



SEEPZ SEZ AUTHORITY

(Using E- Procurement mode on Central Public Procurement Portal)

**REQUEST FOR PROPOSAL
FROM**

**EPC DEVELOPER (DESIGN & BUILD) FOR CONSTRUCTION OF RESIDENTIAL BUILDING
AFTER DEMOLISHION OF EXISTING RESIDENTIAL BUILDING FOR SEEPZ-SEZ
AUTHORITY, ANDHERI (E), MUMBAI, MAHARASHTRA**

Tender Ref. No.: SEEPZM-EOPT0PROF/4/2025-EO

Date of Issue: 20.01.2026

ISSUING AUTHORITY:

Development Commissioner, SEEPZ- SEZ, Mumbai

Postal Address: SEEPZ SEZ, MIDC Central Road,
Andheri East, Mumbai 400096.

E-Mail: dcseepz-mah@nic.in

Helpline No.: 022-28290856

Landline: 022-28294728/29

(From 9:30 A.M. to 6:00 P.M.)

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INVITATION FOR BIDDING

Ref No:SEEPZM-EOPT0PROF/4/2025-EQ

Date: 20.01.2026

Tender Title: Request for proposal from EPC developer (design & build) for construction of residential building after demolition of existing residential building for Seepz-SEZ Authority, Andheri (e), Mumbai, Maharashtra.

Sir/Madam

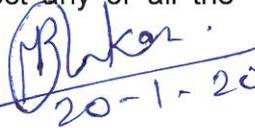
The SEEPZ- SEZ Authority Invites E-tender for **EPC developer (design & build) for construction of residential building after demolition of existing residential building for Seepz-SEZ Authority, Andheri (e), Mumbai, Maharashtra.** on Lumpsum basis in two cover system from experienced and competent bidders, meeting prescribed qualifying criteria as mentioned in the bidding documents.

The process of selection of suitable bidder shall be through Least Cost Based Selection (LCBS). The Bidding process shall be conducted in an online mode on the Central Public Procurement Portal (CPPP) which is publicly accessible using the following web address: <https://eprocure.gov.in/eprocure/app>. Bidders can download the Request for Proposals free of cost from this portal.

The Bidder should upload their technical and financial proposals separately within the stipulated time and date i.e **22.02.2026 at 16:00** The Bidder is solely responsible for timely uploading of Proposals on the e-procurement portal. SEEPZ SEZ Authority shall not be liable for resolving any queries / issues raised on the day of Proposal submission.

The Technical Proposals shall be opened online **at 16:00 hours on 23.02.2026**. Bidder can see the tender opening status by logging on to the e-procurement portal using their registered IDs. Financial Proposals of only technically qualified Bidder shall be opened at a date & time which shall be pre-disclosed on the e-procurement portal.

SEEPZ SEZ Authority reserves the right to accept or reject any or all the Proposals at any time during the Bidding process.


20-1-2026

**Joint Development Commissioner
SEEPZ SEZ Authority**

KEY INFORMATION AT A GLANCE

SN	Item	Description
1	RFP Ref. No.	SEEPZM-EOPT0PROF/4/2025-EO
2	RFP Title	EPC developer (design & build) for construction of residential building after demolition of existing residential building for Seepz-SEZ Authority, Andheri (e), Mumbai, Maharashtra.
3	Employer	SEEPZ SEZ AUTHORITY
4	Estimated Cost of Project (Construction of New Residential Building)	₹ 30,85,00,000.00 excluding GST
5	Credit for taking away material after Dismantling & Demolition of old Residential Building, Payment will be dealt separately.	₹ (-7,92,013.00)
6	Period of Completion	25 months
7	Link for downloading the RFP documents	RFP can be downloaded free of cost from the following websites: https://eprocure.gov.in/epublish/app
8	EMD	An amount of Rs. 31,00,000.00 (₹. Thirty-One Lakh Only) has to be submitted through DD/FDR/BG from Nationalised Bank/Scheduled Bank, in favour of "SEEPZ SEZ Authority Fund" For EMD submission purposes_only, the Employer's address is: Office of the Development Commissioner, SEEPZ SEZ, MIDC Central Road, Andheri East, Mumbai 400096. E-Mail: dcseepz-mah@nic.in Helpline No.: 022-28290856 Landline: 022-28294728/29
9	Date of RFP Publishing	20.01.2026
10	Date and time of Pre-bid Meeting	30.01.2026 11:00 hrs at SEEPZ SEZ, Administrative building, Andheri East, Mumbai
11	Last date and time for Submission of Bid	22.02.2026 at 16.00 Hrs. Bidders has to submit the bid online in CPP Portal
12	Date and time of opening of Bid	23.02.2026 at 16.00 Hrs. The opening of the Technical Bid shall take place at: SEEPZ SEZ, MIDC Central Road, Andheri East, Mumbai 400096.

SN	Item	Description
		E-Mail: dcseepz-mah@nic.in Helpline No.: 022-28290856 Landline: 022-28294728/29
13	Help Desk No. for e -Procurement Portal	0120-4200462, 0120-4001002, 0120-4001005
	Authority to be contacted in case of any clarification / request for entry permission for physical visit	Name: - Hanish Rathi Contact no.: 7976067037 SEEPZ- SEZ Authority Mumbai Postal Address: SEEPZ SEZ, MIDC Central Road, Andheri East, Mumbai 400096. E-Mail: To: hanishr.g171701@gov.in CC: seepzsez.wapcos@gmail.com

INSTRUCTIONS FOR ONLINE BID SUBMISSION

Bidders are required to submit soft copies of their bid electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the Bidders in registering on the CPP Portal, prepare their bid in accordance with the requirements and submitting their bid online on the CPP Portal.

REGISTRATION

1. Bidders are required to enrol on the e-Procurement module of the Central Public Procurement Portal (URL: <https://eprocure.gov.in/eprocure/app>) by clicking on the link "Online Bidder Enrolment" on the CPP Portal which is free of charge.
2. As part of the enrolment process, the Bidders will be required to choose a unique username and assign a password for their accounts.
3. Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPPP.
4. Upon enrolment, the Bidders will be required to register their valid Digital Signature Certificate (Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g., Sify / nCode / eMudhra etc.), with their profile.
5. Only one valid DSC should be registered by a bidder. Please note that the Bidders are responsible to ensure that they do not lend their DSCs to others which may lead to misuse.
6. Bidder then logs in to the site through the secured log-in by entering their user ID / password and the password of the DSC / e-Token.

SEARCHING FOR TENDER DOCUMENTS

1. There are various search options built in the CPP Portal, to facilitate Bidders to search active tenders by several parameters. These parameters could include Tender ID, Organization Name, Location, Date, Value, etc. There is also an option of advanced search for tenders, wherein the Bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords etc. to search for a tender published on the CPP Portal.
2. Once the Bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective 'My Tenders' folder. This would enable the CPP Portal to intimate the Bidders through SMS / e-mail in case there is any corrigendum issued to the tender document.
3. The Bidder should make a note of the unique Tender ID assigned to each tender; in case they want to obtain any clarification / help from the Helpdesk.

SECTION 1 - INSTRUCTIONS TO BIDDERS (ITB)

General	
Scope of Bid	Document for the procurement of Works as specified in Section 4 (Employer's Requirements).
Fraud and Corruption	The bidder shall be debarred if he has been convicted of an offence under the Prevention of Corruption Act, 1988 or the Indian penal code or any other law for the time being in-force
Eligible Bidders	SEEPZ- SEZ Authority Invites Open E-tender for EPC developer (design & build) for construction of residential building after demolition of existing residential building for Seepz-SEZ Authority, Andheri (e), Mumbai, Maharashtra. "on Lumpsum basis in two cover system from experienced and competent bidders, meeting prescribed qualifying criteria. Specified in Section 2
Eligible Materials, Equipment and Services	The Bidder should self-certify owned or having assured access (through hire, lease, purchase agreement, other commercial means) to the specified key items of equipment, in full working order, and satisfy that, based on known commitments
Contents of Bidding Document	
Sections of Bidding Document	The Bidding Document consist of following sections and should be read in conjunction with any addendum issued. <ul style="list-style-type: none"> • Invitation for bidding (IFB) • Section 1 - Instructions to Bidders (ITB) • Section 2 - Evaluation and Qualification Criteria (EQC) • Section 3 - Bidding Forms (BDF) • Section 4 - Employer's Requirements (ERQ) • Section 5- Technical Specification(TS) • Section 6- Design Basis Report (DBR) • Section 7 - General Conditions of Contract (GCC) • Section 8 - Special Conditions of Contract (SCC) • Section 9 - Contract Forms (COF)
	The Employer is not responsible for the completeness of the Bidding Document and their addenda, if they were not obtained directly from the source stated by the Employer in the RFP
	The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Document. Failure to furnish all information or documentation required by the Bidding Document may result in the rejection of the bid.
Clarification of Bidding Document, Site Visit, Pre-Bid Meeting	The Bidder is advised to visit and examine the Site of Works, existing similar structures and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the Bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense.
	The Bidder and any of its personnel or agents will be granted permission by the Employer to enter its premises and lands for the purpose of such visit, but only upon the condition that the

	Bidder, its personnel, and agents will release and indemnify the Employer and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.
Amendment of Bidding Document	At any time prior to the deadline for submission of Bids, the Employer may amend the Bidding Document by issuing corrigendum/addendum.
	Any corrigendum/addendum issued shall be part of the Bidding Document.
	To give prospective Bidders reasonable time in which to take an addendum into account in preparing their Bids, the Employer may, at its discretion, extend the deadline for the submission of Bids.
Preparation of Bids	
Cost of Bidding	The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Employer shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.
Language of Bid	The Bid, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Employer, shall be written in the English
Documents Comprising the Bid	The Bid shall comprise two envelopes i.e Technical Proposal and Price Bid (Inclusive all Taxes) to be uploaded online in CPP Portal
	The Technical Bid shall comprise the following: <ul style="list-style-type: none"> • Letter of Technical Bid • EMD • PoA • Qualification documents • Technical Proposal in accordance • Any other document required
	The Price Bid shall comprise the following: <ul style="list-style-type: none"> • Letter of Price Bid; • Completed Price Schedules
Letters of Bid and Schedules	The Letters of Technical Bid and Price Bid, and the Schedules, shall be prepared using the relevant forms furnished in Section 3 (Bidding Forms). The forms must be completed without any alterations to the text, and no substitutes shall be accepted.
Bid Prices	The quoted price shall be lump sum Inclusive of all Taxes.
Currencies of Bid and Payment	The unit rates and the prices shall be quoted by the Bidder entirely in INR
Documents Comprising the Technical Proposal	The Bidder shall furnish a Technical Proposal including a statement of work methods, equipment, personnel, schedule, and any other information as stipulated in Section 3 (Bidding Forms), in sufficient detail to demonstrate the adequacy of the Bidders' proposal to meet the work requirements and the completion time.

Documents Establishing the Qualifications of the Bidder	To establish its qualifications to perform the Contract in accordance with Section 2 (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding information sheets included in Section 3 (Bidding Forms).
Period of Validity of Bids	Bids shall remain valid for the period of 90 days after the bid submission deadline date prescribed by the Employer. A bid valid for a shorter period shall be rejected by the Employer as nonresponsive.
	In exceptional circumstances, prior to the expiration of the bid validity period, the Employer may request Bidders to extend the period of validity of their Bids. The request and the responses shall be made in writing. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request shall not be required or permitted to modify its Bid.
Bid Security/EMD	Unless otherwise specified, the Bidder shall furnish as part of its Bid, in original form EMD of ₹ 31,00,000.00 (₹Thirty-One Lakh Only) as bid security .
	The bid security shall be, at the Bidder's option, in any of the following forms: BG/Demand Draft/FDR of any Nationalized Bank/ Scheduled Bank
	The bid security may be forfeited <ul style="list-style-type: none"> • if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letters of Technical Bid and Price Bid. • if the successful Bidder fails to Sign the Contract Furnish a performance security/Guarantee
Submission and Opening of Bids	
Signing and Uploading of Bids	<ul style="list-style-type: none"> • The individual signing/ digitally signing the bid or any other connected documents should submit an authenticated copy of the document(s), which authorizes the signatory to commit and submit bids on behalf of the bidder. • No manual Bids shall be made available or accepted for submission. In the case of downloaded documents, Bidder must not make any changes to the contents of the documents while uploading, except for filling the required information– otherwise, the bid shall be rejected as nonresponsive. • Bids shall be received only Online on or before the deadline for the bid submission as notified. • Only one copy of the bid can be uploaded, and Bidder shall digitally sign all statements, documents, certificates uploaded by him, owning sole and complete responsibility for their correctness/ authenticity as per the provisions of the IT Act 2000 as amended from time to time.

