Differential Pressure Switch	
	i	Indfoss
	ii	Switzer
	iii	ABB
	iv	HUBA
22.	Thermometers	
	i	Feibig
	ii	H.Guru
	iii	Emerald
23.	Closed Expansion Tank	
	i	Anergy
	ii	Bell & Gossett

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	iii	Hydronic Solution
24.	Air Separator	
	i	Anergy
	ii	Bell & Gossett
	iii	Hydronic Solution
25.	Auto Air Vent	
	i	Anergy
	ii	Rapid Cool
	iii	Oventrop
26.	Plug Valve	
	i	Anergy
	ii	Rapid Cool
	iii	Hawa Valves
27.	Factory Fabricated Duct	
	i	Ductofab
	ii	Rolastar
	iii	GP SPIRO
	iv	ZECO
28.	G.I. Sheets	
	i	Sail
	ii	Tata
	iii	Jindal
	iv	ESSAR
	v	J K STEEL
29.	AL. Sheets	
	i	Hindalco
	ii	Balco
	iii	NALCO
	iv	Vedanta Aluminium
30.	Fire Dampers/ Smoke	
	i	Ravistar
	ii	Carryaire
	iii	Airflow
	iv	Ruskin
	v	Conaire
	vi	Greenheck
31.	Grills/Diffusers / Dampers	
	i	Ravistar
	ii	Ruskintitus
	iii	Caryaire
	iv	Conaire
	v	Systemair
	vi	Airflow
32.	Fresh Air Louvers	
	i	Ravistar
	ii	Ruskintitus
	iii	Caryaire
	iv	Conaire
	v	Systemair
	vi	Airflow
33.	Resin bonded Glass wool	
	i	UP TWIGA
	ii	Lloyd
	iii	K-Flex
	iv	Kimmco
	v	owens corning
34.	Nitrile Rubber Insulation	

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	i	Armacell
	ii	Armaflex
	iii	supreme
	iv	A-Flex
	v	Sterile Tech India
	vi	Metecno India, Chennai
35.	PUF Saddles	
	i	Loyds
	ii	Beardsell
	iii	Malanpur
	iv	Satec Envir Engineering
36.	Expanded Polystyrene (EPS)	
	i	Supreme Petrochem Ltd.
	ii	LG Polymers India Pvt. Ltd.
	iii	Dow / Dupont
	iv	K K Nag Pvt. Ltd.
	v	Satec Envir Engineering
	vi	Styrene
	vii	Indian Packing
37.	Filters (in Air-conditioning system)	
	i	Mechmaark
	ii	Thermodyne
	iii	Purolator
	iv	Anfilco
38.	Ventilation Fans:	
38a	Tube/Vane Axial	
	i	Kruger
	ii	System Air
	iii	Greenheck
	iv	Wolter Ventilators
	v	Nicotra
38b	Inline (Centrifugal)	
	i	Kruger
	ii	Caryaire
	iii	Ostberg
38c	Propeller Fans	
	i	Kruger
	ii	GE
	iii	Alstom
	iv	Crompton
39.	Air Washers/Scrubber:	
39a	Air Washer/Scrubber	
	i	Edgetech
	ii	Zeco
	iii	Roots Air
40.	Self Adhesive Sealing Gasket for Ducts	
	i	Prima seal
	ii	Air Flow
	iii	Trocellen
41.	Hessian (Fire treated) / Fire Sealant	
	i	Navair
	ii	Promate
	iii	3M
	iv	Hilti
42.	Microprocessor controller/actuator for smoke exhaust fan	
	i	Siemens
	ii	Airflow

Sr. No.	Material Name	Manufacturer/ Supplier/Make
iii		Belimo
iv		Danfoss
43.	Room Thermostat/ AHU & FCU Thermostat	
i		Siemens
ii		Honeywell
iii		Danfoss
44.	Humidistat	
i		Honeywell
ii		Siemens
iii		Schneider
iv		Johnson Control
v		Sontay
45.	Safety Thermostat for heater	
i		Anergy Controls
ii		Danfoss
46.	Dial Thermometer Capillary Type	
i		Penn
ii		Tadington
47.	Cooling and heating mode changer	
i		Siemens
48.	Ultrasonic Energy Meter ( BTU meter )	
i		Siemens
ii		Danfoss
49.	Expanded Polystyrene (TF Quality) (Pre-moulded pipe	
i		Thermolloyd
ii		Beard Sell
iii		Styrene Packagings
iv		DEBS Products
v		P R Pakaging
vi		Supreme Petrochem Ltd.
vii		LG Polymers India Pvt. Ltd.
50.	Cross Linked Polyethylene	
i		Trocellen
ii		Supreme
iii		Paramount
iv		AeroFlex (Hira)
51.	Aluminium Tape	
i		Johnson
ii		3M
iii		TESA
52.	Anchor fastners	
i		Hilti
ii		BOSCH
iii		Fisher
53.	Vibration Isolator	
i		Resistoflex
ii		Dunlop
iii		Kanwal
54.	Welding Rods	
i		ADVANI
ii		ESAB
iii		ADOR
iv		L&T
v		MODI
55.	V belt	
i		Dunlop
ii		Fenner

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	iii	Hilton
56.	Tarfelt ( for underground chilled water pipe insulation)	
	i	Shalimar
	ii	Sika
	iii	IWL
57.	Enamel Paint	
	i	DULUX
	ii	Asian
	iii	Nerolac
	iv	Berger
58.	Bituminous Paint	
	i	Shalimar
	ii	Sika
	iii	Asian
	iv	Berger
59.	MAGNETIC OIL FREE CENTRIFUGAL CHILLER	
	i	YORK
	ii	TRANE
	iii	DAIKIN
60.	VRF/VRV SYSTEM	
	i	DAIKIN
	ii	HITACHI
	iii	LG
61.	AIR COOLED HEAT PUMP	
	i	Trane
	ii	York
	iii	Daikin
62.	PRESSURIZED EXPANSION TANK WITH VACUUM	
	i	FLAMCO
	ii	REFLEX
	iii	ARMSTRONG
63.	AUTOMATIC CHEMICAL DOSING / BLOWDOWN	
	i	NALCO
	ii	ION EXCHANGE
	iii	THERMAX
64.	AUTOMATIC TUBE CLEANING SYSTEM FOR CHILLER	
	i	ECOGREEN
	ii	CETENVIRO
	iii	BALLTECH
65.	HEAT EXCHANGER	
	i	ALFA LAVAL
	ii	GEA
	iii	XYLEM
66.	FILTRATION UNIT FOR SERVER ROOM	
	i	BRY AIR
	ii	PURAFIL
	iii	AAF
67.	EC FAN (Electronically Commutated)	
	i	ROSENBERG
	ii	ZIEHL-ABEGG
	iii	EBM PAPST
68.	EC FAN POTENTIOMETERS	
	i	SCHNEIDER
	ii	SIEMENS
	iii	ROSENBERG
	iv	ZIEHL-ABEGG
69.	KITCHEN SCRUBBER (DRY TYPE) UL LISTED	



Sr. No.	Material Name	Manufacturer/ Supplier/Make
	i	TRION
	ii	FLANDERS AIR SEAL
	iii	ZECO
	iv	Rydair
70.	INLINE UV STERILIZER	
	i	AEROPURE UV SYSTEMS
	ii	ARKLITE
	iii	RUKS ENGINEERING
71.	REFRIGERANT COPPER PIPING	
	i	MANDEV TUBES
	ii	RAJCO
	iii	TOTALINE
	iv	MERCHANT
	v	MALAYSIAN
	vi	HITACHI
	vii	METTUBE
72.	UPVC PIPE	
	i	ASTRAL
	ii	FINOLEX
	iii	SUPREME
	iv	ASHIRWAD
	v	AKG
73.	VOLTAGE STABILIZER	
	i	Luminous
	ii	Schneider
	iii	BLUE BIRD
	iv	Microtek
74.	PVC CONDUIT	
	i	POLYPACK
	ii	AKG
	iii	PRECISION
	iv	BEC
75.	DRAIN PIPE	
	i	ASTRAL
	ii	SUPREME
	iii	POLYPACK
76.	Screw/Screw Air Cooled chilling unit	
	i	Trane
	ii	York
	iii	Carrier
77.	Roof Top Package Unit	
	i)	Carrier
	ii)	ETA
	iii)	LG
78.	Air Cooled/Water Cooled Package Unit	
	i	York
	ii	Daikin
	iii	Hitachi
79.	Ductable Split Unit	
	i	Daikin
	ii	Hitachi
	iii	LG
	iv	Samsung
80.	Strip Heater	
	i	Daspass
81.	Secondary Pump Master Controller	
	i	Xylem

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	ii	Grundfoss
82.	Adjustable Frequency Drive	
	i	Danfoss
	ii	ABB
83.	AHU fan Section for Fresh air/Toilet Eexhaust/Lift & Stair Pressurization (Single & Double Skin)	
	i	Edgtech
	ii	Zeco
	iii	Syatem Air
	iv	Flaktwood
	v	Daikin
84.	Fan Coil Unit motor	
	i	GE
85.	Air Washer Cooling media Pad	
	i	Edgetech
	ii	Zeco
	iii	Roots Air
	iv	Ambassador
86.	Heat Recovery Unit	
	i	Bryair
	ii	Waves
	iii	Zeco
	iv	Edgetech
87.	Decient Rotor Wheel	
	i	Bryair
	ii	Novelair
	iii	Flaktwoods
88.	Fire Damper Motor/Actuator	
	i	Seimens
	ii	Belimo
89.	Ducting Round & Ovel	
	i	GP Spiro
	ii	Atco
90.	Smoke Detector	
	i)	Appolo
	ii)	System Sensor
	iii)	Edwards
91.	CO2 Sensor with Controller	
	i	Siemens
	ii	Johnson Controls
	iii	Honeywell
	iv	Grevstone
	v	Kele
92.	Hanger Supports For Ducts & Cable Tray	
	i	Gripple wire
	ii	GI threaded rod
93.	MS Spiral Pipe above 500 MM Dia 8 mm thickness	
	i)	SAIL
	ii	Mukut Steel
	iii	Lalit Steel
	iv	Surya Prakash
94.	Flexible Stainless Steel Connection Pipe with Insulation	
	i)	Kufolso
95.	Tow Way Valve For FCU (On/Off)	
	i	Honeywell
	ii	Siemens

Sr. No.	Material Name	Manufacturer/ Supplier/Make
96.	Flow Switch	
i		Anergy
ii		Rapid control
97.	CO sensor with controllet	
i		Honeywell
ii		Siemens
iii		Danfoss
98.	Roof Extractor Fan	
i		Systemaire
ii		Caryaire
iii		Kruger
iv		Nuaire
v		Nicotra
99.	G.I.Pipe	
i		Jindal Hissar
ii		Surya Prakash
iii		Jindal Star
100.	Ball valve with Y-Strainer (Fan Coil Units)	
i		Rapid Cool
ii		Sant
iii		Leader
iv		Audco
101.	Expansion tank ( open type )	
i		PVC ( Syntax )
ii		Frontier/Reno
102.	Jet Fans	
i		Kruger
ii		System Air
iii		Greenheck
103.	Sound Attnuators	
i		Caryaire
ii		Ravistar
iii		Flaktwood
iv	Electrical Equipment	
104.	Electrical Panel Board/Motor Control Centre (Powder Coated)	
i		Tricolite Electrical Industries
ii		Advance Panels & Switch Gears
iii		Adlec System Pvt.Ltd.
iv		Ambit Switch Gears
v		SPC Electrotech Pvt.Limited
105.	Electric Motor (TEFC)	
i		Siemens
ii		Kirloskar
iii		Crompton
iv		ABB
v		Bharatbiji

**NOTE\***

1

All Electrical Items i.e. Electrical Starter Panels ,cables Electrical Motors ,Switch Gear, MCB, MCCB, Circuit breaker and all Electrical item accessories etc. Advice to be follow as per electrical items Approved make list for HVAC works.