- Bidder must upload scanned copies of originals (or self-attested copies of originals – as specified). Uploaded Pdf documents should not be password protected. Bidder should ensure the clarity/ legibility of the scanned documents uploaded by him.
- The Procuring Entity reserves its right to call for verification originals of all such self-certified documents from the Bidders at any stage of evaluation, especially from the successful Bidder(s) before the issue of Letter of Award (LoA).
- Regarding the protected Price Schedule (excel format, Cover-2), Bidder shall write his name in the space provided in the specified location only. Bidder shall type rates in the figure only in the rate column of respective service(s) without any blank cell or Zero values in the rate column, without any alteration/ deletion/ modification of other portions of the excel sheet.
- The date and time of the deadline for the bid submission shall remain unaltered even if the specified date is declared a holiday for the Tender Inviting Officer.
- The date and time of the e-Procurement server clock, which is also displayed on the dashboard of the bidders, shall be taken as the reference time for deciding the closing time of bid submission. Bidders are advised to ensure they submit their bid within the deadline and time of bid submission, taking the server clock as a reference, failing which the portal shall not accept the Bids. No request on the account that the server clock was not showing the correct time and that a particular bidder could not submit their bid because of this shall be entertained. Failure or defects on the internet or heavy traffic at the server shall not be accepted as a reason for a complaint. The Procuring Entity shall not be responsible for any failure, malfunction or breakdown of the electronic system used during the e-Tender Process.
- All Bids uploaded by Bidder to the portal shall get automatically encrypted. The encrypted bid can only be decrypted/ opened by the authorised persons on or after the due date and time. The bidder should ensure the correctness of the bid before uploading and take a printout of the system generated submission summary to confirm successful bid upload.
- The Procuring Entity may extend the deadline for the bid submission by issuing an amendment, in which case all rights and obligations of the Procuring Entity and the bidders previously subject to the original deadline shall then be subject to the new deadline for the bid submission.

	<ul style="list-style-type: none"> • Bid submitted through modalities other than those stipulated in RFP shall be liable to be rejected as nonresponsive.
Deadline for Submission of Bids	The Employer may, at its discretion, extend the deadline for the submission of Bids by amending the Bidding Document, in which case all rights and obligations of the Employer and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.
Late Bids	The Employer shall not consider any EMD that arrives after the deadline for submission of bids, Any EMD received by the Employer after the deadline for submission of Bids shall be declared late, rejected, and returned unopened to the Bidder.
Bid Opening	The date & time of the opening bid is as stipulated. Bids cannot be opened before the specified date & time, even by the Tender Inviting Officer, the Procurement Officer, or the Publisher. If the specified date of Bid opening falls on is subsequently declared a holiday or closed day for the Procuring Entity, the Bids shall be opened at the appointed time on the next working day.
	At the end of the evaluation of the Technical Bids, the Employer will upload the technical summary on CPP Portal before opening of Price Bid.
Evaluation and Comparison of Bids	
Confidentiality	Information relating to the examination, evaluation, comparison, and post qualification of Bids and recommendation of contract award, shall not be disclosed to Bidders or any other persons not officially concerned with such process until information on the Contract award is communicated to all Bidders.
	Any attempt by a Bidder to influence the Employer in the evaluation of the Bids or Contract award decisions may result in the rejection of its Bid.
	Notwithstanding from the time of bid opening to the time of Contract award, if any Bidder wishes to contact the Employer on any matter related to the bidding process, it may do so in writing.
Clarification of Bids	To assist in the examination, evaluation, and comparison of the Technical and Price Bids, the Employer may, at its discretion, ask any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder that is not in response to a request by the Employer shall not be considered. The Employer's request for clarification and the response shall be in writing. No change in the substance of the Technical Bid or prices in the Price Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Price Bids.
	If a Bidder does not provide clarifications of its Bid by the date and time set in the Employer's request for clarification, its Bid may be rejected.
Deviations, Reservations, and Omissions	During the evaluation of Bids, the following definitions apply:

	<ol style="list-style-type: none"> 1. "Deviation" is a departure from the requirements specified in the Bidding Document; 2. "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Document; and 3. "Omission" is the failure to submit part or all of the information or documentation required in the Bidding Document.
Examination of Technical Bids	The Employer shall examine the Technical Bid to confirm that all documents and technical documentation requested in Section 2 have been provided, and to determine the completeness of each document submitted.
	<p>The Employer shall confirm that the following documents and information have been provided in the Technical Bid. If any of these documents or information is missing, the offer shall be rejected.</p> <ul style="list-style-type: none"> • Letter of Technical Bid; • PoA • EMD • Technical Proposal
Responsiveness of Technical Bid	<p>The Employer's determination of a Bid's responsiveness is to be based on the contents of the bid itself.</p> <p>A substantially responsive Technical Bid is one that meets the requirements of the Bidding Document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that, if accepted, would:</p> <ul style="list-style-type: none"> • affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or • limit in any substantial way, inconsistent with the Bidding Document, the Employer's rights or the Bidder's obligations under the proposed Contract; or <p>if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive Bids.</p> <p>The Employer shall examine the technical aspects of the Bid submitted in accordance with requirements of Section 4 (Employer's Requirements) have been met without any material deviation, reservation.</p> <p>If a Bid is not substantially responsive to the requirements of the Bidding Document, it shall be rejected by the Employer and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.</p>
Nonmaterial Nonconformities	<p>Provided that a Bid is substantially responsive, the Employer may waive any nonconformities in the Bid that do not constitute a material deviation, reservation, or omission.</p> <p>Provided that a Technical Bid is substantially responsive, the Employer may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the Technical Bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related</p>

	<p>to any aspect of the Price Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.</p> <p>Provided that a Technical Bid is substantially responsive, the Employer shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component. The adjustment shall be made using the method indicated in Section 3 (Evaluation and Qualification Criteria).</p>
Qualification of the Bidder	The Employer shall determine to its satisfaction during the evaluation of Technical Bids whether Bidders meet the qualifying criteria specified in Section 2 (Evaluation and Qualification Criteria).
	The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder.
	An affirmative determination shall be a prerequisite for the opening and evaluation of a Bidder's Price Bid. A negative determination shall result into the disqualification of the Bid, in which event the Employer shall return the unopened Price Bid to the Bidder.
Evaluation of Price Bids	The Employer shall use the criteria and methodologies listed in this Section 2 other evaluation criteria or methodologies shall not be permitted.
Employer's Right to Accept Any Bid, and to Reject Any or All Bids	The Employer reserves the right to accept or reject any Bid, and to annul the bidding process and reject all Bids at any time prior to contract award, without thereby incurring any liability to Bidders. In case of annulment, all Bids submitted and specifically, bid securities, shall be promptly returned to the Bidders.
Award of Contract	
Award Criteria	The Employer shall award the Contract to the Bidder who has ranked Least based on the score of financial bid on LCBS method
Notification of Award	Prior to the expiration of the period of bid validity, the Employer shall notify the successful Bidder, in writing, that its Bid has been accepted.
	At the same time, the Employer shall also notify all other Bidders of the results of the bidding.
	Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract.
Signing of Contract	Promptly after notification, the Employer shall send the successful Bidder the Contract Agreement.
	Within 15 days of receipt of the Contract Agreement, the successful Bidder shall sign, date, and return it to the Employer.
Performance Security/Guarantee	Within 15 days of the receipt of notification of award from the Employer, the successful Bidder shall furnish the performance security in accordance with the conditions of contract, using for

	that purpose the Performance Security Form included in Section 8 (Contract Forms), or another form acceptable to the Employer.
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**SECTION 2 - EVALUATION AND QUALIFICATION
CRITERIA**

1.0 GENERAL

The intending bidders (Joint venture not allowed) should only submit his Technical Bid if they consider themselves meeting the eligibility and qualification criteria which are given below.

A. Eligibility & Qualification Criteria

S no.	Minimum Eligibility & Qualification Criteria	Supporting Documents /Format
1	Proof of Payment for EMD.	Hard copy to be submitted before deadline. Bid will be rejected if hard copy is not submitted before deadline. Scan copy of submitted EMD to be uploaded online.
2	The bidder should have a Solvency not less than the amount equal to 40 (forty) percent of the estimated cost; The solvency certificate should be from a Nationalized / Scheduled bank. The certificate should be submitted on attached format	(Form- 1) Bid will be rejected if scan copy is not uploaded online with technical proposal before deadline.
3	Power of Attorney to sign the Tender/Agreement.	A Power of Attorney authorizing the signatory to sign the Bid documents shall be submitted in the name of only the Company's Owner, Director, Chief Executive Officer (CEO), Managing Director (MD), or President level officer.
4	Must be Indian Registered Company under Companies Act 1956/ Public or corporation, registered with the appropriate government authority as Proprietorship/ Limited company/ Private limited company/ LLP/ Partnership/ and shall be in the Construction business for at least last 7 years	Copy of the incorporation / registration certificate clearly indicating the nature of business.
5	Must possess a valid GST, PAN, ESIC, EPFO number	Copies GST, PAN, ESIC, EPFO registration
6	Letter of Transmittal on bidder letter Head to submit Technical Bid	(Form-2)
7	Name, Address, details of the Organization, Name(s) of the Owner/Partners/Promoters and Directors of the firm/company.	(Form-3)

	The bidder shall have a functional office within the Mumbai Metropolitan Region (MMR). Documentary proof such as office address details, utility bill, or lease/ownership documents shall be submitted along with the bid.	
8	Bidder should not be blacklisted/ debarred by any government/ semi government department/ PSU as on last date of submission of tender. Bidder should submit the declaration of not being ineligible for corrupt or fraudulent practices as on last date of submission of tender on <u>non-judicial stamp paper of minimum ₹ 100.</u>	(Form-4A)
	Pending Litigation and Arbitration	(Form-4B)
9	Letter of understanding the project site on bidder letter Head	(Form-5)
10	Consent Letter to execute the Integrity Pact	(Form-6)
11	Average Annual Financial Turnover of the bidders during the last three years ending 31st March of the previous financial year should be at least 90% of the estimated cost. The turnover, profit, net worth certificates must be certified by Statutory Auditor of the firm/company. The Contractor should not have incurred any loss in more than 2 years in last three financial years. This should be duly audited by Chartered Accountant. Any such certificate must carry UDIN (Unique Document Identification Number).	(Form- 7)
12	The contractor should have satisfactorily completed the works as mentioned below during the last Seven years ending previous day of last date of submission of tender. One similar nature completed work costing not less than the amount equal to 80 (eighty) percent of the estimated cost Or Two similar nature completed works costing not less than the amount equal to 50 (fifty) percent of the	(Form- 8)

<p>estimated cost; or Or Three similar nature completed works costing not less than the amount equal to 40(forty) percent of the estimated cost;</p>	
<p>“Similar works” shall mean “Residential Building of multiple floors”.</p> <p>a) Height Criteria The bidder must have successfully completed at least one high-rise residential buildings of a minimum of 10 storeys or 30 meters in height, within the stipulated completion period (i.e., <i>Stipulated Time as per Agreement + Justified Period of Extension</i>).</p> <p>Note:</p> <ol style="list-style-type: none"> 1. Stilt/Basement, if provided in the building, shall be considered as a storey/floor for the purpose of determining height. 2. Mumty/Machine Room Slab shall not be treated as a floor. 3. For qualification purposes, one floor shall be considered equivalent to 3.0 meters in height. <p>b) GRIHA The bidder shall have a proven track record of having successfully completed at least one project with minimum GRIHA 5 Star/IGBC Platinum of any commercial, Institutional, residential building.</p> <p>c) Past Experience Documentation The bidder’s past experience in similar nature of works shall be supported by certificates issued by the client organization (Work order, completion Certificate, Agreement). In case the work experience pertains to a private sector project, the completion certificate must be accompanied by copies of the Letter of Award and corresponding TDS certificates. The value of the work shall be considered equivalent to the amount reflected in the TDS certificates.</p> <p>Note: Works executed purely as labour contracts shall not be considered for qualification.</p> <p>e) Updating of Work Value The value of executed works shall be brought to current cost 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 previous day of the last date of submission of tenders.</p> <p>f) Certificate in the name of other companies: Certificates of Subsidiary/ Parent/ Group Company/ Own works: Any company/firm while submitting tender can use the work experience of its subsidiary company to the extent of its ownership in the subsidiary company. On the other hand, the companies/firms which intend to get qualified on the basis of experience of the parental company/ group company/ own works,</p>	

	<p>shall not be considered. Further, the financial parameters of the subsidiary or Parental Company cannot be used by the other one for qualification.</p> <p>Merger/ Acquisition of Companies: In case of a Company/firm, formed after merger and/ or acquisition of other companies/ firms, past work experience and Financial parameters like turnover, profitability, net worth etc. 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.</p> <p>Demerger of Companies: In case of Companies/firms, formed after demerger of any company, past work experience and Financial parameters like turnover, profitability, net worth etc. of the original company before demerger will be considered proportionately for qualification by the new demerged entity to the extent of its ownership in the requisite assets and resources of the original company. However, such consideration of past work experience and Financial parameters shall only be allowed for a period of five years from the date of incorporation of the demerged entity.</p>	
13	Construction method statement, Mobilization schedule, construction schedule/ work plan, Quality assurance programme.	(Form – 09)
14	Equipment & Machinery required The Bidder should self-certify owned or having assured access (through hire, lease, purchase agreement, other commercial means) to the specified key items of equipment , in full working order, and satisfy that, based on known commitments	Bidder shall submit a self-certified certificate on company Letter head confirming the listed equipment as per Form “9” is either owned or the bidder has assured access through hire, lease, purchase agreement, other commercial means, in full working order. (Form – 10)
15	Key Personnel	(Form 11&12)
a	Project Manager Cum Planning Engineer– 1 No.	Graduate in Civil Engineering with minimum 10 years of similar work experience
b	Deputy Project Manager – 1 No.	Graduate in Electrical Engineering with minimum 7 years of similar work experience
c	Site Engineer– 1 No.	Diploma in Civil Engineering with minimum 5 years of similar work experience
d	Quality Control / Lab In charge – 1 No.	Diploma in Civil Engineering with minimum 5 years of similar work experience
e	Safety Engineer– 1 Nos.	Graduate/Diploma in relevant Discipline with minimum 3 years of similar work experience

The personnel listed above constitute the minimum requirement at site. The bidder shall, at his own discretion and cost, deploy any additional qualified staff as may be required to ensure proper execution and completion of the work.