Sr. No.	Material Name	Manufacturer/ Supplier/Make
1	METTALIC / GI CONDUIT & ACCESSOIRES	
i		BEC
ii		AKG
iii		RMCON
iv		STEELKRAFT
2	PVC CONDUIT & ACCESSOIRES	
i		BEC
ii		AKG
iii		RMCON
iv		STEELKRAFT
v		JPC
3	SOCKET / FACE PLATE	
i		BELDEN
ii		PANDUIT
iii		SIEMON
iv		SYSTEMAX
v		LEGRAND
vi		DLINK
4	CAT-6A CABLE / PATCH CORD / OFC CABLE	
i		BELDEN
ii		PANDUIT
iii		SIEMON
iv		SYSTEMAX
v		LEGRAND
vi		DLINK
5	SWITCHES / MEDIA CONVERTER / MODULE	
i		HP
ii		CISCO
iii		ALCATEL
iv		JUNIPER
v		DLINK
6	JACK PANEL	
i		BELDEN
ii		PANDUIT
iii		SIEMON
iv		SYSTEMAX
v		DLINK
7	SINGLE / MULTIMODE OPTICAL FIBER	
i		BELDEN
ii		PANDUIT
iii		SIEMON
iv		SYSTEMAX
v		LEGRAND
vi		DLINK
8	WIRELESS ACCESS POINT / SWITCH	
i		HP
ii		CISCO
iii		ALCATEL
iv		JUNIPER
9	FIBER CABLE / PATCH CORD	
i		BELDEN
ii		PANDUIT

Sr. No.	Material Name	Manufacturer/ Supplier/Make
iii		SIEMON
iv		SYSTEMAX
v		LEGRAND
vi		DLINK
10	LINE INTERFACE UNIT & ACCESSOIRES	
i		BELDEN
ii		PANDUIT
iii		SIEMON
iv		SYSTEMAX
v		LEGRAND
vi		DLINK
11	RJ-45 / 11CONNECTOR	
i		BELDEN
ii		PANDUIT
iii		SIEMON
iv		SYSTEMAX
v		LEGRAND
vi		DLINK
12	IP EPABX	
i		ALCATEL
ii		CISCO
iii		AVAYA
iv		SIEMENS
13	IP PHONE	
i		ALCATEL
ii		CISCO
iii		AVAYA
iv		SIEMENS
14	ANALOG PHONE	
i		BEETEL
ii		PANASONIC
iii		MATRIX
iv		AVAYA
v		VTEC
vi		SIEMENS
15	ACCESS CONTROL SYSTEM	
i		AXIS
ii		HONEYWELL
iii		LENEL
iv		TYCO
v		HID
vi		BOSCH
vii		SCHNEIDER
16	SMART CARD READER	
i		AXIS
ii		HONEYWELL
iii		LENEL
iv		TYCO
v		HID
vi		BOSCH
vii		SCHNEIDER
17	BIOMATRIC	

Sr. No.	Material Name	Manufacturer/ Supplier/Make
i		AXIS
ii		HONEYWELL
iii		LENEL
iv		TYCO
v		HID
vi		BOSCH
vii		SCHNEIDER
18	SMART CARDS	
i		AXIS
ii		HONEYWELL
iii		LENEL
iv		TYCO
v		HID
vi		BOSCH
vii		SCHNEIDER
19	SINGLE LEAF ELECTROMAGNETIC LOCK	
i		BEL
ii		REMCON
iii		EQUIVALENT
iv		SECURITRON
20	DOUBLE LEAF ELECTROMAGNETIC LOCK	
i		BEL
ii		REMCON
iii		SECURITRON
21	PUSH/EXIT BUTTON	
i		BEL
ii		REMCON
iii		SECURITRON
22	EMERGENCY DOOR RELEASE	
i		BEL
ii		REMCON
iii		SECURITRON
23	SERVER	
i		DELL
ii		HP
iii		IBM
24	VISITOR MANAGEMENT SYSTEM	
i		AXIS,
ii		HONEYWELL
iii		LENEL
iv		TYCO
v		BOSCH
vi		SCHNEIDER
25	WEB CAMERA	
i		I-BALL
ii		LOGITECH
26	VEHICLE ACCESS BARRIER	
i		MAGNETIC
ii		SOMFY
iii		SKIDATA
27	LOOP DETECTOR	
i		MAGNETIC

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	ii	SOMFY
	iii	SKIDATA
	iv	SECO LARM
28	IR ILLUMINATOR	
	i	AXIS
	ii	HONEYWELL
	iii	LENEL
	iv	TYCO
	v	HID
29	TYRE KILLERS	
	i	GODREJ
	ii	PILOMAT
	iii	HOUSTON SYSTEMS
30	RFID READER	
	i	ZEBRA
	ii	CORERFID
	iii	MAGNETIC
	iv	SOMFY
	v	SKIDATA
	vi	HID
31	P-GATE	
	i	DOORKING
	ii	EL-GO TEAM
	iii	DORMAKABA
32	TURNSTILE	
	i	DOORKING
	ii	EL-GO TEAM
	iii	DORMAKABA
33	UNDER VEHICLE SCANNER SYSTEM	
	i	AXIS
	ii	HONEYWELL
	iii	LENEL
	iv	TYCO
	v	HID
34	DOOR FRAME METALLIC DETECTOR	
	i	SMITH DETECTION
	ii	GARRETT
	iii	L3
35	HAND HELD METAL DETECTOR	
	i	SMITH DETECTION
	ii	GARRETT
	iii	L3
36	BAGGAGE SCANNER	
	i	SMITH DETECTION
	ii	GARRETT
	iii	L3
37	55" VIDEO WALL DISPLAY WIT 24X7 WORKING CAPABILITY, IN 5*2 VIDEO WALL CONFIGURATION (245" DIAGONAL, BEZEL TO BEZEL LESS THEN 3.6 MM) WITHDISPLAY OEM APPROVED VIDEO WALL CONTROLLER	
	i	SAMSUNG

Sr. No.	Material Name	Manufacturer/ Supplier/Make
ii		BARCO
iii		CHRISTIE
38	160" TO 170" DIAGONAL LED VIDEO WALL, PIXEL PITCH 1.2MM OR LESS WITH LED CONTROLLER AND MOUNT, FOR CONTROL ROOM APPLICATIONS	
i		SAMSUNG
ii		BARCO
iii		CHRISTIE
39	VIDEO WALL MOUNTING KIT FOR DISPLAY, VESA SUPPORTED, WEIGHT CAPCITY 100KG, LOCABLE, PUSH-PULL TYPE	
i		VOGAL
ii		CHIEF
iii		B-TECH
40	VIDEO WALL CONTROLLER WITH HDMI INPUT & OUTPUT AS REQUIRED	
i		DATAPATH
ii		VTRON
iii		RGB SPECTRUM
41	TABLE CABLE MANGER WITH UNIVERSAL POWER SUPPLY, USB CHARGING POINT, PASS THRU HOLES FOR VGA+A, HDMI, USB-C & LAN CABLES	
i		AVC
ii		LOGIC
iii		KRAMER
iv		LIGHTWARE
v		EXTRON
vi		AMX
vii		CRESTRON
42	HDBASET TRANSMITTERS, CAT6/ CAT7 OUTPUT, HDMI, VGA+A & USB-C INPUT	
i		CRESTRON
ii		LIGHTWARE
iii		AMX
43	HDBASET RECEIVERS WITH SCALER, CAT6/ CAT7 INPUT AND HDMI OUTPUT	
i		CRESTRON
ii		LIGHTWARE
iii		AMX
44	AVOIP DECODER (RJ-45 INPUT, HDMI OUTPUT), 4K@60 4:4:4 RESOLUTION SUPPORTED, SMART BANDWIDTH MANAGEMENT AVAILABLE	
i		CRESTRON
ii		LIGHTWARE
iii		AMX
45	VGA+A CABLE, 1.8 METER	
i		CRESTRON
ii		KRAMER
iii		EXTRON
46	USB-C TO HDMI CABLE, 1.8 METER	
i		CRESTRON



Sr. No.	Material Name	Manufacturer/ Supplier/Make
	ii	KRAMER
	iii	EXTRON
47	4K RESOLUTION SUPPORTED HDMI CABLE	
	i	CRESTRON
	ii	KRAMER
	iii	EXTRON
48	OTHER ACCESSORIES REQUIRED TO COMPLETE JOB	
	i	CUSTOM
49	POWER CABLE	
	i	POLYCAB
	ii	ANCHOR
	iii	RRKABEL
	iv	UNIVERSAL
	v	NATIONAL
50	CAT6A CABLES	
	i	SEIMON
	ii	CORNING
	iii	PENDUIT
51	CAT6A PATCH CORDS	
	i	SEIMON
	ii	CORNING
	iii	PENDUIT
52	CAT6A UNSHIELDED MODULAR RJ45 PLUG	
	i	SEIMON
	ii	CORNING
	iii	PENDUIT
53	CAT6A UNSHIELDED MODULAR IP 20 RATED RJ45 PLUG	
	i	SEIMON
	ii	CORNING
	iii	PENDUIT
54	24 CORE SINGLE MODE OS2 (9/125MM) ARMORED OPTICAL FIBER CABLE	
	i	SEIMON
	ii	CORNING
	iii	PENDUIT
55	12 CORE SINGLE MODE OS2 (9/125MM) ARMORED OPTICAL FIBER CABLE	
	i	SEIMON
	ii	CORNING
	iii	PENDUIT
56	FIBER PATCH CORDS, LC-LC DUPLEX, SINGLE MODE OS2, 3MT	
	i	SEIMON
	ii	CORNING
	iii	PENDUIT
57	PIGTAIL, LC TYPE, SINGLE MODE OS2, 2 MT, YELLOW COLOR	
	i	SEIMON
	ii	CORNING
	iii	PENDUIT

Sr. No.	Material Name	Manufacturer/ Supplier/Make
58	1U RACK MOUNT (LIU), FIBER PATCH PANEL WITH ALL ACCESSORIES	
i		SEIMON
ii		CORNING
iii		PENDUIT
59	FIBER OPTIC 48F IN/OUT SPLICE	
i		SEIMON
ii		CORNING
iii		PENDUIT
60	LAYER 3 MANAGED SWITCH	
i		CISCO
ii		EXTREME
iii		JUNIPER
61	LAYER 2 MANAGED SWITCH	
i		CISCO
ii		EXTREME
iii		JUNIPER
62	CONDUITS & ACCESSORIES	
i		AKG
ii		ASTRAL PIPES
iii		ANCHOR
63	JUNCTION & FLOOR BOXES	
i		FSR
ii		LEGRAND
iii		EATON
iv		ANCHOR
64	MODULAR COMPRESSION TRANSIT (MCT) BLOCK, FRAME, BLOCK, STAYPLATES	
i		EXONA
ii		HAWKE
iii		ROXTEC
65	HIGH-DENSITY POLYETHYLENE PIPES FOR UNDERGROUND USE	
i		APOLLO
ii		AKG
iii		ASTRAL PIPES
iv		ANCHOR
66	VIDEO MANAGEMENT SYSTEM	
i		AXIS
ii		BOSCH
iii		GENETEC
iv		HONEYWELL
67	VIDEO ANALYTICS	
i		AXIS
ii		BOSCH
iii		GENETEC
iv		HONEYWELL
68	NETWORK ATTACHED STORAGE	
i		AXIS
ii		BOSCH
iii		HONEYWELL
69	VMS SERVER	