Note *All documents shall be submitted in the sequence specified in the checklist, with each page duly numbered

2.0 EVALUATION

Only those bidders who have submitted above required technical documents shall be eligible for opening of the financial bid.

The bidder quoting the lowest cost (L1) shall be awarded the work.

For Example, Comparative Statement of Bidders' Quoted Prices

Description	Bidder 01	Bidder 02	Bidder 03
If quoted value of project by Bidder is (Construction of New Residential Building)	₹ 40.00 Crore (including all taxes)	₹ 39.90 Crore (including all taxes)	₹ 39.95 Crore (including all taxes)
Credit for taking away material after Dismantling & Demolition of old Residential Building by Bidder is....	₹ (-7,00,000) (including all taxes)	₹ (-10,00,000) (including all taxes)	₹ (-10,00,000) (including all taxes)
Total Evaluated Cost	₹ 39.93 Crore	₹ 39.80 Crore	₹ 39.85 Crore
Ranking	L3	L1 (Lowest)	L2

For whatever reason if the price schedule is submitted as part of the techno commercial bid, the bidder shall be disqualified and the submitted bid shall not be evaluated further.

SECTION 3 - BIDDING FORMS

FORM 01

SOLVENCY CERTIFICATE on Bank letter head

REF NO :.....

DATE :.....

To,
The Development Commissioner SEEPZ,
SEZ Authority Andheri (East),
Mumbai-400 096

Name of work: Submission of bids for **EPC developer (design & build) for construction of residential building after demolition of existing residential building for Seepz-SEZ Authority, Andheri (e), Mumbai, Maharashtra.**"

This is to certify that M/s _____ (Name of the Firm / Company), having _____ its registered office at _____, is a valued constituent of this bank.

Based on the financial records, transactions, and dealings of the firm with this bank, we are satisfied about their financial standing and reputation.

We further certify that the said firm is solvent to the extent of ₹ _____ (**Rupees** _____ **only**) as on the date of this certificate.

This certificate is issued at the specific request of the customer without any risk or responsibility on the part of the bank or any of its officials.

This certificate is issued at the specific request of the customer.

For (Name of the Bank)
(Signature with Seal)
Authorized Signatory

Name: _____

Designation: _____

Contact No.: _____

Date: _____

FORM 02
LETTER OF TECHNICAL PROPOSAL

To,
The Development Commissioner
SEEPZ, SEZ Authority Andheri (East),
Mumbai-400096

Subject: Submission of bids for the work of **“EPC developer (design & build) for construction of residential building after demolition of existing residential building for Seepz-SEZ Authority, Andheri (e), Mumbai, Maharashtra.”**

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addendum/Corrigendum issued in accordance with Instructions to Bidders (ITB)
- (b) Our Bid consisting of the Technical Bid and the **Price Bid shall be valid for a period of 90 days from the date fixed for the bid submission deadline in accordance with the Bidding Documents**, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
- (c) We, including any Sub venders or Suppliers for any part of the contract, do not have any conflict of interest in accordance with ITB
- (d) If our Bid is accepted, we commit to mobilizing key equipment and personnel in accordance with the requirements set forth in Section 2 and our technical proposal, or as otherwise agreed with the Employer.

Name

In the capacity of

Signed

Duly authorized to sign the Bid for and on behalf of

Date
.....
.....

FORM 3
BIDDER'S INFORMATION SHEET

Bidder's Information	
Bidder's legal name	
Bidder's year of constitution	
Bidder's legal address	
Bidder's authorized representative (name, address, telephone number(s), fax number(s), e-mail address)	
Attached are copies of the following documents. <ul style="list-style-type: none">• In case of a single entity, articles of incorporation or constitution of the legal entity named above, in accordance with eligibility criteria	

FORM NO 4(A)
FORMAT FOR NO-CONVICTION CERTIFICATE
non-judicial stamp paper of minimum ₹ 100

This is to certify that _____ (Name of the organization),
having registered office at _____ (Address of the
registered office) has not blacklisted or restricted to apply for any such activities by
any Central / State Government Department or Court of law anywhere in the country
as on last date of submission of tender.

Yours faithfully,

Date:

(Signature, name and
designation of the Authorized
signatory)

Place:

Name and seal of Bidder

FORM NO 4(B)
PENDING LITIGATION AND ARBITRATION
(on Bidder Letter Head)

Each Bidder must fill out this form if so required under Section 2 (Evaluation and Qualification Criteria) to describe any pending litigation or arbitration formally commenced against bidder.

Pending Litigation and Arbitration			
Choose one of the following:			
<ul style="list-style-type: none"> • No pending litigation and Arbitration against bidder • Below is a description of all pending litigation and Arbitration against bidder 			
Year	Matter in Dispute	Value of Pending Claim in Rs.	Value of Pending Claim as a Percentage of Net Worth

FORM NO 5
FORMAT FOR UNDERSTANDING THE PROJECT SITE
(on Bidder Letter Head)

To,
The Development Commissioner SEEPZ,
SEZ Authority Andheri (East),
Mumbai-400 096

Subject: Undertaking of the Site Visit for “EPC developer (design & build) for construction of residential building after demolition of existing residential building for Seepz-SEZ Authority, Andheri (e), Mumbai, Maharashtra.”

Sir,

I/we hereby certify that I/we have examined & inspected the site & available space & its surrounding satisfactorily, where the project is to be executed as per the scope of works. I/ We are well aware about the Location of the Building and existing utilities to connect to the system, conditions prevailing at site, availability of materials, availability of land and transport facilities, weather condition at site, the extent of leads and lifts involved in execution of work etc.

I / We hereby submit our BID considering above all facts gathered during site visit and each & every aspect have been considered in the Quoted cost of the project as per BOQ

Yours faithfully,

Date:
signatory)

(Signature, name and designation of the Authorized

Place:

Name and seal of Bidder

FORM NO 6
Consent Letter to execute the Integrity Pact
(on Bidder Letter Head)

To,
The Development Commissioner SEEPZ,
SEZ Authority Andheri (East),
Mumbai-400 096

Subject: Consent to Execute Integrity Pact “EPC developer (design & build) for construction of residential building after demolition of existing residential building for Seepz-SEZ Authority, Andheri (e), Mumbai, Maharashtra.”

Sir,

With reference to the Tender No. _____ dated _____ for [Name of Work / Project], we hereby confirm that we have read and understood the terms and conditions of the Integrity Pact as prescribed in the tender document.

We agree to execute the Integrity Pact in the prescribed format and to abide by its terms and conditions throughout the tendering process and execution of the contract, if awarded to us.

We further confirm that we will not engage in any corrupt, fraudulent, coercive, or collusive practices and will maintain the highest standards of ethics and transparency in all dealings with your organization.

This consent letter is submitted in compliance with the tender requirement for participation in the bidding process.

Yours faithfully,

Date:
signatory)

(Signature, name and designation of the Authorized

Place:

Name and seal of Bidder

FORM 7

HISTORICAL FINANCIAL PERFORMANCE

Each Bidder must fill out this form.

Year 1:	Year 2:	Year 3:

Information from Balance Sheet

Total Assets (TA)			
Total Liabilities (TL)			
Net Worth = TA – TL			
Current Assets (CA)			
Current Liabilities (CL)			
Working Capital = CA - CL			

Information from Income Statement

Total Revenues			
Profits Before Taxes			
Profits After Taxes			

- Attached are copies of financial statements (balance sheets including all related notes and income statements) for the last 5 years, as indicated above, complying with the following conditions:
- Unless otherwise required by Section 3 of the Bidding Document, all such documents reflect the financial situation of the legal entity or entities comprising the Bidder and not the Bidder's parent companies, subsidiaries, or affiliates.
 - Historical financial statements must be audited by a certified accountant.
 - Historical financial statements must be complete, including all notes to the financial statements.
 - Historical financial statements must correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted).

FORM – 8
CONTRACTS OF SIMILAR SIZE AND NATURE

Fill out one (1) form per contract.

Contract of Similar Size and Nature	
Contract No of	Contract Identification
Award Date	Completion Date
Total Contract Amount	
Employer's name Address Telephone number E-mail	
Description of the Similarity in Accordance with (Evaluation and Qualification Criteria)	

FORM – 09
TECHNICAL SUBMISSIONS

The following documents shall be submitted by the bidder as part of the Technical Bid. Each document shall be prepared in the bidder's own format, providing sufficient details to demonstrate capability, planning, and methodology for completing the project within the stipulated time frame.

S. No.	Particulars	Description / Requirements
1	Construction Method Statement	The bidder shall provide a detailed description of the proposed methodology for execution of all major components of the work, including site preparation, civil, structural, finishing, MEP, and allied works, highlighting safety, sequencing, and resource management.
2	Mobilization Schedule	A schedule indicating the timeline and sequence of mobilization of manpower, plant, and machinery from the date of award of work, ensuring readiness to commence construction activities without delay.
3	Construction Schedule / Work Plan	A comprehensive work plan or project schedule (in CPM / Bar Chart format) showing major milestones, activity sequencing, and completion strategy to achieve the stipulated completion period of 26 months from the date of award.
4	Quality Assurance Programme	A detailed Quality Assurance and Control Plan conforming to latest CPWD Specifications, SOPs, and Quality Manuals, including testing protocols, inspection procedures, documentation formats, and responsibilities of QA/QC personnel.

Note:

- The above items are to be prepared by the bidder in their own format and submitted along with the Technical Bid.
- The bidder shall ensure that all details provided are comprehensive and consistent with the project scope and specifications to facilitate evaluation of technical capability.
- The total project completion period shall be 25 months from the date of award of work.

FORM-10
EQUIPMENT & MACHINERY

List of Equipment and Machinery Required

The bidder shall ensure deployment of adequate and appropriate construction equipment, plant, and machinery for timely and quality execution of the project. The following list represents the minimum indicative requirement; however, the contractor may deploy additional equipment as necessary to meet the project schedule and specifications.

S. No.	Equipment / Machinery	Minimum Quantity	Purpose / Remarks	Own/Rent/lease
1	Concrete Batching Plant (20–30 m ³ /hr capacity)	1 No.	For ready-mix concrete production on site or nearby.	
2	Transit Mixers (6 m ³ capacity)	3 Nos.	For transportation of concrete.	
3	Concrete Pumps with Pipeline	1Nos.	For pumping concrete to upper floors.	
4	Tower Crane (with adequate reach & height)	1 No.	For lifting and placing materials at height.	
5	Passenger-cum-Material Hoist	1 Nos.	For vertical transportation of men and materials.	
6	Bar Bending & Cutting Machines	2 Sets	For steel reinforcement work.	
7	Vibrators (Needle / Surface / Plate)	6 Nos.	For compaction of concrete.	
8	Shuttering / Scaffolding System (Cuplock or equivalent)	1800 sqm	For formwork and safe access.	
9	Backhoe Loader (JCB or equivalent)	2 No.	For earthwork, excavation, and handling.	
10	Excavator (Hydraulic)	1 No.	For foundation excavation.	
11	Dumpers / Tippers	3 Nos.	For disposal and movement of excavated material.	
12	Water Tanker / Pump Set	1 Nos.	For curing, concrete mixing, and cleaning.	
13	Rebar Threading / Coupler Machine	1 Set	For mechanical splicing of rebar (if applicable).	
14	Concrete Cube Testing Machine	1 No.	For quality control and testing.	

15	Total Station / Auto Level	1 Set	For layout and survey works.	
16	Welding Machines	1 Nos.	For steel and miscellaneous works.	
17	Curing Pumps / Sprinklers	2 Sets	For curing concrete surfaces.	
18	Air Compressor	1 No.	For pneumatic tools and cleaning.	
19	Safety Equipment (Nets, Harness, PPE, Fire Extinguishers)	As required	For compliance with safety standards.	
20	Dewatering Pumps	2 Nos.	For dewatering during foundation work.	
21	Water Testing and Concrete Lab Setup	1 Set	For site quality testing.	
22	Tower Light / Lighting System	As required	For night or low-light working.	

Notes:

1. The above list is indicative and minimum; bidders may propose additional or alternative equipment depending on methodology and project schedule.
2. All machinery and equipment shall be in good working condition and shall conform to relevant IS codes and safety standards.
3. The deployment schedule and adequacy of equipment shall be reviewed and approved by the Engineer-in-Charge before commencement of work.

FORM 11
Abstract : PROPOSED PERSONNEL

Bidder should provide the details of the proposed personnel and their experience record in the relevant Information Forms below for each candidate:

1.	Title of position*
	Name
2.	Title of position*
	Name
3.	Title of position*
	Name
4.	Title of position*
	Name
5.	Title of position*
	Name

SECTION 4 - EMPLOYER'S REQUIREMENTS

1.1 BACKGROUND INFORMATION

Santacruz Electronic Export Processing Zone (SEEPZ) is a pioneer SEZ set up on 1st May, 1973 as an uni-product EPZ exclusively for manufacture and export of electronic items in an area of 100 acres which was later increased to 110 acres of land leased through the Maharashtra Industrial Development Corporation (MIDC) at Andheri (E) which over the years has become a land mark of Mumbai.

The Zone provides essential infrastructure facilities for SEEPZ SEZ staff and officers. In line with the objective of redevelopment of the existing SEEPZ SEZ Staff Quarters, the Authority proposes to undertake the construction of a new residential building comprising Stilt + 11 floors, along with the demolition of the existing G + 3 storeyed residential building.

1.2 The scope of work shall include the complete execution of all activities required for the Redevelopment of SEEPZ SEZ Officers and Staff Apartments on an Engineering, Procurement, and Construction (EPC) basis. The project involves the construction of a new residential building (Stilt + 11 floors) after demolishing of the existing G+3 storeyed structure, along with all associated works to deliver the facility in a fully functional and habitable condition.

The scope broadly covers, but is not limited to, the following:

- Civil, Structural, and Architectural Works including site development, foundations, superstructure, finishing works, and internal roads with street lights and landscaping works.
- Design and Engineering Services, including soil investigation, topographical survey, preparation of detailed architectural, structural, and MEP design drawings, shop drawings, finishing schedules, and other construction documentation based on conceptual plan, DBR, technical specification provided.
- Plumbing, Sanitary, Drainage, and Sewerage Systems, including the design and construction of a Sewage Treatment Plant (STP) and Rain Water Harvesting.
- Electrical, Fire Fighting, and E&M Works, comprising internal and external electrical installations, fire alarm and detection systems, lifts, and other essential building services like solar power for common areas and street light.
- Environmental Works including sustainable and energy-efficient measures, waste management, and landscaping.
- Interior, Furniture, and IT Networking Works, including provision of fixtures, fittings, and data/communication infrastructure as per technical specification and DBR.
- External Development Works such as, approach roads, pavements, landscaping, external lighting, and all utility connections.

- Obtaining all necessary statutory approvals and clearances required for commencement and completion of works.
- Execution, testing, commissioning, and handing over of the entire facility and associated services, complete in all respects and ready for occupation.

The works shall be executed as per the provisions, specifications, and conditions detailed in the tender documents and to the satisfaction of the Employer/Engineer-in-Charge

The approximate indicative area statement is as follows as per conceptual plan:

S. no.	Description	Plinth Area Sqm.
1	Total Built-up area	8265

The conceptual drawing shall be preferred in case of any discrepancy or conflict, the drawings shall take precedence over above indicative area statement.

1.3 Certain Conditions particular to this Contract shall be read in conjunction with the General Conditions of Contract, Technical Specifications, Conditions particular to various works & specific scope of each work as specified together with Design Basis Report. Technical Specifications, tender drawings, finishing schedule, special condition of contract (SCC), CPWD manual & Specification, latest IS Code, NBC guidelines and as per requirement of local statutory bodies etc.

1.4 The detailed Design Basis Report (DBR), Technical Specifications and Drawings for each function like Civil, Electrical, Plumbing, Fire, STP, External Development, Landscape, Street Lighting, Lifts, etc. are attached as Section to the tender documents. The same also includes specific scope of each work & conditions particular to the work.

1.5 Indicative Items of Civil, Electrical, Plumbing, Fire, STP, all External Development works. Lifts etc. is given in Technical Specification for reference. The bidders, quoting the tender are deemed to have out all the items & quantities etc. from the Scope of work, Design Basis drawings, and technical specifications for complete scope of work. No claim on account of any discrepancies, changes in nomenclature, variation, addition, alteration, modification, left over items etc. in Indicative items given in the tender, and as actually executed at site, shall be admissible. The contractor is required to execute all the works/items as per Scope of work, Design basis reports (DBR), Technical Specifications, Drawings, finishing schedule, special condition of contract (SCC), CPWD manual & Specification, latest IS Code, NBC guidelines and as per requirement of local statutory bodies and other Tender Documents, as per the Project Requirements and as per the Direction of Engineer In- Charge, etc. and shall quote their amount/financial bid accordingly..

1.6 The 'Design Basis Report' is also enclosed for taking into consideration by the bidders in their Design obligations. The Design Basis Reports are the minimum standards that the construction agency has to fully comply with and Technical Specifications, Drawings, finishing schedule, special condition of contract (SCC), CPWD manual & Specification, latest IS Code, NBC guidelines and as per requirement of local statutory bodies etc. The contractor is required to complete the project on Design & Build basis as specified in the Scope Of Work, Technical Specification & Drawings, finishing schedule, special condition of contract (SCC), CPWD manual & Specification, latest IS Code, NBC guidelines and as per requirement of local statutory bodies etc. covering the entire site area up to the location/area shown in Tender Drawing of the Site complete in all respect and the contractor's quoted rates are deemed to include everything from the award of work up to & including handing over of completed project, defect liability period. However, the contractor is required to complete works up to local body outlet point like Water Supply, Drainage, Electric Supply, Telephone Lines etc. The water-meters (of makes approved by the local body) shall be provided by the contractor at his own cost. The contractor shall arrange his own testing commissioning of complete project/ unit/area wise as necessary. All municipal & mandatory approvals required for occupation and completion of the project shall be obtained by the Contractor.

1.7 The Contractor shall comply all the statutory obligations and obtain all required clearances to implement the project and ensure all follow up actions with the local authorities/concerned departments in this respect for smooth and successful completion of the project. The Contractor shall obtain all necessary approvals from Municipal bodies and other local departments/authority including, Water/Sewer supply agencies, Electric Supply and inspectorate agencies, Police and Security Agencies, Chief Controller of Explosives, Fire Department, Civil Aviation Department, Lift inspector, Pollution Control Board, tree transplantation, permission for bore well and for temporary structures etc. in accordance to prevailing rules, Building Bye-Laws etc., as the case may be related to Construction/Completion. The contractor has to obtain all NOC, Commencement certificate, completion & Occupancy certificates from respective local bodies and other statutory authorities. Any assistance like signing of drawings/other documents will be provided by SEEPZ SEZ Authority or their consultant for getting above said approvals. The sanctions and clearances from local authorities shall be obtained by contractor in expedited manner, on priority basis.

1.8 All the design & drawings will become the property of SEEPZ SEZ Authority. The drawing cannot be issued to any other person, firm or authority or used by the contractor for any other project. No copies of any drawing or document shall be issued to anyone except SEEPZ SEZ Authority and authorized representative of SEEPZ SEZ Authority.

1.9 It shall be deemed that the contractor has satisfied himself as to the nature and location of the work, general and local conditions and particularly those pertaining to transport including restriction of movement of traffic/vehicles etc. handling, availability and storage of materials, availability of labour, weather conditions at site and general ground/sub soil conditions and the contractor has to quote his rates accordingly and nothing extra shall be payable on any reason whatsoever. SEEPZ SEZ Authority will bear no responsibility for the lack of such knowledge and also the consequences thereof to the contractor.

1.10 The information and site data shown in the drawings and mentioned in the tender documents are furnished for general information and guidance only. In no case SEEPZ SEZ Authority shall be held responsible for the accuracy thereof or/and deductions, interpretations or conclusions drawn there from by the contractor and no claim shall be entertained whatsoever on this account, if the site conditions/information is different or otherwise incorrect. It will be presumed that the contractor has satisfied himself for all possible contingencies, situations, bottlenecks and acts of coordination which may be required between the different agencies.

1.11 The contractor is required to submit all its submittals like Drawings, Documents, Schedules, invoice copies, Challans, Batch report, Test report, Design mix etc. (whether original or revised) in 2 (Two) Hard copies & 1 (one) at site office. This clause applies to every submittal of contractor under this contract.

1.12 The Topographical survey conducted of Site is attached in the tender documents for reference purpose. The contractor shall however, ascertain the contour levels, location of proposed boundaries, any other site feature present at site for which he shall get conducted fresh topographical survey done at his own cost. The contractor shall be held fully accountable for accuracy of levels/design, positions of buildings/facilities etc. on account of details obtained from Topographical survey.

1.13 After award of work, the Contractor shall carry out detail survey and soil investigation as per relevant IS code, NBC 2016 etc. as applicable through the soil consultant having professional experience of 15 years for preparation of detail designs as per the scope of work and technical specification. The Contractor (Bidder) shall be deemed to have inspected and examined the Site, its surroundings, collected the data and all other information, and to have been satisfied before submitting the Tender as to all relevant matters, including (without limitation): –

- i. The form and nature of the Site, including sub-surface conditions.
- ii. The climatic conditions.
- iii. The extent and nature of the work and Goods necessary for the execution and completion of the Works and the remedying of any defects.
- iv. The Laws, procedures and labour practices of the Country.
- v. The Contractor's requirements for access, accommodation, facilities, personnel, power, transport, water and other services.
- vi. Availability of required materials.

1.14 The Contractor shall familiarize themselves and conform in all aspects with

a. The provisions, their legal interpretation in respect of any enactment and relevant judicial/administrative/quasi-judicial orders in India, as is and/or may become applicable from time to time, related to or having impact on any aspect affecting the works.

b. The regulations or bye-laws of any local body and utilities.

c. The Contractor shall be bound to give all notices required by statute, regulations or by-laws, as aforesaid and to pay all fees and bills payable in respect thereof. The Contractor will arrange necessary clearances and approvals before the Work is taken up.

d. Ignorance of Rules, Regulations and Bylaws shall not constitute a basis for any claim at any stage of work.

e. The Contractor shall indemnify the Employer against all penalties and liabilities of every kind of breach of any such enactment, laws, regulations, bye-laws or rules.

1.15 COMPLETION AND TAKING OVER CERTIFICATE:

i. Work shall not be taken over by Engineer/Employer unless complete work or section(s) as applicable are completed in all respect and all defects pointed out by Engineer are attended by the contractor to the satisfaction of Engineer and site is cleared of all materials, plants and machinery not required after completion of work, all rubbish, labour huts & all other temporary structures constructed by contractor for his use are removed from construction site.

ii. The Works shall be taken over by the Employer when they have been completed in accordance with the Contract, have passed the Tests on Completion, including Integrated Testing and Commissioning wherever applicable as per the contract, and a Taking Over Certificate shall be issued. If the Works are divided into Sections, the Contractor shall be entitled to apply for a Taking Over Certificate for each Section. The Engineer will:

a. Issue the Taking Over Certificate to the Contractor, stating the date on which the Works was completed, including the Tests on Completion and Integrated Testing and Commissioning wherever applicable as per the contract; or

b. Reject the application, giving its reasons and specifying the work required to be done by the Contractor to enable the Taking Over Certificate to be issued. The Contractor shall then complete such work before issuing a further notice under this Sub-Clause.

1.16 As-Built Drawings and Documents

Prior to issue of any taking over certificate, the Contractor shall furnish to the Engineer a complete set of as-built Drawings, in 3 (three) hard copies and in micro film form or

in such other medium as may be acceptable to the Engineer, reflecting the Project as actually designed, engineered and constructed, including an as-built survey illustrating the layout of the Project and setback lines, if any, of the buildings and structures forming part of Project Facilities. The work shall not be considered to be completed for the purpose of taking over until such documents have been submitted to the Engineer.

These drawings must give the following information, in addition to the information asked for in various other sections of the specifications:

- a) Location of all equipment's viz. transformers, H.T. Panels, L.T. Panels, DG Sets, earthing stations etc.
- b) Cable routes clearly indicating the sizes & number of cables.
- c) Earthing layout - indicating the type of earth station & size of earth conductor.
- d) Wiring diagram of L.T. Panels/ Distribution panels.
- e) Location of all equipment's viz. DB's, Tag Block, fittings etc.
- f) Conduit/wiring routes clearly indicating the sizes & number of wires and conduit.
- g) Wiring diagram of DB's.
- h) Complete single line diagram for Normal and Emergency supplies.
- i) Any other information the Engineer-in-charge may deem fit.