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	i	DELL
	ii	HP
	iii	IBM
	iv	AXIS
	v	BOSCH
	vi	HONEYWELL
70	RECORDING SERVER	
	i	DELL
	ii	HP
	iii	IBM
	iv	AXIS
	v	BOSCH
	vi	HONEYWELL
71	FIXED DOME CAMERA	
	i	AXIS
	ii	BOSCH
	iii	AVIGILION
	iv	HONEYWELL EQUIP SERIES
72	VARIFOCAI BULLET CAMERA	
	i	AXIS
	ii	BOSCH
	iii	AVIGILION
	iv	HONEYWELL EQUIP SERIES
73	VARIFOCAI DOME CAMER	
	i	AXIS
	ii	BOSCH
	iii	AVIGILION
	iv	HONEYWELL EQUIP SERIES
74	NETWORKED THERMAL CAMER	
	i	AXIS
	ii	BOSCH
	iii	AVIGILION
	iv	HONEYWELL EQUIP SERIES
75	PTZ CAMERA WITH OPTICAL ZOOM	
	i	AXIS
	ii	BOSCH
	iii	AVIGILION
	iv	HONEYWELL EQUIP SERIES
76	OPTICAL PTZ CAMERA WITH IR, OUTDOOR RATED	
	i	AXIS
	ii	BOSCH
	iii	AVIGILION
	iv	HONEYWELL EQUIP SERIES
77	IR ILLUMINATOR	
	i	AXIS
	ii	BOSCH
	iii	AVIGILION
	iv	HONEYWELL EQUIP SERIES
78	AUTOMATIC NUMBER PLATE CAMERA	
	i	AXIS
	ii	BOSCH

Sr. No.	Material Name	Manufacturer/ Supplier/Make
iii		AVIGILION
iv		HONEYWELL EQUIP SERIES
79	CYBER SECURITY FOR SECURITY CAMERAS	
i		AXIS
ii		BOSCH
iii		AVIGILION
iv		HONEYWELL EQUIP SERIES
80	RACK	
i		NET RACK
ii		RITTAL
iii		MIDDLE ATLANTA
81	JOYSTICK	
i		AXIS
ii		BOSCH
iii		HONEYWELL
82	32" FULL HD DISPLAY	
i		SAMSUNG
ii		LG
iii		SONY
iv		NEC
83	49" 4K DISPLAY	
i		SAMSUNG
ii		LG
iii		NEC
84	55" PROFESSIONAL DISPLAY, 4K RESOLUTION SUPPORTED	
i		SAMSUNG
ii		LG
iii		NEC
85	65" PROFESSIONAL DISPLAY, 4K RESOLUTION SUPPORTED	
i		SAMSUNG
ii		LG
iii		NEC
86	75" PROFESSIONAL DISPLAY, 4K RESOLUTION SUPPORTED	
i		SAMSUNG
ii		LG
iii		NEC
86	85" PROFESSIONAL DISPLAY, 4K RESOLUTION SUPPORTED	
i		SAMSUNG
ii		LG
iii		NEC
87	55" VIDEO WALL DISPLAY IN 2X2 VIDEO WALL CONFIGURATION, BEZEL TO BEZEL LESS THEN 1 MM	
i		SAMSUNG
ii		LG
iii		BARCO
88	VIDEO WALL MOUNTING KIT, VESA SUPPORTED, WEIGHT CAPACITY 75KG	

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	i	VOGEL
	ii	CHIEF
	iii	B-TECH
89	DISPLAY WALL MOUNTING KIT, VESA SUPPORTED, WEIGHT CAPACITY 75KG	
	i	AVC
	ii	LOGIC
	iii	EQUIVALENT INDIAN BRAND
90	DISPLAY WALL MOUNT KIT, VESA SUPPORTED, WEIGHT CAPACITY 100KG	
	i	VOGEL
	ii	CHIEF
	iii	B-TECH
91	DISPLAY FLOOR STAND KIT, VESA SUPPORTED, WEIGHT CAPACITY 100KG	
	i	VOGEL
	ii	CHIEF
	iii	B-TECH
	iv	LEGRAND
92	ACTIVE LED VIDEO WALL, 273" DIAGONAL	
	i	BARCO
	ii	SAMSUNG
	iii	CHRISTIE
93	75" INTERACTIVE WHITEBOARD DISPLAY, 4K RESOLUTION SUPPORTED	
	i	LG
	ii	SAMSUNG
	iii	CYBERNETYX
94	86" INTERACTIVE WHITEBOARD DISPLAY, 4K RESOLUTION SUPPORTED	
	i	LG
	ii	SAMSUNG
	iii	CYBERNETYX
95	MECHANICAL LOCKABLE TABLE CABLE MANGER WITH UNIVERSAL POWER SUPPLY, USB CHARGING POINT, PASS THRU HOLES FOR VGA+A, HDMI, USB-C & LAN CABLES	
	i	CRESTRON
	ii	AMX
	iii	KRAMER
96	AUTOMATIC VIDEO SWITCHER WITH MINIMUM 2X HDMI & 1X VGA INPUT, 1X HDMI OUTPUT, DISPLAY CONTROL PORT	
	i	CRESTRON
	ii	LIGHTWARE
	iii	AMX
	iv	EXTRON
	v	KRAMER
97	AVOIP ENCODER (RJ-45 OUTPUT, HDMI INPUT), 4K@60 RESOLUTION SUPPORTED	
	i	CRESTRON
	ii	LIGHTWARE

Sr. No.	Material Name	Manufacturer/ Supplier/Make
iii		AMX
iv		EXTRON
98	8X8 MODULAR CHASSIS BASED MATRIX SWITCHER WITH SCALER	
i		CRESTRON
ii		LIGHTWARE
iii		AMX
iv		EXTRON
v		KRAMER
99	16X16 MODULAR CHASSIS BASED MATRIX SWITCHER WITH SCALER	
i		CRESTRON
ii		LIGHTWARE
iii		AMX
iv		EXTRON
v		KRAMER
100	4K@60 HDMI OUTPUT CARD	
i		CRESTRON
ii		LIGHTWARE
iii		AMX
iv		EXTRON
v		KRAMER
101	4K@60 HDBASET OUTPUT CARD	
i		CRESTRON
ii		LIGHTWARE
iii		AMX
iv		EXTRON
v		KRAMER
102	4K@60 HDBASET INPUT CARD	
i		CRESTRON
ii		LIGHTWARE
iii		AMX
iv		EXTRON
v		KRAMER
103	4K@60 HDMI INPUT CARD WITH AUDIO DOWNMIXING	
i		CRESTRON
ii		LIGHTWARE
iii		AMX
iv		EXTRON
v		KRAMER
104	4K@60 HDMI INPUT CARD	
i		CRESTRON
ii		LIGHTWARE
iii		AMX
iv		EXTRON
v		KRAMER
105	VIDEO CONFERENCE	
i		CISCO
ii		POLYCOM
iii		LIFESIZE
iv		SONY

Sr. No.	Material Name	Manufacturer/ Supplier/Make
v		PANASONIC
106	DIGITAL SIGNAGE PLAYER	
i		TURKNOX
ii		SCALA
iii		BRIGHTSIGN
107	DIGITAL PODIUM	
i		AS APPROVED BY PMC
108	4K RESOLUTION SUPPORTED HDMI CABLE, LENGTH FROM 1.8 MTR TO 10 MTR	
i		CRESTRON
ii		KRAMER
iii		EXTRON
109	VGA+ AUDIO CABLE, LENGTH SUPPORT 1.8 MTR TO 5 MTR	
i		CRESTRON
ii		KRAMER
iii		EXTRON
110	4K RESOLUTION SUPPORTED HDMI CABLE, LENGTH FROM 1.8 MTR TO 3.6 MTR	
i		CRESTRON
ii		KRAMER
iii		EXTRON
111	AUDIO CABLE	
i		KRAMER
ii		BELDEN
iii		SOMMER
112	SPEAKER CABLE	
i		KRAMER
ii		BELDEN
iii		SOMMER
iv		COMMSCOPE
v		PANDUIT
vi		SEIMON
113	ARMOURED, FLAME RETARDANT LOW SMOKE SHEATHED, SPEAKER CABLE	
i		KRAMER
ii		BELDEN
iii		SOMMER
114	CONNECTORS AS REQUIRED	
i		NEUTRIK
ii		MX
iii		SWITCHCRAFT
115	7" ROOM SCHEDULAR SCREEN WITH LED INDICATION	
i		CRESTRON
ii		AMX
iii		EXTRON
116	ROOM AV CONTROLLER	
i		CRESTRON
ii		AMX
iii		EXTRON
117	ROOM AV CONTROLLER FOR HALLS	

Sr. No.	Material Name	Manufacturer/ Supplier/Make
	i	CRESTRON
	ii	AMX
	iii	EXTRON
118	TOUCH PANEL	
	i	APPLE
	ii	CRESERTON
	iii	AMX
	iv	EXTRON
	v	KRAMER
119	24 PORT LAYER 3 SWITCH	
	i	CISCO
	ii	JUNIPER
	iii	EXTREME
120	16 PORT LAYER 3 SWITCH	
	i	CISCO
	ii	JUNIPER
	iii	EXTREME
121	WIRELESS ACCESS POINT	
	i	CISCO
	ii	JUNIPER
	iii	ARUBA
122	PROFESSIONAL AUDIO DSP WITH LINE, DANTE INPUT & OUTPUT	
	i	BIAMP
	ii	BOSE
	iii	SYMMETRIX
123	4 CHANNEL PROFESSIONAL AUDIO AMPLIFIER, MINIMUM 500 WATT TOTAL OUTPUT	
	i	LABGRUBBEN
	ii	BOSE
	iii	POWERSOFT
124	CEILING SPEAKER WITH MINIMUM 4" DRIVER CAPABLE OF TRANSFORMER TAPPING OF 30W/15W/7.5 AT 70/100VOLT	
	i	TANNOY
	ii	BOSE
	iii	MARTIN AUDIO
125	SUBWOOFER	
	i	BOSE
	ii	TANNOY
	iii	MYERSOUND
126	BEAMFORMING CEILING MICROPHONE	
	i	SHURE
	ii	SENNHEISER
	iii	CLEARONE
127	ACTIVE BEAM STEERING LOUDSPEAKER	
	i	BOSE
	ii	TANNOY
	iii	MYERSOUND
128	WIRELESS LEPEL MIC	
	i	SHURE
	ii	SENNHEISER



Sr. No.	Material Name	Manufacturer/ Supplier/Make
iii		CLOCK AUDIO
129	WIRELESS HANDHELD MIC	
i		SHURE
ii		SENNHEISER
iii		CLOCK AUDIO
130	DUAL CHANNEL RECEIVER	
i		SHURE
ii		SENNHEISER
iii		CLOCK AUDIO
131	ANTENNA/POWER DISTRIBUTION SYSTEM	
i		SHURE
ii		SENNHEISER
iii		CLOCK AUDIO