No completion certificate will be issued until the drawings are submitted. The drawings will be prepared and submitted by the contractor.

1.17 CONFIDENTIALITY

Both Parties shall treat the details of the Contract as private and confidential, except to the extent necessary to carry out obligations under it or to comply with applicable Laws. The Contractor shall not publish, permit to be published, or disclose any particulars of the Works in any trade or technical paper or elsewhere without the previous agreement of SEEPZ SEZ Authority.

1.18 DISCLAIMER

The Contractor acknowledges that prior to the execution of this Agreement, the Contractor has, after a complete and careful examination, made an independent evaluation of the Request for Qualification, Request for Proposals, Scope of the Project, Specifications and Standards of design, construction and maintenance, Site, local conditions, physical qualities of ground, subsoil and geology, traffic volume & restrictions, suitability and availability of access routes to the Site and all information provided by the Employer or obtained, procured or gathered otherwise, and has determined to its satisfaction the accuracy or otherwise thereof and the nature and extent of difficulties, risks and hazards as are likely to arise or may be faced by it in the course of performance of its obligations hereunder. The Contractor confirms that it shall have no claim whatsoever against the Employer in regard to the accuracy, adequacy, correctness, reliability and/or completeness of any assessment, assumptions, statement or information provided by it.

- a) The Contractor acknowledges and hereby accepts to have satisfied itself as to the correctness and sufficiency of the Contract Price.

b) The Contractor acknowledges and hereby accepts the risk of inadequacy, mistake or error in or relating to any of the matters set forth elsewhere in the tender document and hereby acknowledges and agrees that the Employer shall not be liable for the same in any manner whatsoever to the Contractor, or any person claiming through or under any of them.

c) The Parties agree that any mistake or error in or relating to any of the matters set forth elsewhere in tender document shall not vitiate this Agreement, or render it voidable.

d) In the event that either Party becomes aware of any mistake or error relating to any of the matters set forth elsewhere in tender document, that Party shall immediately notify the other Party, specifying the mistake or error.

e) Except as otherwise provided in this Agreement, all risks relating to the Project shall be borne by the Contractor; and the Employer shall not be liable in any manner for such risks or the consequences thereof.

1.19 Others:

3.1 The costs of jungle clearance, debris removal and site levelling works shall be inclusive in the quoted amount by the bidder and nothing extra shall be paid on this account.

3.2 For deep excavation work, the cost of sheet piling/shoring/dewatering if required shall be deemed to be inclusive in the quoted amount by the bidder and nothing extra shall be paid on this account.

1.20 OBJECTIVES AND DETAILED SCOPE OF WORK

The project shall be executed on a Design, Engineering, Procurement, and Construction (EPC) basis, fully compliant with minimum GRIHA 3-Star norms for the entire scope under this contract. The works shall be undertaken in accordance with the concept plans provided in the tender documents and further developed into detailed Architectural, Structural, MEPF, and Finishing designs by the Contractor. The project shall conform to relevant CPWD specifications, latest IS Codes, NBC 2016, and requirements of local statutory authorities, ensuring compliance with standards for differently-abled accessibility.

Scope of Work for New Building read along with Technical Specification and DBR

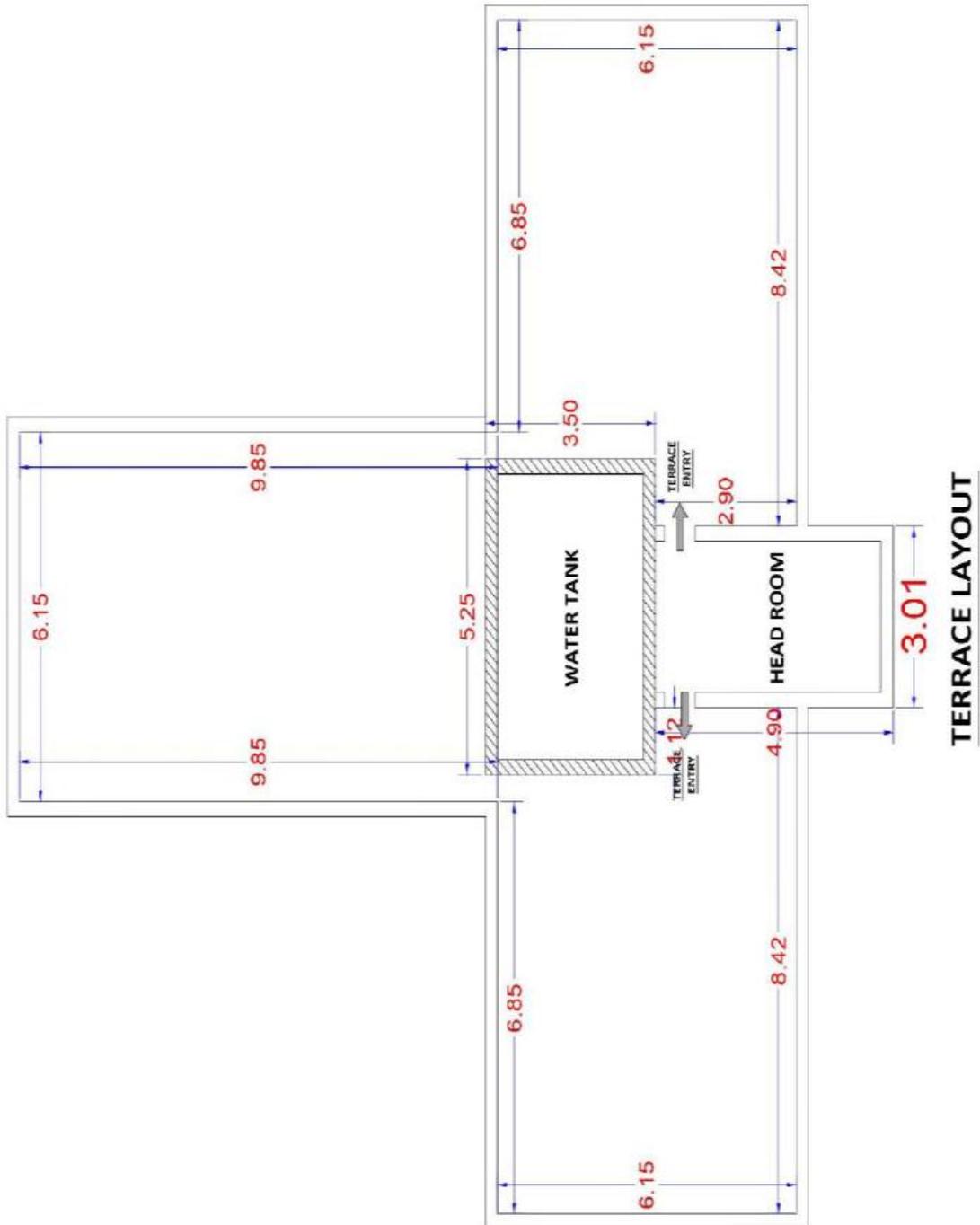
The scope shall include, but not be limited to, the following:

1. Design and Construction – Complete Architectural, Structural, Civil MEP Design, 3D elevation & Construction of residential building of Stilt + 11 floors, including water tanks, pump room, mumty, machine room, electrical room, DG Platform, and Substation Structure (as required by power supply provider).
2. Architectural and Finishing Works – Execution of all civil, architectural, and finishing works complying with Green Building Certification requirements for achieving a minimum 3-Star GRIHA rating. This includes finishing of all areas such as stilt, flats, external areas, common areas, lobbies, staircases, service areas, toilets, mumty, plumbing, electrical, and firefighting systems, as per the approved schedule and drawings.

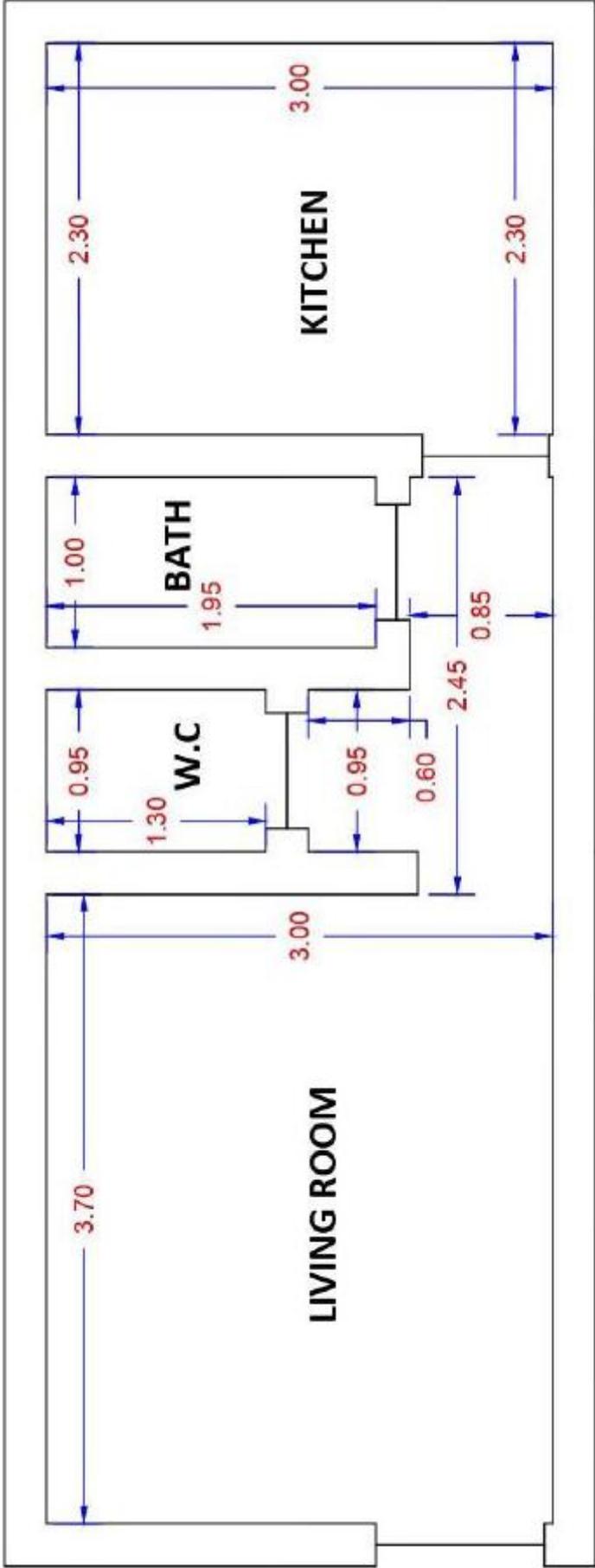
3. Soil Investigation – Conduct detailed soil investigation (including harmful chemical detection) at the contractor’s cost through an approved soil consultant to determine foundation design parameters, recommend suitable cement type, and propose protective treatments for saline soil conditions to safeguard the substructure.
4. Infrastructure Development & Miscellaneous Works –
 - a. Site Development & Landscaping, including roads, pathways, and soft/hard landscape works.
 - b. External Water Supply Systems, including underground tanks for domestic, flushing, fire, and raw water, complete with pumps and piping.
 - c. External Sewerage, Storm Water, and Rainwater Harvesting Systems as per design and drawings.
 - d. Fire Fighting, Fire Alarm, and Public Address Systems, including 2-hour fire-rated shaft doors, panic bar exit doors, and 1.5 sqm fire-rated glass vision panels per shutter.
 - e. Electrical Services, including DG sets, LT panels, and related infrastructure.
 - f. Solar Installations, including rooftop PV panels and solar water heating systems.
 - g. Lift Systems, including wiring, panels, and installation.
 - h. Sewage Treatment Plant (STP) with all necessary pumps and equipment.
 - i. Miscellaneous Services, including CCTV, outdoor and landscape lighting, cable trays, signage systems, and public address systems.
 - j. Labour, Material, Machinery & Tools – All costs related to manpower, materials, T&P, machinery, etc., necessary for complete project execution as per layout plan, design, and specifications.
 - k GRIHA Compliance – The Contractor shall plan, execute, and register the project to achieve a minimum 3-Star GRIHA rating, **engage a qualified GRIHA consultant from stage of building planning, Demolition, construction and commissioning of project, and bear the registration and compliance costs**. The Contractor shall ensure adherence to environmental norms, pollution control, waste management, labour welfare, and all statutory guidelines of the Green Tribunal and local authorities.
 - L. Post Construction Anti termite treatment.

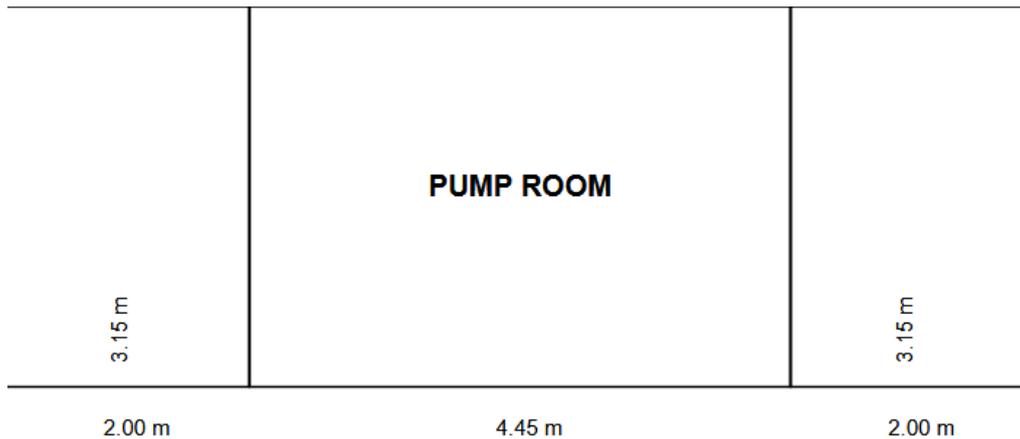
Scope of Work for Demolition of Existing Building & Pump House

- Demolition of the existing building [G+3 floors, 6 nos. flat per floor of 1RK) and pump room & UGT.



SEEPZ STAFF QUARTERS = A-1 BUILDING





- Comply with the orders and directions of the local authority, development authority and other implementing and enforcement agencies.
- coordinate with local authorities, waste generators, recyclers, and operators of intermediate waste storage facilities to facilitate collection, storage, and dispatch of waste to processing facilities or intermediate waste storage facilities, and sharing such information to the authorities concerned.
- Transport entire waste to collection point or intermediate waste storage facility or hand over waste to an authorized agency or recycler, as appropriate.
- Take steps to prevent air pollution, littering of waste and avoid public nuisance during collection, segregation, storage of waste.
- All structural elements (RCC slabs/beams/columns, masonry walls, doors/windows, roofing, plumbing/electrical services) to be removed.
- Supply of all labour, plant, machinery, tools, equipment, transport, fuel, supervision, safety protection & insurance.
- All service lines (water, sewer, drainage, electricity, etc.) within the building to be cut/disconnected safely and removed only up to [ground level/utility cutoff point]. External services to remain unaffected unless otherwise instructed.
- Site to be cleared, levelled, and in a clean condition, ready for further construction or redevelopment.
- Classification of materials: Serviceable materials (like doors, windows, structural steel) to be salvaged; unserviceable to be disposed.
- Dust suppression, traffic/barricading, safety of adjoining buildings/property, protection of public/occupants, noise control to be handled by contractor.

- Items removed during demolition shall be property of the contractor and be allowed to take out
- Bidder shall visit the work site to assess the nature and quantum of job, site conditions, work approaches and quote accordingly.
- Follow standard operating procedures, and other measures laid down by the Central Board or State Boards or other authorities concerned for environmentally sound management of construction and demolition waste

Phase-1: Creation of Temporary Pump House & Water Supply Arrangement

1.1 Temporary Water Supply System

The contractor shall design, supply, install, test and commission a fully functional temporary water supply system to meet the peak demand of **96 residential flats** without interruption during the construction and demolition activities. The scope includes but is not limited to:

- Design of the temporary pumping arrangement, suction/delivery layout, and hydraulic balancing.
- Supply, installation and commissioning of:
 - 01 No. booster pump (suitable to fill a 1,00,000-litre plastic storage tank continuously).
 - 02 Nos. 7.5 HP delivery pumps for uninterrupted distribution to all 96 flats.
- Provision and installation of 1,00,000-litre storage tank, including:
 - MS platform, tank supports, ladder/handrail if required.
 - Inlet/outlet connections, overflow, washout, vents, and isolation valves.
- Construction of temporary pump house components:
 - Pump foundations/bases, flooring, drain channels and sump.
 - Maintenance access, lighting, ventilation provisions.

1.2 Pipeline Works

The contractor shall execute all required pipeline works for suction, delivery and distribution, including:

- Laying of GI/HDPE pipelines including fittings and supports.
- Supply and installation of valves and accessories such as:
 - Gate/Butterfly valves, NRVs, strainers, pressure gauges, flexible couplings.
- Earthwork including trenching, shoring, bedding, backfilling and compaction.
- Pipe jointing, testing, wrapping/coating, clamps, and protective painting.
- Integration of the temporary system with the existing main supply network ensuring uninterrupted distribution to all 96 flats.

1.3 Electrical & Control Panel Works

The contractor shall provide a safe and compliant temporary electrical system including:

- Supply and installation of MCC panel, pump starters, indicators, auto/manual system selector, changeover switch, miniature circuit breakers and distribution board.
- Cabling from source to panel, from panel to pumps, including conduits, cable trays and terminations.
- Earthing system including earthing pits and GI/Copper earth leads.
- Motor protection relays, overload protection, pump interlocks and control wiring.

1.4 Testing, Commissioning & Handover

- Hydro testing of pipelines, pump performance testing and electrical safety tests.
- Demonstration of full functional operation ensuring reliable supply to 96 flats.
- Submission of:
 - As-built drawings,
 - Test certificates for pumps, valves and electrical equipment,
 - Operation & Maintenance manual,
 - Completion report for Phase-1.

Phase-2: Dismantling & Demolition of Existing Pump House

Upon successful commissioning of the temporary system and written clearance from the Engineer-in-Charge, the contractor shall proceed with the systematic dismantling of the existing pump house.

2. Design and Execution Requirements

- The Contractor shall prepare detailed Architectural, Civil, Structural, Finishing, and MEPF drawings for every aspect of the project based on the concept plans provided.
- Structural Designs and Drawings shall be **proof-checked by a reputed Government College (IIT/VJTI)** at the Contractor's cost. However, such proof checking shall not absolve the Contractor of responsibility for the structural stability and integrity of the design. Any design modification required due to site conditions, architectural changes, or client requirements shall be carried out without additional cost.
- **The EPC Contractor shall propose three qualified Design Firms (Architectural, Structural, MEP) with a minimum of 15 years' experience in similar works with government department/reputed private firm, out of which one will be finalized based on credentials & valid licence.**

3. General Execution Obligations

The Contractor's responsibilities shall include but not be limited to:

- Preparation and approval of shop drawings from the Engineer-in-Charge and proof-checking agency.
- Supply, fabrication, construction, installation, testing, and commissioning of all components and systems.
- Obtaining all interim, statutory, and completion approvals from local bodies and competent authorities.

All electrical and mechanical fixtures, fittings, and appliances shall have a minimum 3-Star BEE rating (or higher) and conform to GRIHA norms. All waterproofing works shall carry a 10-year guarantee, supported by a Bank Guarantee valid for the guarantee period.

4. Statutory Approvals and Liasoning

The Contractor shall be fully responsible for obtaining all statutory approvals, clearances, and permissions required for the demolition and construction of the residential buildings under this contract. This shall include, but not be limited to, the following:

- Building Plan Approval, Occupation Certificate (OC), Fire NOC, and Final OC from the Special Planning Authority (such as MIDC/BMC),
- MMRCL for metro NOC.
- Building Height Clearance from the Airports Authority of India (AAI).
- Consent to Establish (CTE) and Consent to Operate (CTO) for the Sewage Treatment Plant (STP), DG from the Maharashtra Pollution Control Board (MPCB).
- Tree cutting permission.
- Any other approval, clearance, or certificate required by statutory/local bodies for the execution, commissioning, and occupation of the project.

The Contractor shall prepare and submit all applications, supporting documents, drawings, and design details to the respective authorities on behalf of SEEPZ SEZ Authority and shall coordinate with all concerned departments until approvals are obtained.

For the construction of substation structure, the Contractor shall coordinate with the Power Supply Provider, provide all required drawings, documents, structural provisions, and space allocation, and submit applications for installation of the Transformer and related equipment. The entire scope of electrical works from individual flat meters, common area meters and all associated LT panels, Distribution Boards (DBs), Miniature Circuit Breakers (MCBs), and associated wiring shall be included in the Contractor's scope of work.

All statutory payments, fees, and government charges required for obtaining approvals from the concerned authorities shall be borne by SEEPZ SEZ Authority; however, all coordination, document preparation, submission, liaisoning, and follow-up activities shall be the sole responsibility of the Contractor until the necessary approvals are secured.

5. Project delivery schedule

The tentative project milestones for execution shall be as specified in the tender documents. However, the Contractor shall finalize and submit the detailed milestone schedule, ensuring that the overall project duration remains unchanged. The decision of the Engineer-in-Charge regarding the finalization and approval of milestones shall be final and binding on the Contractor.

The Contractor shall be responsible for achieving the agreed milestones during the course of execution. In the event of non-achievement of any milestone, an appropriate amount shall be withheld from the Running Account (RA) Bill of the Contractor. The withheld amount may, however, be released if the delay is subsequently recovered and the next milestone is achieved within the stipulated project schedule.

The amount withheld for non-achievement of milestones shall be adjustable against the Liquidated Damages (LD) / Compensation for Delay, if any, imposed at the time of final completion. In case an Extension of Time (EoT) is granted without levy of LD, the withheld amount shall be released to the Contractor in full.

S. No.	Activity	Tentative Milestone from the date of work order.
A	Investigation, Planning, Design & Engineering including submission & approval of Architectural Structural Good for Construction Drawings, MEF & Services approved Crawling, Shop Drawings, External Development Drawings, etc. from Statutory bodies like MIDC SPA and Fire, All, MPCB & Vetting from IIT/VJTI	3 month
B	Demolition and Site clearance	3 month
C	Buildings	
1	Excavation & Foundation substructure work complete	5 month
2	Superstructure up to Terrace level	17 month
4	Masonry Wall, Internal and External Finishing including External Façade up to Mumty top level	23 month
5	Internal Services & finishing work	23 month
6	Testing & Commissioning of Services	25 month
C	External Development	
1	Water Supply/Sewerage/Cable/Rain Water Harvesting/Drainage	21 month
2	Roads & Pathway & Open Parking Space	21 month
3	STP Plant including commissioning	25 month
4	Street Lighting	23 month
5	Handover	25 month

6. Payment Milestone

- i) The Employer shall make interim payments within 15 working days to the Contractor after certified by the Employer's Engineer in Charge, as specified and valued in accordance with the proportion of the Contract Price assigned to each item and its stage in Schedule of Stage Payment.
- ii) The Contractor shall base its claim for interim payment for the work executed till the end of the month for which the payment is claimed, supported with necessary particulars and documents required by E-I-C. The basis of payment on "Pro rata basis" shall be worked out on the percentage of work done of total scope of work under their activity/item for the respective Cost Centre.
- iii) The proportion assigned to an item will apply only to the Awarded Contract Price..

SI No	Description of item	Percentages % of payment for milestone	Weightage
1	Investigation, Planning, Designing and obtaining the approval for the scope of work, Technical Specification & Drawings etc. complete		1.50 %
1.1	On Submission of all structural GFC drawings and vetting of the same from approved IIT/NIT (Foundation, Super structure, OHT, UGT, Mumty etc.)	0.3 %	
1.2	On Submission of architectural & detailed working drawings.	0.2 %	
1.3	On Submission of Plumbing and Sanitary GFC drawings.	0.1%	
1.4	On Submission of Electrical (Internal and External) GFC drawings	0.1%	
1.5	On Submission of Sewer/STP GFC drawings.	0.1%	
1.6	On Submission of Storm water GFC drawings.	0.1%	
1.7	On Submission of RWH GFC drawings.	0.1%	
1.8	On obtaining statutory clearance and approval of local bodies and concerned authorities (MIDC, MMRCI, BMC, AAI, MPCB etc.) for commencement of work	0.5%	
2	Structure Works		35.75%
2.1	Site Cleaning, excavation & foundation work including footing/raft/pile as per structural design, plinth beams and column up to plinth level, plinth protection, antitermite & other works as per approved drawing & technical specification	4.25%	
2.2	RCC framework i.e. column, beam, shear wall, staircase & slab of Stilt floor	2.5%	