Sr. No.	Material Name	Manufacturer/ Supplier/Make
<b>BMS</b>		
1.1	Main Control System / DDC Controllers	
i		Johnson
ii		Siemens
iii		Honeywell (Trend)
iv		Trane
v		Schneider
1.2	Temperture,Air humidity Sensors ( Duct , Room)	
i		Johnson
ii		Siemens
iii		Honeywell (Trend)
iv		Trane
v		Kele
vi		Schneider
1.3	Modem	
i		Johnson
ii		Siemens
iii		Honeywell (Trend)
iv		Trane
v		Kele
1.4	Differential pressure switch Air flow / Water flow switch	
i		Johnson
ii		Siemens
iii		Honeywell (Trend)
iv		Trane
v		Kele
vi		Schneider
1.5	Water Flow meter	
i		Kele
ii		Sontay
iii		Honeywell (Trend)
iv		Invensys
v		Johnson
vi		Shenitech
vii		Kamstrup
viii		Siemens
1.6	Water Pressure Transmitter	
i		Siemens
ii		Invensys
iii		Kele
iv		Honeywell (Trend)
v		Sontay
vi		Trane
1.7	Motorized Butterfly valves/ actuators	
i		Rapid cool
ii		Audco
iii		Honeywell (Trend)
iv		Johnson
v		Siemens
vi		Belimo
vii		Advance

Sr. No.	Material Name	Manufacturer/ Supplier/Make
1.8	Voltage /KWH Transducers with digital display / Electronic Meter.	
i		L&T
ii		Situ Electro Instruments Pvt.Ltd
iii		Secure Meters Ltd
iv		HPL
v		Enercon
vi		Elmeasure
vii		ABB
1.9	Cables	
1.9.1	Communication Cables	
i		Polycab
ii		Commscope
iii		AT&T
iv		Fusion Polymers
v		Delton
vi		Bonton
vii		Legrend
viii		Finolex
1.9.2	Signal Cables	
i		Polycab
ii		Commscope
iii		AT&T
iv		Fusion Polymers
v		Delton
vi		Bonton
vii		Legrend
viii		Finolex
1.9.3	Power Cables / FRLS Cables	
i		Polycab
ii		KEI
iii		UNIVERSAL
iv		Fusion Polymers
v		Delton
vi		National
vii		Finolex
viii		Havells
1.9.4	Cat-6 Cables	
i		D Link
ii		Finolex
iii		Molex
iv		Commscope
v		Lucent
vi		Legrend
1.10	Main PC with CPU, Monitor, Keyboard	
i		HP
ii		IBM
iii		Dell
iv		LG
v		Samsung
vi		Philips
1.11	Printer	

Sr. No.	Material Name	Manufacturer/ Supplier/Make
i		HP
ii		Epson
iii		Compaq
iv		Canon
1.12	UPS	
i		Invensys
ii		Schneider(APC)
iii		Emerson
iv		Eaton
v		Numeric
vi		GE
1.13	Switching Relays	
i		PLA
ii		OMRON
iii		L&T
iv		ABB
1.14	Portable Handheld Programming device	
i		Johnson
ii		Trane
iii		Siemens
iv		Honeywell (Trend)
1.15	Flame proof level switch/Water level switch	
i		veksler
ii		Minilec
iii		Sontay
iv		Kele
1.16	Electromagnetic Lock	
i		Trimec
ii		Dafickas
1.17	Single Phase A.C Contactor	
i		L&T
ii		MDS
iii		Siemens
iv		ABB
v		Schneider
1.18	4-Pole Three Phase A.C Contactor	
i		L&T
ii		Siemens
iii		ABB
iv		Schneider
v		Legrand
1.19	Controller Cabinet	
i		Rittal
ii		Eclotek
iii		Schinder
iv		L&T
v		Legrand
vi		JCI
1.2	Passive Infra Red Glass breaker sensor	
i		Texecom
ii		Ventas
1.21	Auto manual switches (3 way)	

Sr. No.	Material Name	Manufacturer/ Supplier/Make
i		Kaycee
ii		L&T
iii		ABB
iv		Schneider
v		Legrand
1.22	PIR Based Halogen Light	
i		Reiz
ii		Micromesh
iii		Texecom
1.23	Modem	
i		Johnson
ii		Siemens
iii		Honeywell (Trend)
iv		Trane
1.24	Current Relays	
i		Sitn
ii		Minilec
iii		Sentry
iv		Siemens
v		ABB
vi		Schneider
vii		C&S
1.25	PVC conduits & accessories	
i		AKG
ii		BEC
iii		Polypack
iv		Precision
1.26	M.S./G.I. Conduits	
i		Steel Kraft
ii		BEC
iii		AKG
1.27	M.S. Conduit accessories	
i		Sharma
ii		Rama
iii		Noble
1.28	Electric Actuators for 2-way ON/OFF valves	
i		Danfoss
ii		Emtrack
iii		Johnson
iv		Honeywell
v		Siemens
vi		Trane
1.29	Race Ways	
i		Ricco
ii		Slotco
iii		Indiana
iv		Mm Enterprises
v		Steel Kraft
vi		OBO
1.30	Colour Monitor	
i		Sony
ii		Panasonic

Sr. No.	Material Name	Manufacturer/ Supplier/Make
iii		Bosch
iv		GE
v		Siemens
1.31	SUPERVISORY CONTROLLERS / GATEWAYS / NETWORK CONTROL UNIT / INTEGRATOR	
i		SIEMENS
ii		HONEYWELL
iii		IOTOMATION
iv		SCHNEIDER
v		DELTA
1.32	ENCLOSURE FOR DDC CONTROLLER	
i		RITTAL
ii		SIEMENS
iii		SCHNEIDER
iv		BCH
1.33	SYSTEM INTEGRATOR	
i		SIEMENS
ii		HONEYWELL
iii		IOTOMATION
iv		SCHNEIDER
v		DELTA
1,34	BMS SOFTWARE	
i		SIEMENS DESIGO CC
ii		HONEYWELL
iii		HOCHIKI
iv		SCHNEIDER
1,35	NETWORK SWITCH	
i		HP
ii		CISCO
iii		ALCATEL
iv		JUNIPER
v		DLINK
1.36	IMMERSION TEMPERATURE SENSOR	
i		SIEMENS
ii		HONEYWELL
iii		GREYSTONE
iv		OMICRON
v		SCHNEIDER
1.4	DUCT TYPE TEMPERATURE / DUCT TEMP + RH SENSOR	
i		SIEMENS
ii		HONEYWELL
iii		GREYSTONE
iv		OMICRON
v		SCHNEIDER
1.41	TEMPERATURE + RH SENSOR	
i		SIEMENS
ii		HONEYWELL
iii		GREYSTONE
iv		OMICRON
v		SCHNEIDER

Sr. No.	Material Name	Manufacturer/ Supplier/Make
1.42	DIFFERENTIAL PRESSURE TRANSMITTER-WATER / AIR / FILTER	
i		SIEMENS
ii		HONEYWELL
iii		GREYSTONE
iv		OMICRON
v		SCHNEIDER
1.43	DIFFERENTIAL PRESSURE SENSOR-AIR	
i		SIEMENS
ii		HONEYWELL
iii		GREYSTONE
iv		OMICRON
v		SCHNEIDER
1.44	CO2 SENSOR / PM2.5 / PM10 / TVOC	
i		SIEMENS
ii		HONEYWELL
iii		GREYSTONE
iv		OMICRON
v		SCHNEIDER
1.45	CO SENSOR / HYDROCARBON / HYDROGEN / H2S	
i		SIEMENS
ii		ENDRESS
iii		GREYSTONE
iv		OMICRON
v		SCHNEIDER
1.46	DUCT PRESSURE SENSOR	
i		SIEMENS
ii		HONEYWELL
iii		GREYSTONE
iv		OMICRON
v		SCHNEIDER
1.47	WATER OVER FLOW INDICATOR	
i		I PRO
ii		OMICRON
iii		KELE
1.48	LEVEL SWITCH	
i		KELE
ii		VESKLER
iii		FILPRO
iv		OMICRON
v		GREYSTONE
1.49	FLAME PROOF LEVEL SWITCH	
i		KELE
ii		VESKLER
iii		FILPRO
iv		OMICRON
v		GREYSTONE
1.5	FLAME PROOF FLOW METER / BTU METER	
i		ABB
ii		FORBES MARSHALL
iii		ANDRESS HOUSER
iv		KELE

Sr. No.	Material Name	Manufacturer/ Supplier/Make
v		E&H
vi		SIEMENS
vii		GREYSTONE
1.51	FLOW METER/BTU METER	
i		ABB
ii		FORBES MARSHALL
iii		ANDRESS HOUSER
iv		KELE
v		E&H
vi		SIEMENS
vii		GREYSTONE
viii		FOXBORO
1.52	FLOW SWITCH	
i		HONEYWELL
ii		SYSTEM SENSOR
iii		POTTER
iv		GREYSTONE
1.53	DC VOLTAGE TRANSDUCER	
i		L&T
ii		SIEMENS
iii		SITU
iv		VERIS
v		ABB
1.54	AC VOLTAGE TRANSDUCER	
i		L&T
ii		SIEMENS
iii		SITU
iv		VERIS
v		ABB
1.55	PH ANALYZER & TDS ANALYZER AND METER	
i		HACH
ii		VATS
iii		PROMINENT
iv		VESKLER
v		OMICRON
vi		FILPRO
vii		DWYER
1.56	3 WAY / 2 WAY AUTOMATIC PRESSURE INDEPENDENT BALANCING AND CONTROL VALVE (PIBCV)	
i		SIEMENS
ii		HONEYWELL
iii		DANFORS
iv		BELIMO
v		OVENTROP
vi		BALLOREX
vii		ADVANCE
viii		FLOWCON
ix		SCHNEIDER
1.57	COMMUNICATION TYPE THERMOSTAT	
i		SIEMENS
ii		HONEYWELL