2.3	RCC framework i.e. column, Shear wall, beam, staircase & slab of 1st floor	2.5%	
2.4	RCC framework i.e. column, Shear wall, beam, staircase & slab of 2nd floor	2.5%	
2.5	RCC framework i.e. column, Shear wall, beam, staircase & slab of 3rd floor	2.5%	
2.6	RCC framework i.e. column, Shear wall, beam, staircase & slab of 4th floor	2.5%	
2.7	RCC framework i.e. column, Shear wall, beam, staircase & slab of 5th floor	2.5%	
2.8	RCC framework i.e. column, Shear wall, beam, staircase & slab of 6th floor	2.5%	
2.9	RCC framework i.e. column, Shear wall, beam, staircase & slab of 7th floor	2.5%	
2.10	RCC framework i.e. column, Shear wall, beam, staircase & slab of 8th floor	2.0%	
2.11	RCC framework i.e. column, Shear wall, beam, staircase & slab of 9th floor	2.0%	
2.12	RCC framework i.e. column, Shear wall, beam, staircase & slab of 10th floor	2.0%	
2.13	RCC framework i.e. column, Shear wall, beam, staircase & slab of 11th floor	2.0%	
2.14	RCC framework i.e. column, beam & slab of Mumnty, OHT, LMR	2.0%	
2.15	Terrace water proofing works	0.50%	
2.16	OHT water proofing works	0.50%	
2.17	UGT water proofing works	0.50%	
3	Brick and Block Work including Plaster		5.0%
3.1	Stilt floor	0.30 %	
3.2	1st floor	0.45 %	
3.3	2nd floor	0.45 %	
3.4	3rd floor	0.45 %	
3.5	4th floor	0.45 %	
3.6	5th floor	0.45 %	
3.7	6th floor	0.45 %	
3.8	7th floor	0.45 %	
3.9	8th floor	0.45 %	
3.10	9th floor	0.45 %	
3.11	10th floor	0.45 %	
3.12	11th floor	0.45 %	
3.13	Terrace floor (Parapet/Mumnty/LMR etc.)	0.20 %	
4	Flooring and Dado as per Technical specification		5.5 %
4.1	Stilt floor	0.4 %	
4.2	1st floor (including waterproofing in Toilet)	0.4 %	
4.3	2nd floor (including waterproofing in Toilet)	0.4 %	
4.4	3rd floor (including waterproofing in Toilet)	0.4 %	

4.5	4th floor (including waterproofing in Toilet)	0.4 %	
4.6	5th floor (including waterproofing in Toilet)	0.4 %	
4.7	6th floor (including waterproofing in Toilet)	0.4 %	
4.8	7th floor (including waterproofing in Toilet)	0.4 %	
4.9	8th floor (including waterproofing in Toilet)	0.4 %	
4.10	9th floor (including waterproofing in Toilet)	0.4 %	
4.11	10th floor (including waterproofing in Toilet)	0.5 %	
4.12	11th floor (including waterproofing in Toilet)	0.5 %	
4.13	Terrace (Including Waterproofing of Slab /OHT/Mumty/LMR)	0.5 %	
5	Internal Primer, Putty, Painting		3.25 %
5.1	Stilt floor	0.25 %	
5.2	1st floor	0.25 %	
5.3	2nd floor	0.25 %	
5.4	3rd floor	0.25 %	
5.5	4th floor	0.25 %	
5.6	5th floor	0.25 %	
5.7	6th floor	0.25 %	
5.8	7th floor	0.25 %	
5.9	8th floor	0.25 %	
5.10	9th floor	0.25 %	
5.11	10th floor	0.25 %	
5.12	11th floor	0.25 %	
5.13	Terrace floor (Parapet/ Mumty, OHT,LMR etc.)	0.25 %	
	External finishing, , texture paint etc. as per tender specification and architectural drawings		5%
	Stilt to 2 nd floor	1.25 %	
	3 th to 5 th floor	1.25 %	
	6 th to 8 th floor	1.25 %	
	9 th to Mumty/OHT/LMR	1.25 %	
	Door, Windows, Steel work etc.		5%
	Stilt to 2 nd floor	1.25 %	
	3 th to 5 th floor	1.25 %	
	6 th to 8 th floor	1.25 %	
	9 th to Mumty/LMR	1.25 %	
	Railing of Staircase and Balcony etc. any other work for completion of overall civil works		1.5 %
	Stilt to 2 nd floor	0.35%	
	3 th to 5 th floor	0.35%	
	6 th to 8 th floor	0.40%	
	9 th to Mumty/LMR	0.40%	

	On supply and installation of factory made wardrobes for 88 units as per Architectural Drawings & tender specification		2.00%
	On supply and installation of Kitchen cabinets and cupboards including all hardware's and accessories for 88 units as per Architectural Drawings & tender specification		2.50%
	Internal Electrical works like slab and wall conduiting, Lv Conduiting		2.0%
	Stilt to 2 nd floor	0.50%	
	3 th to 5 th floor	0.50%	
	6 th to 8 th floor	0.50%	
	9 th to Mumty	0.50%	
	Internal Electrical Works Like wiring, switches, distribution Board & fixture's		4%
	Stilt to 2 nd floor	0.75%	
	3 th to 5 th floor	0.75%	
	6 th to 8 th floor	0.75%	
	9 th to Mumty	0.75%	
	Testing and commissioning of internal electrical works	1.00%	
	Electrical LT panels		1%
	On approval of GA & SLD	0.10%	
	On Supply of panels	0.20%	
	On completion of cabling	0.15%	
	On installations of panels	0.20%	
	On Testing & Commissioning	0.15%	
	On completion and handing over to end user	0.20%	
	Plumbing and Sanitary Installation		4.0%
	Stilt to 2 nd floor	1.00%	
	3 th to 5 th floor	1.00%	
	6 th to 8 th floor	1.00%	
	9 th to Mumty	1.00%	
	Lift an Elevator		2.0%
	On approval of shop drawings	0.10%	
	On Supply of all materials	1.00%	
	On Erection & Commissioning	0.30%	
	On approval from Lift Inspector statutory bodies,	0.30%	
	On completion and handing over to the end user	0.30%	
	Fire Fighting & Fire Alarm (Stilt to Mumty) Supplying installation testing and commissioning of Fire Fighting (hydrant		2.0 %

	system) and Public Address System in superstructure and sprinkler system in stilt/parking area under podium and tower including installation and commissioning of fire pumps with necessary piping and panels as per SCC, scope of work, DBR, Technical Specification & Drawings etc. complete.		
	Fire Fighting		
	On approval of shop drawing	0.25%	
	On installation of pumps & accessories	0.50%	
	On installation of piping & sprinklers	0.50%	
	On Testing & Commissioning	0.25%	
	On approval from statutory bodies	0.25%	
	On completion and handing over to end user	0.25%	
	Fire Alarm & PA system		1.0%
	On approval of shop drawing	0.10%	
	On completion of cabling	0.20%	
	On installations of detectors, panels, PA	0.20%	
	On Testing & Commissioning	0.15%	
	On approval from statutory bodies	0.20%	
	On completion and handing over to end user	0.15%	
	Supplying, installation, testing commissioning, construction of platform of Diesel Generator (D.G.), with stand by arrangements and arrangements for DG Exhaust, as per SCC, scope of work, DBR, Technical Specification & Drawings etc. complete		1.0 %
	On approval of shop drawing	0.10%	
	On Supply of DG set	0.40%	
	On erection / installation of DG	0.20%	
	On Testing & commissioning	0.20%	
	On completion and handing over to end user	0.10%	
	Solar System (Water Heater & Power Generation)		1.0%
	On approval of shop drawing	0.10%	
	On supply of materials & all other accessories	0.40%	
	On installation	0.20%	
	On Testing & commissioning	0.20%	
	On completion and handing over to end user	0.10%	
	CCTV (IP based CCTV)		0.5 %
	On approval of shop drawing	0.05%	
	On supply of all material	0.20%	

	On completion of Cabling	0.07%	
	On installation of all equipment	0.08%	
	On Testing & Commissioning	0.05%	
	On Completion and handing over to end user	0.05%	
	Lightning conductors		0.5%
	On approval of shop drawing	0.05%	
	On supply of all material	0.20%	
	On completion of Eathing and earth strip work	0.07%	
	On installation of all equipment	0.08%	
	On Testing & Commissioning	0.05%	
	On Completion and handing over to end user	0.05%	
	External Development & Services		9%
	On Completion of construction and finishing work of other services works such as STP, Etc.	1.50%	
	On completion of Electromechanical works of STP as per design and drawing	1.00%	
	On Completion of internal road with cement concrete/bituminous as per design and tender documents	1.50%	
	On Completion of Storm water drain as per design and tender documents	1.00%	
	On Completion of Sewer line with Manhole as per design and tender documents	1.00%	
	On Completion of footpath, pathway with PCC base & Pavers as per Architectural Drawing	1.00%	
	On completion of LED street /Compound /Pathways/Landscape Lighting as per design and drawing	1.00%	
	On completion of RWH and Bore well works as per design and drawing	0.50%	
	On Completion of Landscaping/Horticulture work	0.50%	
	Misc Works & Handing Over		5%
	Misc. and Other work not covered above but required to complete the project in all respect & Submission of As built drawings (Civil and MEPF services)	1%	
	Clearance of statutory authorities and obtaining occupation certificate	2%	
	Physical completion date record & Handing over.	2%	

7. Requirement of Minimum Technical Representative(s) at Site and Recovery Rates:

Successful Bidder shall provide deployment schedule at the time of kick off meeting which shall be approved by Engineer-in-charge. The Engineer-In-Charge shall review

the manpower deployment w.r.t progress of work and intimate the agency regarding the additional requirement of manpower which will be binding on the Agency

The Contractor will also employ a consultant for all safety, environmental & GRIHA Compliances, documentation and will submit periodic report to Engineer-in-charge.

S. No.	Minimum Requirement of Technical Staff	Minimum Experience (Years)	Designation of Technical Staff	Rate of Recovery per person/Month
1	Graduate Engineer (Civil) – 1 No.	Minimum 10 Years (and having experience of one similar nature of work)	Project Manager Cum Planning Engineer	Rs 1,20,000/-
2	Graduate Engineer (Electrical) – 1 No.	Minimum 7 Years (and having experience of one similar nature of work)	Deputy Project Manager	Rs 70,000/-
3	Diploma Engineer (Civil) – 1 Nos.	Minimum 5 Years (and having experience of one similar nature of work)	Billing/Site Engineer	Rs 60,000/-
4	Diploma Engineer (Civil) – 1 Nos.	Minimum 5 Years (and having experience of one similar nature of work)	Quality Control and Lab In charge	Rs 60,000/-
5	Safety Engineer– 1 Nos.	Minimum 3 years (and having experience of one similar nature of work)	Safety In charge	Rs 30,000/-

SECTION 5 - TECHNICAL SPECIFICATIONS

1. PREAMBLE

The Architecture and Civil work in general shall be carried out in accordance with the CPWD Specifications with up to date correction slips up to the last date of submission / uploading of bid and relevant IS Codes.

2. GENERAL

The general conditions and special conditions of the contract including the drawings shall be read in conjunction with these technical specifications, and matters referred to, shown or described in one are not necessarily repeated in the other. These specifications are comprehensive but may exceed the requirements of this project.

Notwithstanding the sub-division of the specification into various headings, every part of it is to be deemed supplementary to every other part and is to be read with it, so far as it may be practicable so to do, or when the context so permits.

The works shall be carried out based on the latest revisions of “Central Public Works Department-Specifications” except for items specified in the tender/contract documents. The contractor shall be required to conduct all site tests and tests from authorized testing laboratory, submit all Manufacturers’ test Certificates as called for in the specifications.

The contractor shall keep at site, copies of all relevant Standards and Codes of practice referred in these specifications throughout the period of contract. These shall be the latest editions and shall include all revisions/addendums thereof.

3. STRUCTURAL SYSTEM: -

Infrastructure Building shall be of RCC framed Structure with Conventional Slab and Beam arrangement or New emerging technology in accordance with the CPWD notification. All the structures shall be designed in accordance with the relevant Indian code of practice for Civil, MEPF works i.e. IS 456:2000, IS 875:1987, IS 1893:2016, IS 4326:1993, IS 13920:2016 etc. up to date revision.