Sr. No.	Material Name	Manufacturer/ Supplier/Make
iii		SCHNEIDER

**PROJECT: AIR 1 KOLKATA**

**Tender Drawing List**

Sl. No.	Trade	Project	Tower	Drawing Title	Drawing No.
1	Architectural	AIR	T-01	AIR ELEVATIONS	A-202
2	Architectural	AIR	T-01	AIR ELEVATIONS	A-201
3	Architectural	AIR	T-01	AIR ELEVATIONS	A-203
4	Architectural	AIR	T-01	TYPICAL PLSTER DETAILS	A-204 (SHEET-1)
5	Architectural	AIR	T-01	TYPICAL PLSTER DETAILS	A-204 (SHEET-2)
6	Architectural	AIR	T-01	TYPICAL PLSTER DETAILS	A-204 (SHEET-3)
7	Architectural	AIR	T-01	SERVICE FLOOR PLAN TYP. FLOOR PLAN(6 TH TO 9 TH)	A-T1-103A
8	Architectural	AIR	T-01	SECOND FLOOR PLAN	A-T1-102
9	Architectural	AIR	T-01	SECOND FLOOR PLAN	A-T1-102
10	Architectural	AIR	T-01	SECOND FLOOR PLAN	A-T1-102
11	Architectural	AIR	T-01	AIR BASEMENT PLAN (PHASE-3)	BUUIPL/ARCH & PLNG/KOLKATA/13.09.2018
12	Architectural	AIR	T-01	TYPICAL FLOOR PLAN AC SLEEVES LAYOUT	A-T1-754
13	Architectural	AIR	T-01	GROUND FLOOR PLAN FIRST FLOOR PLAN	A-T1-100-a
14	Architectural	AIR	T-01	GROUND FLOOR PLAN FIRST FLOOR PLAN	A-T1-100-a
15	Architectural	AIR	T-01	OVERALL GROUND FLOOR PLAN	A-100
16	Architectural	AIR	T-01	GROUND FLOOR PLAN	A-T1-0A100
17	Architectural	AIR	T-01	GROUND FLOOR PLAN	A-T1-100
18	Architectural	AIR	T-01	FIRST FLOOR PLAN	A-T1-101
19	Architectural	AIR	T-01	TYPICAL FLOOR PLAN 3RD TO 5TH	A-T1-103
20	Architectural	AIR	T-01	TYPICAL FLOOR PLAN 3RD TO 19TH	A-T1-103
21	Architectural	AIR	T-01	SERVICE FLOOR PLAN TYP. FLOOR PLAN(6 TH TO 9 TH)	A-T1-103A
22	Architectural	AIR	T-01	SERVICE FLOOR PLAN TYP. FLOOR PLAN(6 TH TO 9 TH)	A-T1-103A
23	Architectural	AIR	T-01	SERVICE FLOOR PLAN TYP. FLOOR PLAN(6 TH TO 9 TH)	A-T1-103A
24	Architectural	AIR	T-01	TYPICAL FLOOR PLAN 10TH - 19TH FLOOR	A-T1-103B
25	Architectural	AIR	T-01	LOWER DUPLEX -TYPICAL LOWER DUPLEX-21	A-T1-104
26	Architectural	AIR	T-01	UPPER DUPLEX FLOOR PLAN	A-T1-105
27	Architectural	AIR	T-01	37th FLOOR PLAN	A-T1-106
28	Architectural	AIR	T-01	LOWER PENT HOUSE	A-T1-107
29	Architectural	AIR	T-01	UPPER PENT HOUSE	A-T1-107
30	Architectural	AIR	T-01	DOOR WINDOW ELEVATIONS	ID-402
31	Architectural	AIR	T-01	MATERIAL PLAN	A-L-104
32	Architectural	AIR	T-01	BASEMENT PLAN	A-PH3-99
33	Architectural	AIR	T-01	TYPICAL FLOOR PLAN	A-T1-102
34	Architectural	AIR	T-01	EXTENSION OF BASEMENT DECK SLAB	BUUIPL/ARCH & PLNG/KOLKATA/13.09.2018

**PROJECT: AIR 1 KOLKATA**

**Tender Drawing List**

Sl . No.	Trade	Project	Tower	Drawing Title	Drawing No.
35	Architectural	AIR	T-01	AIR BASEMENT PLAN (PHASE-3)	BUUIPL/ARCH & PLNG/KOLKATA/13.09.2018
36	Architectural	AIR	T-01	AIR SECTION	A-T1-301
37	Architectural	AIR	T-01	AIR SECTION	A-T1-302 (SHEET 1)
38	Architectural	AIR	T-01	AIR SECTION	A-T1-302 (SHEET 2)
39	Architectural	AIR	T-01	SCWA AIR	A-T1-501
40	Architectural	AIR	T-01	SCWA AIR	A-T1-502
41	Architectural	AIR	T-01	SCWA AIR	A-T1-503
42	Architectural	AIR	T-01	PANTRY DETAIL	ID-503
43	Architectural	AIR	T-01	RECEPTION DESK DETAIL	ID-504
44	Architectural	AIR	T-01	SUNKEN GARDEN DETAIL	ID-504
45	Architectural	AIR	T-01	TOILET PLAN AT FIRST FLOOR	A-T1-600-a
46	Architectural	AIR	T-01	GYM TOILET DETAIL	ID-601
47	Architectural	AIR	T-01	DOOR /WINDOW DETAIL	A-000
48	Architectural	AIR	T-01	GROUND & FIRST FLOOR PART PLAN	A-100-COM
49	Architectural	AIR	T-01	FEATURE WALL BEHIND RECEPTION AT FIRST FLOOR	ID-590
50	Architectural	AIR	T-01	GROUND & FIRST FLOOR FLOORING PLAN	A-FL-100
51	Architectural	AIR	T-01	GROUND FLOOR RCP FOR COMMON AREAS	A-RCP-100
52	Architectural	AIR	T-01	FIRST FLOOR RCP FOR COMMON AREAS	A-RCP-101
53	Architectural	AIR	T-01	FIRST FLOOR RCP FOR COMMON AREAS	A-RCP-101
54	Architectural	AIR	T-01	TYPICAL FLOOR LIFT LOBBY PLANS	N/A
55	Architectural	AIR	T-01	GRID SETTING OUT AT 38TH FLOOR	A-SO-T1-03
56	Architectural	AIR	T-01	SETTING OUT PHASE III	ST-A-100
57	Architectural	AIR	T-01	RAILING DETAIL AT TERRACE	A-T1-515
58	Architectural	AIR	T-01	STAIRCASE DETAIL (FIRE STAIRCASES)	A-T1-452c
59	Architectural	AIR	T-01	STAIRCASE DETAIL	A-T1-452
60	Architectural	AIR	T-01	PLAN BALCONY WITH METAL RAILING	BUUIPL/ARCH & PLNG/KOLKATA/10.05.2018
61	Architectural	AIR	T-01	DOOR WINDOW ELEVATIONS THIRD TO NINETEENTH FLOOR	A-410
62	Architectural	AIR	T-01	DOOR WINDOW ELEVATION	ID-402
63	Architectural	AIR	T-01	DOOR WINDOW ELEVATIONS SECOND FLOOR	A-411
64	Architectural	AIR	T-01	SERVICE (20th) FLOOR DOOR WINDOW ELEVATION	A-409
65	Architectural	AIR	T-01	38 TO40 FLOOR DOOR WINDOW	A-407
66	Architectural	AIR	T-01	DOOR FRAME DETAIL	A-403
67	Architectural	AIR	T-01	DOOR WINDOW ELEVATIONS (GF TO 19TH FL)	A-T1-401
68	Architectural	AIR	T-01	TYP. FLOOR PLAN(3rd TO 5TH)	A-T1-103A
69	Architectural	AIR	T-01	PHASE 3, AIR SILL DETAILS FOR UNIT NO. 204	BUUIPL-ARCH- UWC - PH 3-T1-02a
70	Architectural	AIR	T-01	RCC COUNTER SLAB DETAILS	BUUIPL-ARCH- UWC - PH 3-T1-06a
71	Architectural	AIR	T-01	PHASE 3, AIR FLOORING DETAILS IN LEAD FLAT	BUUIPL-ARCH-UWC - PH 3-T1-02
72	Architectural	AIR	T-01	PHASE 3, AIR FLOORING DETAILS IN LEAD FLAT	BUUIPL-ARCH-UWC - PH 3-T1-02(R2)

**PROJECT: AIR 1 KOLKATA**

**Tender Drawing List**

Sl . No.	Trade	Project	Tower	Drawing Title	Drawing No.
73	Architectural	AIR	T-01	PHASE 3, AIR KITCHEN DETAILS( FOR FLATS IN LOCATION 001 AND 004)	BUUIPL-ARCH- UWC - PH 3-T1-06 R1
74	Architectural	AIR	T-01	PHASE 3, AIR KITCHEN DETAILS( FOR FLATS IN LOCATION 001 AND 004)	BUUIPL-ARCH- UWC - PH 3-T1-06 R2
75	Architectural	AIR	T-01	PHASE 3, AIR KITCHEN DETAILS( FOR FLATS IN LOCATION 001 AND 004)	BUUIPL-ARCH- UWC - PH 3-T1-06 R3
76	Architectural	AIR	T-01	PHASE 3, AIR KITCHEN DETAILS( FOR FLATS IN LOCATION 001 AND 004)	BUUIPL-ARCH- UWC - PH 3-T1-06 R4
77	Architectural	AIR	T-01	PHASE 3, AIR KITCHEN DETAILS( FOR FLATS IN LOCATION 001 AND 004)	BUUIPL-ARCH-UWC - PH 3-T1-06 R5
78	Architectural	AIR	T-01	PHASE 3, AIR KITCHEN DETAILS( FOR FLATS IN LOCATION 001 AND 004)	BUUIPL-ARCH-UWC - PH 3-T1-06 R5
79	Architectural	AIR	T-01	PHASE 3, AIR LIFT LOBBY DETAILS ( SECOND FLOOR )	BUUIPL-ARCH-UWC - PH 3-T1-08 R5
80	Architectural	AIR	T-01	PHASE 3, AIR LIFT LOBBY DETAILS ( SECOND FLOOR )	BUUIPL-ARCH-UWC - PH 3-T1-08a R1
81	Architectural	AIR	T-01	PHASE 3, AIR LIFT LOBBY REFLECTED CEILING PLAN ( SECOND FLOOR )	BUUIPL-ARCH-UWC - PH 3-T1-08a R2
82	Architectural	AIR	T-01	PHASE 3, AIR TOILET DETAILS : T - 02 & T- 04	BUUIPL-ARCH-UWC - PH 3-T1-03 (R1)
83	Architectural	AIR	T-01	PHASE 3, AIR TOILET DETAILS : T - 02 & T- 04	BUUIPL-ARCH-UWC - PH 3-T1-03 (R2)
84	Architectural	AIR	T-01	PHASE 3, AIR KITCHEN DETAILS	BUUIPL-ARCH- UWC - PH 3-T1-07
85	Architectural	AIR	T-01	PHASE 3, AIR TYPICAL TOILET DETAILS : T-03 & WC (POWDER ROOM)\	BUUIPL-ARCH-UWC - PH 3-T1-04
86	Architectural	AIR	T-01	PHASE 3, AIR TYPICAL TOILET DETAILS : T-05 & WC	BUUIPL-ARCH-UWC - PH 3-T1-05
87	Architectural	AIR	T-01	PHASE 3, AIR REFLECTED CEILING PLAN	BUUIPL-ARCH-UWC - PH 3-T1-08
88	Architectural	AIR	T-01	BRICKWORK LAYOUT	UWC-PH3-T1-01
89	Architectural	AIR	T-01	LEAD FLAT ELECTRICAL LAYOUT	A-LE-104
90	Architectural	AIR	T-01	LEAD FLAT FIREFIGHTING LAYOUT	A-LE-103
91	Architectural	AIR	T-01	LEAD FLAT HVAC LAYOUT	A-LE-101
92	Architectural	AIR	T-01	LEAD FLAT PLUMBING LAYOUT	A-LE-102
93	Architectural	AIR	T-01	LEAD FLAT FLOORING PLAN	A-LE-100
94	Architectural	AIR	T-01	LEAD FLAT GASLINE LAYOUT	A-LE-105
95	Architectural	AIR	T-01	LEAD FLAT AC LEDGE DETAIL	A-LE-591
96	Architectural	AIR	T-01	RAILING DETAIL	A-T1-514
97	Architectural	AIR	T-01	FLOORING PATTERN FOR TYPICAL FLOOR	A-T1-622
98	Architectural	AIR	T-01	FLOORING PATTERN REFLECTED CEILING PLAN	A-TY-108
99	Architectural	AIR	T-01	BASEMENT FLOOR LIFT LOBBY DETAIL	A-635

**PROJECT: AIR 1 KOLKATA**

**Tender Drawing List**

Sl . No.	Trade	Project	Tower	Drawing Title	Drawing No.
100	Architectural	AIR	T-01	PODIUM RAMP DETAIL	A-708
101	Architectural	AIR	T-01	RAMP DETAIL -07 (AIR G.F. TO PODIUM)	A-707
102	Architectural	AIR	T-01	GF & FF PLAN	BUUIPL/ARCH & PLNG/KOLKATA/25.09.2018
103	Architectural	AIR	T-01	LOUVER DETAIL	A-AIR-SK01
104	Architectural	AIR	T-01	DETAIL OF TERRACE LVL.OVERHEAD WATER TANK SLEEVE DETAIL	PL-T1-TR-OHT-02
105	Architectural	AIR	T-01	AIR CANOPY/PLANTER DETAIL	A-T1-753
106	Architectural	AIR	T-01	SIGNAGE DETAIL	BUUIPL/ARCH & PLNG/KOLKATA/1.06.2019
107	Architectural	AIR	T-01	AIR LIFT DETAILS	A-310
108	Architectural	AIR	T-01	ST-04/T1 AIR TOWER	A-T1-455
109	Architectural	AIR	T-01	TYPICAL CENTRAL FLAT KICHEN DETAILS K02	A-TYP-661
110	Architectural	AIR	T-01	TYPICAL CENTRAL FLAT KICHEN DETAILS K02	A-TYP-661
111	Architectural	AIR	T-01	TYPICAL CENTRAL FLAT KICHEN DETAILS K02	A-TYP-661
112	Architectural	AIR	T-01	TYPICAL CENTRAL FLAT TOILET DETAILS T06	A-TYP-602
113	Architectural	AIR	T-01	TYPICAL CENTRAL FLAT TOILET DETAILS T07	A-TYP-603
114	Architectural	AIR	T-01	TYPICAL CENTRAL FLAT TOILET DETAILS T07	A-TYP-603
115	Architectural	AIR	T-01	TYPICAL CENTRAL FLAT TOILET DETAILS T08	A-TYP-604
116	Architectural	AIR	T-01	TYPICAL CENTRAL FLAT TOILET DETAILS T08	A-TYP-604
117	Architectural	AIR	T-01	TYPICAL CENTRAL FLAT TOILET DETAILS T09	A-TYP-605
118	Architectural	AIR	T-01	TYPICAL CENTRAL FLAT TOILET DETAILS T09	A-TYP-605
119	Architectural	AIR	T-01	TYPICAL CENTRAL FLAT TOILET DETAILS T10	A-TYP-606
120	Architectural	AIR	T-01	TYPICAL CENTRAL FLAT TOILET DETAILS T10	A-TYP-606
121	Architectural	AIR	T-01	TYPICAL CENTRAL FLAT TOILET REFLECTED CEILING PLAN	A-TYP-711
122	Architectural	AIR	T-01	WC & UTILITY DETAIL TYPICAL FLAT	A-606
123	Architectural	AIR	T-01	WC & UTILITY DETAIL TYPICAL FLAT	A-606
124	Architectural	AIR	T-01	LOWER DUPLEX TOILET DETAILS	A-610

**PROJECT: AIR 1 KOLKATA**

**Tender Drawing List**

Sl . No.	Trade	Project	Tower	Drawing Title	Drawing No.
125	Architectural	AIR	T-01	LOWER PENTHOUSE TOILET DETAILS	A-614
126	Architectural	AIR	T-01	UPPER DUPLEX TOILET DETAILS	A-612
127	Architectural	AIR	T-01	UPPER PENTHOUSE TOILET DETAILS	A-615
128	Architectural	AIR	T-01	UPPER PENTHOUSE TOILET DETAILS	A-618
129	Architectural	AIR	T-01	UPPER PENTHOUSE TOILET DETAILS	A-622
130	Architectural	AIR	T-01	UPPER PENTHOUSE TOILET DETAILS	A-623
131	Architectural	AIR	T-01	UPPER DUPLEX TOILET DETAILS	A-621
132	Structures	AIR	T-01	BEAM DETAILS AT TYPICAL (7th. TO 19TH.) FLOOR LEVEL (SHEET-1)	KOL/AIR/S-481
133	Structures	AIR	T-01	BEAM DETAILS AT TYPICAL (7th. TO 19TH.) FLOOR LEVEL (SHEET-2)	KOL/AIR/S-482
134	Structures	AIR	T-01	BEAM DETAILS AT 20TH. FLOOR LEVEL (SHEET- 1)	KOL/AIR/S-483
135	Structures	AIR	T-01	BEAM DETAILS AT 20TH. FLOOR LEVEL (SHEET- 2)	KOL/AIR/S-484
136	Structures	AIR	T-01	BEAM DETAILS AT 21ST. FLOOR LEVEL (SHEET- 1)	KOL/AIR/S-485
137	Structures	AIR	T-01	BEAM DETAILS AT 21ST. FLOOR LEVEL (SHEET- 2)	KOL/AIR/S-486
138	Structures	AIR	T-01	BEAM DETAILS AT 21ST. FLOOR LEVEL (SHEET- 3)	KOL/AIR/S-487
139	Structures	AIR	T-01	BEAM REINF. DETAILS AT 22,24, 26, 28, 30, 32, 34 & 36TH. FLOOR LEVEL (SHEET-1)	KOL/AIR/S-488
140	Structures	AIR	T-01	BEAM REINF. DETAILS AT 22,24, 26, 28, 30, 32, 34 & 36TH. FLOOR LEVEL (SHEET-2)	KOL/AIR/S-489
141	Structures	AIR	T-01	BEAM REINF. DETAILS AT 22,24, 26, 28, 30, 32, 34 & 36TH. FLOOR LEVEL (SHEET-3)	KOL/AIR/S-490
142	Structures	AIR	T-01	BEAM REINF. DETAILS AT 22,24, 26, 28, 30, 32, 34 & 36TH. FLOOR LEVEL (SHEET-4)	KOL/AIR/S-491
143	Structures	AIR	T-01	BEAM REINF. DETAILS AT 23, 25, 27, 29, 31, 33 & 35TH FLOOR LEVEL (SHEET-1)	KOL/AIR/S-492
144	Structures	AIR	T-01	BEAM REINF. DETAILS AT 23, 25, 27, 29, 31, 33 & 35TH FLOOR LEVEL (SHEET-2)	KOL/AIR/S-492
145	Structures	AIR	T-01	BEAM REINF. DETAILS AT 23, 25, 27, 29, 31, 33 & 35TH FLOOR LEVEL (SHEET-3)	KOL/AIR/S-492A
146	Structures	AIR	T-01	BEAM REINF. DETAILS AT 23, 25, 27, 29, 31, 33 & 35TH FLOOR LEVEL (SHEET-3)	KOL/AIR/S-492B
147	Structures	AIR	T-01	BEAM REINF. DETAILS AT 23, 25, 27, 29, 31, 33 & 35TH FLOOR LEVEL (SHEET-4)	KOL/AIR/S-492C
148	Structures	AIR	T-01	BEAM DETAILS AT 37TH. FLOOR LEVEL (SHEET- 1)	KOL/AIR/S-493
149	Structures	AIR	T-01	BEAM DETAILS AT 37TH. FLOOR LEVEL (SHEET- 2)	KOL/AIR/S-493A
150	Structures	AIR	T-01	BEAM DETAILS AT 37TH. FLOOR LEVEL (SHEET- 3)	KOL/AIR/S-493B
151	Structures	AIR	T-01	BEAM DETAILS AT 38TH. FLOOR LEVEL (SHEET- 1)	KOL/AIR/S-494
152	Structures	AIR	T-01	BEAM DETAILS AT 38TH. FLOOR LEVEL (SHEET- 2)	KOL/AIR/S-494A
153	Structures	AIR	T-01	BEAM DETAILS AT 38TH. FLOOR LEVEL (SHEET- 3)	KOL/AIR/S-494B
154	Structures	AIR	T-01	BEAM DETAILS AT 39TH. FLOOR LEVEL(SHEET- 1)	KOL/AIR/S-495
155	Structures	AIR	T-01	BEAM DETAILS AT 39TH. FLOOR LEVEL(SHEET- 2)	KOL/AIR/S-495A
156	Structures	AIR	T-01	BEAM DETAILS AT 40TH. (TERRACE) LEVEL (SHEET-1)	KOL/AIR/S-496

**PROJECT: AIR 1 KOLKATA**

**Tender Drawing List**

Sl . No.	Trade	Project	Tower	Drawing Title	Drawing No.
157	Structures	AIR	T-01	BEAM DETAILS AT 40TH. (TERRACE) LEVEL (SHEET-2)	KOL/AIR/S-496A
158	Structures	AIR	T-01	BEAM DETAILS AT 40TH. (TERRACE) LEVEL (SHEET-3)	KOL/AIR/S-496B
159	Structures	AIR	T-01	BEAM DETAILS AT MACHINE ROOM ROOF LEVEL	KOL/AIR/S-497
160	Structures	AIR	T-01	BEAM DETAILS AT TYPICAL (3RD. TO 19TH.) FLOOR LEVEL (SHEET-1)	KOL/AIR/S-403
161	Structures	AIR	T-01	BEAM DETAILS AT TYPICAL (3RD. TO 19TH.) FLOOR LEVEL (SHEET-2)	KOL/AIR/S-404
162	Structures	AIR	T-01	Column schedule	Col Layout_38 floor & Shear walls
163	Structures	AIR	T-01	Column marking plan at 38th floor level	Col Layout_38 floor
164	Structures	AIR	T-01	Column Schedule	Col_37 TO TER VIJAY & NEERAJ
165	Structures	AIR	T-01	Column Schedule	Col_37 TO TERRACE SH_1
166	Structures	AIR	T-01	Column Schedule	Col_37 TO TERRACE SH_2
167	Structures	AIR	T-01	Column Schedule	Col_37 TO TERRACE SH_3
168	Structures	AIR	T-01	Column Schedule	Col_37 TO TERRACE
169	Structures	AIR	T-01	Column Schedule	Col_37 TO TERRACE
170	Structures	AIR	T-01	Column marking plan at Terrace (40th floor level)	Col Marking_At Terrace
171	Structures	AIR	T-01	Column Schedule	Col_ABOVE TERRACE
172	Structures	AIR	T-01	Column Schedule	Col_Air_Tower.(7)dwg.
173	Structures	AIR	T-01	38TH FLOOR COLUMN SETTING OUT PLAN	A-COL SETTING OUT-38
174	Structures	AIR	T-01	COLUMN MARKING PLAN AT 38TH. FLOOR LEVEL	Col Layout_38 floor
175	Structures	AIR	T-01	COLUMN MARKING PLAN AT 38TH FLOOR LEVEL	Col Layout_38 floor
176	Structures	AIR	T-01	COLUMN MARKING PLAN AT TERRACE (40TH.) FLOOR LEVEL	Col Marking_Terrace
177	Structures	AIR	T-01	Column Schedule	Col Layout_38 floor & Shear walls
178	Structures	AIR	T-01	Column Schedule	Col_37 TO TERRACE SH_2
179	Structures	AIR	T-01	Column Schedule	Col_37 TO TERRACE SH_3
180	Structures	AIR	T-01	Column Schedule	Col_37 TO TERRACE
181	Structures	AIR	T-01	Column Schedule	Col_Air_ALL
182	Structures	AIR	T-01	Column Schedule (non-Tower around air tower)	Col_Air_nontower
183	Structures	AIR	T-01	Column Schedule	Col_Air_SHEET-1
184	Structures	AIR	T-01	Column Schedule	Col_Air_SHEET-2
185	Structures	AIR	T-01	Column Schedule	Col_Air_SHEET-3
186	Structures	AIR	T-01	Column Schedule	Col_Air_SHEET-4
187	Structures	AIR	T-01	Column Schedule	Col_Air_SHEET-5
188	Structures	AIR	T-01	Column Schedule	Col_Air_SHEET-6
189	Structures	AIR	T-01	Column Schedule	Col_Air_SHEET-7
190	Structures	AIR	T-01	Column Schedule	Col_Air_SHEET-8
191	Structures	AIR	T-01	Column Schedule	Col_Air_Tower.(7)dwg.
192	Structures	AIR	T-01	STRUCTURAL ARRANGEMENT AT 1ST. FLOOR LEVEL	1ST FLOOR
193	Structures	AIR	T-01	STRUCTURAL ARRANGEMENT AT 2ND. FLOOR LEVEL	2ND_GA
194	Structures	AIR	T-01	STRUCTURAL ARRANGEMENT AT 3RD FLOOR LEVEL	3rd
195	Structures	AIR	T-01	STRUCTURAL ARRANGEMENT AT 4TH & 5TH FLOOR LEVEL	4Th & 5th
196	Structures	AIR	T-01	STRUCTURAL ARRANGEMENT AT 6TH. FLOOR LEVEL	6Th
197	Structures	AIR	T-01	STRUCTURAL ARRANGEMENT AT 6TH. & 9TH FLOOR LEVEL	7Th & 9th
198	Structures	AIR	T-01	STRUCTURAL ARRANGEMENT AT 10TH TO 19TH FLOOR LEVEL	10 to 19
199	Structures	AIR	T-01	STRUCTURAL ARRANGEMENT AT 21TH. FLOOR LEVEL	21th Fl (3)
200	Structures	AIR	T-01	STRUCTURAL ARRANGEMENT AT 21TH. FLOOR LEVEL	22 FL(6)

**PROJECT: AIR 1 KOLKATA**

**Tender Drawing List**

Sl . No.	Trade	Project	Tower	Drawing Title	Drawing No.
201	Structures	AIR	T-01	STRUCTURAL ARRANGEMENT AT 23RD TO 35TH FLOOR LEVEL	23th 35TYP(2)
202	Structures	AIR	T-01	STRUCTURAL ARRANGEMENT AT 37TH FLOOR LEVEL	37th fl_6
203	Structures	AIR	T-01	STRUCTURAL ARRANGEMENT AT 38TH & 39TH FLOOR LEVEL	38th & 39th
204	Structures	AIR	T-01	STRUCTURAL ARRANGEMENT AT 40TH FLOOR LEVEL	40th 5
205	Structures	AIR	T-01	SERVICE FLOOR WATER TANK DETAILS	Overheda Tank_5
206	Structures	AIR	T-01	PILE CAP REINF. DETAILS	AIR_PILECAP
207	Structures	AIR	T-01	PILE CAP REINF. DETAILS	Pile.(R1)dwg
208	Structures	AIR	T-01	SLAB MARKING PLAN AT 3RD.TO 8TH FLOOR LEVEL	3rd & 8th
209	Structures	AIR	T-01	SLAB MARKING PLAN AT 4TH. TO 19TH. FLOOR LEVEL	4Th & 18th
210	Structures	AIR	T-01	SLAB MARKING PLAN AT 7TH. TO 8TH. FLOOR LEVEL	7Th & 8th
211	Structures	AIR	T-01	SLAB MARKING PLAN AT 21TH. FLOOR LEVEL (LOWER DUPLEX)	21th (2)
212	Structures	AIR	T-01	SLAB REINFORCEMENT DETAILS AT 23, 25, 27, 29, 31, 33, & 35TH. FLOOR LEVEL (LOWER DUPLEX - TYPICAL)	23 TO 35 FL
213	Structures	AIR	T-01	SLAB REINFORCEMENT DETAILS AT 23, 25, 27, 29, 31, 33 & 35TH. FLOOR LEVEL	23_25 27 & 29
214	Structures	AIR	T-01	SLAB REINFORCEMENT DETAILS AT 37TH. FLOOR LEVEL	37TH.dwg(25_04_13)
215	Structures	AIR	T-01	SLAB MARKING PLAN AT 39TH. FLOOR LEVEL	39TH.SLAB MARKING
216	Structures	AIR	T-01	FLAT SLAB TOP REINF.AT FIRST FLOOR LEVEL	SLAB FIRSTR2PARK
217	Structures	AIR	T-01	SLAB REINFORCEMENT DETAILS AT 37TH. FLOOR LEVEL	SLAB MARKING_37TH.dwg(25_04_13 ).dwg.FINAL
218	Structures	AIR	T-01	SLAB MARKING PLAN AT 38TH. FLOOR LEVEL	Slab marking_38th floor
219	Structures	AIR	T-01	SLAB REINFORCEMENT DETAILS AT 22, 24, 26, 28, 30, 32, 34 & 36TH. FLOOR LEVEL	Slab_U_Dup_22_24 26 & 28 ADD LEVELS (1)
220	Structures	AIR	T-01	STRUCTURAL ARRANGEMENT AT FEATURE LEVEL (ABOVE MACHINE ROOM ROOF LEVEL)	Terrace GA_10_TYAGI JI_6
221	Structures	AIR	T-01	SLAB REINFORCEMENT DETAILS AT 40TH. FLOOR LEVEL	Terrace slab reinforcement detail(26-11-13)
222	Structures	AIR	T-01	STAIRCASE (ST-01) & D.G. SHAFT ROOF DETAILS	A-FST-02 AIR(3)
223	Structures	AIR	T-01	STAIR CASE DETAILS (AIR TOWER)	A-FST-02 AIR
224	Structures	AIR	T-01	STAIR CASE DETAILS ( STAIR CASE ST -09 )	FILNAL PENT HOUSE STAIR CASE
225	Structures	AIR	T-01	STAIRCASE DETAILS AT LOWER & UPPER DUPLEX LEVEL	Folded Stair_21th_1
226	Structures	AIR	T-01	PODIUM STAIRCASE DETAILS	PODIUM STAIR
227	Structures	AIR	T-01	GENERAL DETAILS	GEN-DET
228	Structures	AIR	T-01	BEAM DETAILS AT GROUND FLOOR LEVEL	airGROUNDBM_NT
229	Structures	AIR	T-01	Phase-3, Tower-1 Pile layout	Pile Layout
230	Structures	AIR	T-01	Pile Details	Pile.(R1)dwg
231	Structures	AIR	T-01	WATER TANK DETAILS	WATER TANK AIR & RETAIL
232	Landscape	AIR	T-01	SUNKEN GARDEN DETAILS	A-DT-SUNKEN GARDEN-15.02.2019
233	Landscape	AIR	T-01	PODIUM ROAD SETTING OUT PLAN	AIR-Podium-road set out
234	Landscape	AIR	T-01	LANDSCAPE PLAN	A-L-101 Landscape Plan
235	Landscape	AIR	T-01	SUBSURFACE DRAINAGE PLAN	A-L-103 Subsurface Drainage Plan
236	Landscape	AIR	T-01	DETAILS	A-L-104-Material Plan--podium
237	Landscape	AIR	T-01	DETAILS	A-L-104-Material Plan--podium 12--04--2016
238	Landscape	AIR	T-01	MATERIAL PLAN	A-L-104-Material Plan--podium 12--04--2016-A-L-101 Landscape Plan



**PROJECT: AIR 1 KOLKATA**

**Tender Drawing List**

<b>Sl . No.</b>	<b>Trade</b>	<b>Project</b>	<b>Tower</b>	<b>Drawing Title</b>	<b>Drawing No.</b>
239	Landscape	AIR	T-01	MATERIAL PLAN	A-L-104-Material Plan--podium - set out curve
240	Landscape	AIR	T-01	SETTINGOUT PLAN	A-L-105-Setting-out-plan
241	Landscape	AIR	T-01	LIGHTING PLAN	A-L-106-Lighting plan
242	Landscape	AIR	T-01	LIGHTING PLAN	A-L-106-Lighting plan-updated 31.08.19
243	Landscape	AIR	T-01	PART PLAN & SECTIONS	A-L-205 (A) PART PLAN AND SECTIONS
244	Landscape	AIR	T-01	PART PLAN & SECTIONS	A-L-205 PART PLAN AND SECTIONS
245	Landscape	AIR	T-01	CHILDRENS PLAY AREA DETAILS	A-L-206 Children_s play area detail
246	Landscape	AIR	T-01	LIGHTING PLAN	A-L-207 Lighting plan
247	Landscape	AIR	T-01	MATERIAL PLAN	Childrens play area signage-F
248	Landscape	AIR	T-01	FEATURE WALL WITH SIGNAGE @ PODIUM LEVEL	Childrens play area signage-Feature Wall with Signage detail
249	Landscape	AIR	T-01	GATE & GUARD HOUSE LIGHTING PLAN	Entrance gate and guard house lighting plan
250	Landscape	AIR	T-01	BOUNDARY WALL EXTENSION LAYOUT	FINAL DELEVERED TO SITE
251	Landscape	AIR	T-01	WATER BODY DETAILS	L-206 waterbody detail
252	Landscape	AIR	T-01	MATERIAL PLAN	Landscape plan AIR
253	Landscape	AIR	T-01	PLANTING PLAN	Planting plan
254	Landscape	AIR	T-01	MATERIAL PLAN	podium road setting out
255	Landscape	AIR	T-01	REFLECTING POOL AREA DETAIL	Reflecting pool 22.10.18
256	Landscape	AIR	T-01	GATE & GUARD HOUSE LIGHTING PLAN	AIR-Gate house lighting layout
257	Landscape	AIR	T-01	ENTRANCE SETTING OUT	A-L-301- Entrance Setting-out
258	Landscape	AIR	T-01	GUARD ROOM DETAILS	A-L-302- Guard Room Details
259	Landscape	AIR	T-01	GUARD ROOM DETAILS	A-L-302-Gatehouse lighting
260	Landscape	AIR	T-01	ENTRANCE GATE DETAILS	A-L-303 -Entrance Gate details
261	Landscape	AIR	T-01	GATE HOUSE STONE CLADDING DETAILS	A-L-304 -Gate Details STONE CLADDING
262	Landscape	AIR	T-01	GATE & GUARD HOUSE LIGHTING PLAN	A-L-304- Guard house and Gate lighting plan
263	Landscape	AIR	T-01	SIGNAGE DETAILS	SIGNAGE DETAILS
264	Landscape	AIR	T-01	SIGNAGE DETAILS	A-L-302303 -Guard Room Gate Details-signage
265	Landscape	AIR	T-01	GATE HOUSE STONE CLADDING DETAILS	UWC-P3-AIR-GATEHOUSE-SIGNAGE WALL COLOR
1	Electrical	AIR	AIR-1	SITE PLAN LIGHTING LAYOUT	A-L-107
2	Electrical	AIR	AIR-1	Basement Floor Plan Electrical Lay Out	ED-P3-AIR-102
3	Electrical	AIR	AIR-1	Ground Floor Plan Electrical Lay Out	ED-P3-AIR-103
4	Electrical	AIR	AIR-1	Ground Floor LIGHTING LAYOUT	ED-LIG-01
5	Electrical	AIR	AIR-1	Ground Floor LV & POWER LAYOUT	ED-LV & P-01
6	Electrical	AIR	AIR-1	First Floor Plan LIGHTING LAYOUT	ED-LIG-01
7	Electrical	AIR	AIR-1	First Floor LV & POWER LAYOUT	ED-LV & P-01
8	Electrical	AIR	AIR-1	Typical Floor Plan 2nd to 19th Floor Electrical lay Out	ED-P3-AR-108A
9	Electrical	AIR	AIR-1	Service Floor Area Electrical Lay Out	ED-P3-AR-250
10	Electrical	AIR	AIR-1	Lower Duplex-21st Floor Electrical Lay Out	ED-P3-AR-251
11	Electrical	AIR	AIR-1	Upper DuplexLevel-22,24,26,28,30,32,34 & 36 Electrical Lay Out	ED-P5-253
12	Electrical	AIR	AIR-1	Lower Duplex Typical-23,25,27,29,31,33&35 Electrical Lay Out	ED-P3-AR-252
13	Electrical	AIR	AIR-1	37th Floor Electrical lay Out	ED-P3-AR-37
14	Electrical	AIR	AIR-1	38th Floor Plan Lower Pent House Electrical lay Out	ED-P3-AR-PENT-38
15	Electrical	AIR	AIR-1	39th Floor Plan Upper Pent House Electrical Lay out	ED-P3-AR-PENT-39
16	Electrical	AIR	AIR-1	Part Terrace Floor Machine Room-1 Electrical lay Out	ED-P3-AR-PENT-40
17	Electrical	AIR	AIR-1	Part Terrace Floor Machine Room-2 Electrical lay Out	ED-P3-AR-PENT-41
18	Electrical	AIR	AIR-1	Terrace Floor Lightning Arrestor Lay out	ED-P3-AR-PENT-42

**PROJECT: AIR 1 KOLKATA**

**Tender Drawing List**

Sl . No.	Trade	Project	Tower	Drawing Title	Drawing No.
19	Electrical	AIR	AIR-1	Elevations Electrical Lay Out (Typical Floor Plan )	ED-P3-AIR-111
20	Electrical	AIR	AIR-1	Typical Floor Lift Lobby Plan RCP	
21	Electrical	AIR	AIR-1	Lead Flat Electrical Lay out Plan	A-LE-104
22	Electrical	AIR	AIR-1	Emergency D G Panel Schematic	ED-EMG-DG-01
23	Electrical	AIR	AIR-1	Common Panel Schematic-Core-1/Core-2	ED-P3-AIR-C1/C2
24	Electrical	AIR	AIR-1	Fire detection Schematic	ED-P3-FD-01
25	Electrical	AIR	AIR-1	DG Fuel Schematic	ED-DG-FUEL-01
26	Electrical	AIR	AIR-1	WBSEB Electrical Schematic	ED-WBSEDCL-SCH-01
27	Electrical	AIR	AIR-1	WBSEB Substation Floor Plan	ED-SS-AIR-01
28	Electrical	AIR	AIR-1	WBSEB Substation Ceiling Plan	ED-SS-AIR-02
29	Plumbing	AIR	AIR-1	GROUND FLOOR PLAN (PODIUM LEVEL)	PL-T1-01
30	Plumbing	AIR	AIR-1	GROUND FLOOR PLAN (UPPER PODIUM LEVEL)	PL-T1-01A
31	Plumbing	AIR	AIR-1	GROUND FLOOR PLAN (LOWER PODIUM LEVEL)	PL-T1-01B
32	Plumbing	AIR	AIR-1	FIRST FLOOR PLAN (UPPER & LOWER PODIUM LEVEL PLAN)	PL-T1-02
33	Plumbing	AIR	AIR-1	SECOND FLOOR PLAN	PL-T1-03
34	Plumbing	AIR	AIR-1	TYPICAL FLOOR PLAN (2nd TO 19th FLOOR)	PL-T1-04
35	Plumbing	AIR	AIR-1	SERVICE FLOOR PLAN	PL-T1-06
36	Plumbing	AIR	AIR-1	SERVICE FLOOR CEILING PLAN	PL-T1-07
37	Plumbing	AIR	AIR-1	LOWER DUPLEX FLOOR PLAN (21st FLOOR) (ABOVE SERVICE FLOOR)	PL-T1-08
38	Plumbing	AIR	AIR-1	LOWER DUPLEX-TYPICAL FLOOR (23rd, 25th, 27th, 29th, 31st, 33rd & 35th FLOOR) (ABOVE SERVICE FLOOR)	PL-T1-09
39	Plumbing	AIR	AIR-1	UPPER DUPLEX-TYPICAL FLOOR (22nd, 24th, 26th, 28th, 30th, 32nd, 34th & 36th FLOOR) (ABOVE SERVICE FLOOR)	PL-T1-10
40	Plumbing	AIR	AIR-1	37TH FLOOR PLAN	PL-T1-11
41	Plumbing	AIR	AIR-1	LOWER PENT HOUSE (38th FLOOR)	PL-T1-12
42	Plumbing	AIR	AIR-1	UPPER PENT HOUSE (39th FLOOR)	PL-T1-13
43	Plumbing	AIR	AIR-1	TERRACE PLAN (40th FLOOR)	PL-T1-14
44	Plumbing	AIR	AIR-1	DETAIL OF SERVICE FLOOR LEVEL OVER HEAD WATER TANK	PL-T1-SF-OHT-01
45	Plumbing	AIR	AIR-1	DETAIL OF TERRACE LEVEL OVERHEAD WATER TANK SLEEVE DETAIL	PL-T1-TR-OHT-02
46	Plumbing	AIR	AIR-1	SCHEMATIC DIAGRAM FOR SOIL & WASTE SYSTEM	PL-SCH-WS-AIR-01
47	Plumbing	AIR	AIR-1	SCHEMATIC DIAGRAM FOR WATER SUPPLY SYSTEM	SK-AIR-02
48	Plumbing	AIR	AIR-1	LAYOUT PLAN OF PUMP ROOM & UG. TANK	NS-PL-AIR-UG-01
49	Plumbing	AIR	AIR-1	TYPICAL FLOOR TOILET DETAIL (BELOW SERVICE FLOOR)	PL-T1-TD-02
50	Plumbing	AIR	AIR-1	TYPICAL FLOOR TOILET DETAIL (BELOW SERVICE FLOOR)	PL-T1-TD-01
51	Plumbing	AIR	AIR-1	TYPICAL FLOOR TOILET DETAIL (BELOW SERVICE FLOOR)	PL-T1-TD-03
52	Plumbing	AIR	AIR-1	TOILET DETAIL - 6 & 10 (LOWER DUPLEX) (ABOVE SERVICE FLOOR)	PL-T1-TD-LD-01
53	Plumbing	AIR	AIR-1	TOILET DETAIL - 12 & 13 (UPPER DUPLEX) (ABOVE SERVICE FLOOR)	PL-T1-TD-UD-02
54	Plumbing	AIR	AIR-1	TOILET DETAIL - 16 & 17 WC (LOWER PENT HOUSE) (ABOVE SERVICE FLOOR)	PL-T1-TD-LP-01
55	Plumbing	AIR	AIR-1	TOILET DETAIL-15,18&19,20-23 (UPPER PENT HOUSE) (ABOVE SERVICE FLOOR)	PL-T1-TD-UP-01
56	Plumbing	AIR	AIR-1	37th FLOOR TOILET DETAILS 8 & 9	PL-T1-11
57	Fire Fighting	AIR	AIR-1	GROUND FLOOR CEILING LEVEL PLAN (BELOW PODIUM LEVEL)	FF-T1-GR-01
58	Fire Fighting	AIR	AIR-1	FIRST FLOOR CEILING LEVEL PLAN	FF-T1-02
59	Fire Fighting	AIR	AIR-1	SECOND FLOOR CEILING LEVEL PLAN	FF-T1-03
60	Fire Fighting	AIR	AIR-1	TYPICAL FLOOR (3rd TO 19th) CEILING LEVEL PLAN	FF-T1-04

**PROJECT: AIR 1 KOLKATA**

**Tender Drawing List**

Sl . No.	Trade	Project	Tower	Drawing Title	Drawing No.
61	Fire Fighting	AIR	AIR-1	SERVICE FLOOR CEILING LEVEL PLAN FOR SPRINKLER SYSTEM	FF-T1-06
62	Fire Fighting	AIR	AIR-1	LOWER DUPLEX FLOOR (21st FLOOR) CEILING LEVEL PLAN	FF-T1-07
63	Fire Fighting	AIR	AIR-1	LOWER DUPLEX FLOOR CEILING PLAN (TYP.) FOR FOR 23rd, 25th, 27th, 29th, 31st, 33rd & 35th FLOOR (ABOVE SERVICE FLOOR)	FF-T1-08
64	Fire Fighting	AIR	AIR-1	UPPER DUPLEX FLOOR CEILING PLAN (TYP.) FOR 22nd, 24th, 26th, 28th, 30th, 32nd, 34th & 36th FLOOR (ABOVE SERVICE FLOOR)	FF-T1-09
65	Fire Fighting	AIR	AIR-1	37th FLOOR CEILING PLAN	FF-T1-10
66	Fire Fighting	AIR	AIR-1	38th FLOOR CEILING PLAN (LOWER PENT HOUSE)	FF-T1-11
67	Fire Fighting	AIR	AIR-1	39th FLOOR CEILING PLAN (UPPER PENT HOUSE)	FF-T1-12
68	Fire Fighting	AIR	AIR-1	FIRE FIGHTING SHEMATIC DIAGRAM (BELOW SERVICE FLOOR)	SK-FF-T1-01 (SHT 1 OF 2)
69	Fire Fighting	AIR	AIR-1	FIRE FIGHTING SHEMATIC DIAGRAM (ABOVE SERVICE FLOOR)	SK-FF-T1-01 (SHT 2 OF 2)
70	Fire Fighting	AIR	AIR-1	PART BASEMENT CEILING PLAN	FF-B-AIR-01
71	HVAC	AIR	AIR-1	GROUND FLOOR PLAN	A-T-1-100
72	HVAC	AIR	AIR-1	GROUND FLOOR PLAN FIRST FLOOR PLAN	A-T-1-100 -a
73	HVAC	AIR	AIR-1	LEAD FLAT CO ORDINATED SERVICES PLAN	A-LE-106
74	HVAC	AIR	AIR-1	TYPICAL FLAT FLOOR PLAN	A-TY-100
75	HVAC	AIR	AIR-1	TYP. FLOOR PLAN(3rd TO 19th & LOWER DUPLEX HVAC SCH.)	A-T1-101-HVAC
76	HVAC	AIR	AIR-1	37TH FLOOR PLAN & UPPER DUPLEX HVAC SC	A-T1-102-HVAC
77	HVAC	AIR	AIR-1	38TH & 39TH FLOOR HVAC SCHEME	A-T1-103-HVAC
78	HVAC	AIR	AIR-1	CO ORDINATED SERVICES FOR TYPICAL FLOOR CENTRAL UNIT	A-T1-CSD-TYPE A
79	HVAC	AIR	AIR-1	CO ORDINATED SERVICES FOR TYPICAL FLOOR CORNER UNIT	A-T1-CSD-TYPE B
80	HVAC	AIR	AIR-1	CO ORDINATED SERVICES LOWER DUPLEX UNIT	A-T1-CSD-TYPE C
81	HVAC	AIR	AIR-1	CO ORDINATED SERVICES UPPER DUPLEX UNIT	A-T1-CSD-TYPE D
82	HVAC	AIR	AIR-1	CO ORDINATED SERVICES LOWER PENTHOUSE CENTRAL	A-T1-CSD-TYPE E
83	HVAC	AIR	AIR-1	CO ORDINATED SERVICES UPPER PENTHOUSE CENTRAL	A-T1-CSD-TYPE F
84	HVAC	AIR	AIR-1	CO ORDINATED SERVICES LOWER PENTHOUSE CORNER	A-T1-CSD-TYPE G
85	HVAC	AIR	AIR-1	CO ORDINATED SERVICES UPPER PENTHOUSE CORNER	A-T1-CSD-TYPE H
86	HVAC	AIR	AIR-1	CORNICE DETAIL FOR HVAC & SPRINKLER	A-T1-104-HVAC
87	HVAC	AIR	AIR-1	LEAD FLAT HVAC LAYOUT	A-LE-101
88	HVAC	AIR	AIR-1	PART BASEMENT CEILING PLAN (AIR BLOCK) FIRE FIGHTING SYSTEM	FF-B-AIR-01