4. Scales of Civil fittings and fixtures

Item No.	Item	Remarks
1	Kitchen cabinets	
i)	Granite cooking platform	18mm thick gang saw cut black granite; edges rounded, Height above

Item No.	Item	Remarks
		finished floor level: 900 mm Granite slab will be supported over 19 mm thick block board boxes, no RCC slab is required for modular kitchen platform
ii)	Stainless steel 316 kitchen sink as per IS 13983 with drain board	
iii)	Modular cupboards with shelves & drawers	Boxes shelves, and shutters of teak veneered or commercial or laminated 19 mm thick block board OR 18 mm thick wood fibre composite board of density 650 kg/m ³ Stainless steel drawers with telescopic channel.
2	Wardrobes	
	Built in wardrobe in each bedroom up to ceiling height minimum about 900 mm wide and 600 mm deep. It may be made up of 18 mm thick blackboard or wood composite plastic or steel. The inner side of one shutter may have mirror of size 600x1200 mm approx...	
3	Magic eye and safety chain in front entry door.	One
4	Curtain rod with required accessories.	On all windows and doors in all rooms except kitchen, toilets/baths/WC's
5	Set of pegs.	In all toilets/ baths/ WC's and wardrobes
6	18 mm thick projected window sill lining, window jambs.	Granite stone
7	EWC / IWC with trap (EWC with seat rim and cover) and low level dual flushing cistern.	One in each toilet
8	Water jet and / or health faucet with WC.	Water jet and Health faucet with each EWC/IWC
9	Wash basin with CP brass basin mixture for hot & cold water, single lever quarter turns type with ceramic cartridges	One in each toilet & one in dining area as per design.
10	Tap (In kitchen, toilet, bath, balcony & WC) CP brass bib cock provided quarter turn type with ceramic cartridges.	Three in kitchen, one in each toilet for WC & balcony.
11	Swan neck CP brass mixer tap in kitchen sink	
12	Showers with CP brass diverter / mixture	One in each toilet/bath

Item No.	Item	Remarks
	single liver type for hot & cold water with ceramic cartridges	
13	SS316 towel rail and towel ring	One towel ring with each wash basin and towel rail in each bath
14	SS 316 Toilet paper holder	One in each toilet
15	Mirror of size 450x600 mm or bigger size Granite quadrant of 250 mm radius near shower, one at 1200 mm and second at 1500 height	450 x 600 mm with each wash basin
16	Soap rack/ niche as per architectural design and specification.	One with each wash basin and in each bath
17	Plumbing for water purifier and geyser.	Yes for both in kitchen and for geyser in each bath.
18	Storage tank of capacity as per NBC 2016 provision of separate tank for WC & drinking water.	Separate tanks for kitchen and toilets for dual flushing system as per requirements with provision of online filter.
19	PVC pipe for drainage of Water from ACs	
20	Provision for window AC in each room	
21	Provision for split AC in each room	
22	Facility for IGL pipeline, where applicable	
23	STP	Providing a 60 kld Sewerage Treatment Plant which will be used to collect, hold, recycle & redistribute water. The waste will be collected from sewerage network. The distribution will be done to horticulture, other identified locations, landscaping, and green area irrigation. The bidder shall make all necessary provisions for storage, distribution, and reuse of STP-treated water in compliance with applicable standards and local authority guidelines.
24	Numbering of houses	On SS plate (grade 316) 150 X150 MM with teak wood backing in ornamental edges fixed on top of the main door as per design

5. Scales of Electrical Fittings and fixtures

In Typical floors

Sl. No.	Description
1	Light fittings, minimum 2 in each room and 1 in kitchen
2	Bracket or decorative lights, minimum 1 in each room balcony, each toilet and mirror light for each bathroom
3	LED Tube light(28w LED Tube Light) 4FT, 1 in each room
4	Bracket Lights (with normal Fittings including lamp/bulb) two in each room and one in kitchen
5	Recessed Ceiling Light(12 W) two in kitchen
6	Toilets(15 w Ceiling/recessed Light and 10 w mirror Light)
7	Surface Ceiling Light(10 w for Balcony and 12 w for Kitchen and Common area)
8	Fans (minimum 1 decorative in each room 1200 mm and 1 in kitchen 900 mm)
9	Modular switches
10	5 A-6 pins sockets (minimum 2 in each room and kitchen and 1 in toilet)
11	15 A-6 pins sockets (minimum 2 in each room and kitchen)
12	Geyser Point (with MCB connected socket outlet with wiring) 20 A in each toilet
13	AC Points (with 25 amp MCB connected socket outlet with wiring) for Split AC) 1 in each Bed Room, Living / Dining
14	5 A and 15 A-6pins sockets, 1 each, in balcony, and utility area, store
15	Call bell near main door
16	Fresh air exhaust fan in kitchen 450 mm and each toilet 300 mm
17	Telephone and cable TV sockets & modular mobile charging socket each room
18	Electrical points for water filter and oven
19	Electrical points for fridge and washing machine
20	Dressing light point
21	EDB/MCB single phase 1 at appropriate place
22	Internet point 1 in each room
23	10 litre capacity Storage type automatic electric water heater 1 in each toilet
24	Solar Hot Water direct Heating System For master bedroom toilet
25	Automatic water Level Indicator with Musical Alarm on Tank Full and Buzzer on Tank at terrace tank

In Stilt area

Sl. No.	Description
1	Power Points (15 amp 6 pins) & (5 amp 6 pins) - 3 in Electrical room 2 Pump Room 2 CCTV/Guard room 2 Driver seating area one each M/F Toilet 2 in lift lobby
2	LED Tube light 4ft (28 w) as per layout

	(Maintain the lux level as per NBC) Parking, CCTV room, Pump room, Electrical room
3	Ceiling Fans(size 1200 mm) three in driver seating area one in Guard room
4	EDB/MCB (Three phase) one at appropriate place
5	Telephone point, one in guard/CCTV room
6	Modular Switches

Note: All the common area e.g. lifts & staircases, lobbies, connecting corridors etc. shall have lighting arrangement along with LED light fixtures as per actual design

6. CIVIL SPECIFICATIONS

Item No.	Description	Brief Specification/ Guide lines
1.0	General Specification/ Guidelines	<ol style="list-style-type: none"> 1. All the items of Delhi Schedule of Rates are in the scope of work against the tender, as may be applicable, according to the design developed by the contractor and discharged by the Engineer-in Charge by way of good for Construction drawings. 2. CPWD Specifications Vol-I and Vol-II as amended from time to time shall be applicable for all the items to be executed as per Good for Construction drawings. 3. Contractor shall submit detailed Architectural working drawings to Engineer-in-Charge. 4. Contractor shall submit Good for construction drawings, shop drawings (Architectural, structural, services, MEPF etc.) to the Engineer-in-Charge. Work shall be executed only as per NOC issued by the Engineer-in-Charge. 5. Contractor shall carry out his own soil investigation from a soil investigating agency approved by the Engineer-in-Charge for the purpose of design of foundation and superstructure. In case of any contradiction between Geo technical report appended with tender documents and that undertaken by contractor, the report suggesting of weaker technical conditions shall prevail. 6. Type of cement to be used in the work shall be as per provisions of IS: 456 with regard to exposure conditions including sulphate attack. 7. Only potable water shall be used in the work.
2.0	Earthwork, Foundation and plinth	<ol style="list-style-type: none"> 1. Scope of work includes all items of DSR as contemplated in the Sub Head Earthwork of DSR (including bailing and pumping out water, strutting etc.) as may be applicable to the work as per design and drawings submitted by the contractor and as confirmed by the Engineer-in-Charge and are to be

		<p>executed as per CPWD specifications.</p> <ol style="list-style-type: none"> 2. Surplus excavated earth shall be disposed of by the contractor after remittance of due royalty to concerned authority, as applicable, by the contractor. 3. Filling available earth or earth brought from outside shall be done as per requirement to level the ground as per approved drawings. 4. Plinth filling shall be done as per the recommendation of the soil investigation report or with earth suitable for plinth filling including filling of sand of grading zone IV or V as per CPWD specifications and thickness as per drawing. 5. Appropriate ground improvement or soil stabilization measures as per the soil investigation report and structural design, if any recommended shall be carried out. 6. Appropriate foundation system as per the recommendations of the soil investigation report containing borehole data, seasonal variation of subsoil water table, and as per structural design conforming to relevant Indian Standard Codes shall be provided. 7. Anti-termite treatment shall be carried out as per relevant Indian standard codes/CPWD specifications. 8. Structural/Non- Structural Grade slab as per the necessity at site/design requirement and as per the functional requirement of supported flooring shall be designed & provided accordingly. 9. Drainage and plinth protection along the perimeter of the buildings shall be provided as per CPWD specifications or as per specific functional requirement.
	Foundation	as per Structural Design Intent & Soil Investigation report
3.0	Superstructure	<ol style="list-style-type: none"> 1. Structural system for the superstructure shall be adopted as per the technology mentioned in the tender document and in line with the list structural system technologies circulated vide OM No. 17/SE(TAS)/BMTPC/2022/105-H dated 24.03.2022 as amended from time to time. <p>Structural design shall be carried out conforming to relevant Indian Standard Codes. Building shall be designed based on latest IS codes and should have seismic resistant provisions as per IS codes. The materials like concrete, steel, centering and shuttering shall as per the approved technology and as per CPWD specifications / IS codes. Minimum M-40 single grade design mix concrete shall be</p>

		<p>used for RCC work. Minimum Fe-500 D TMT bars CSR steel conforming to IS 1786:2008 as per provisions contained in Note-3 of Para 4.2 of amendment number 3 to IS 1786 shall be used in the work.</p> <p>All the horizontal, vertical, included projections of the structure like porticos, slab projections, staircase, mumty, machine rooms, water tanks, any other architectural features shall be designed as integral part of the structure and provided.</p> <ol style="list-style-type: none"> Expansion joints / seismic separation joints shall be provided as per the approved structural drawing and treated and covered as per CPWD specifications / manufacturer specifications. The Structural steel shall be made at least 2 hrs fire resistant by using Intumescent Fire Paint / Vermiculite coating as per manufacturer's specifications and by applications approved by them in case measures stipulated in NBC 2016 are not possible to adopt. External walls and internal partitions / walls if not designed as integral part of the super structure shall be provided as per Schedule
4.0	Flooring	<ol style="list-style-type: none"> Flooring shall be provided as per Schedule Skirting minimum 100 mm high to be provided as per functional and architectural requirement. Leveling course to be provided on the top of RCC slab before laying flooring as per site requirement, if required
5.0	Doors, Windows, ventilators, fittings & fixtures.	<ol style="list-style-type: none"> Doors, windows, Ventilators including fittings fixtures and glazing shall be provided as per Schedule Provision of viewing glass shall be made as per functional requirement. Provision for SS 304 mosquito proof shutters shall be made as per requirement for external doors. Windows along with glazing shall be designed for wind loads applicable to the area/location as per relevant IS codes. Wherever required for security concerns, MS/ aluminum/ SS 304 grill in windows as per approved design Curtain rods of stainless steel/ bars/PVC/Oxidized Mild steel shall be provided as per Schedule.
6.0	Internal finishing painting, wall paneling, dado, false ceiling	Internal finishing line painting, wall paneling, dado, false ceiling shall be provided as per schedule
7.0	Cupboard, wardrobe & kitchen	Cupboards, wardrobe & kitchen cabinets/modular kitchen in kitchen shall be provided as per schedule

	cabinets/Modular kitchen	
8.0	External finishing painting, cladding, structural glazing	<ol style="list-style-type: none"> 1. External finishing including painting, cladding, structural glazing shall be provided as per schedule Structural glazing/cladding system shall be designed for applicable wind loads, thermal expansions and seismic movements.
9.0	Internal water supply, sanitary lines and fittings fixtures	<ol style="list-style-type: none"> 1. Dual piping system shall be provided wherever recycled water is used for flushing. Separate pipe lines for hot and cold water supply shall be provided. Pipe lines and their accessories shall be of approved make. 2. Plumbing shall have provision for Geyser, water purifier, washing machines, Dish washers, cage washers or any other equipment as per functional requirement 3. In toilets and other waste water disposal areas sanitary pipe lines shall be suspended from the floor slabs i.e. the floor slabs should not be depressed on account of accommodating sanitary lines. These overhanging sanitary lines shall be camouflaged by moisture resistant false ceiling. 4. Plumbing system shall be designed and provided as per the functional requirements of the buildings. 5. Double stack system shall be followed. All sewerage to be connected to one stack and all drainage to be connected to other stack. 6. Water supply and sanitary fittings shall be provided as per the functional and architectural requirements. 7. Exposed pipes shall be placed over saddle duty fixed to the wall by bracket.
		<ol style="list-style-type: none"> 8. All drainage in balconies shall have their inlets in plan. 9. Utility balcony drainage shall be suitably treated and shall be not connected to Rain Water Harvesting System. 10. The stacks shall be provided in shafts and the shafts shall be opening in balconies, shafts shall be covered with weather proof doors and accessible from balconies for maintenance.
10.0	External Water supply pipelines & sewage lines. Fittings & fixtures/ chambers Sewage pipeline Fitting & fixtures/ chamber	<ol style="list-style-type: none"> 1. External water supply & sanitary installation fittings and fixture shall be provided 2. Dual piping system shall be provided, as required, where recycled water is used for flushing, horticulture, firefighting purposes 3. Inspection chamber/manholes/ gullies chambers/ valves and other accessories of approved specifications and make shall be provided considering all the site conditions and reduced level

		<p>as per design parameters. As far as possible green and recyclable materials shall be preferred, as per approved drawings.</p> <p>4. Connections to be provided up to municipal corporation line.</p>
11.0	Storage tanks	<p>Bulk storage tanks including fire tank of required capacity either underground/ overhead/ground shall be provided. If required hydro pneumatic system of pumping shall be designed and adopted.</p>
12.0	<p>Roads/ footpaths/ kerb stones</p> <p>Parking, Signage's Compound wall & gate</p> <p>Horticulture & landscaping.</p> <p>Rain water harvesting</p>	<ol style="list-style-type: none"> 1. Cement Concrete / Bituminous concrete – wearing course. Minimum 200mm thick Wet mix macadam/ 150 mm thick dry lean concrete – base course Minimum 250 mm thick Granular sub base. More thickness to be provided as per design considering actual ground conditions and traffic load. 2. Footpaths shall be provided as per requirement and design with 60mm thick factory made interlocking paver blocks of M-40 grade. Factory made Kerb stones of required sizes along the sides of roads and footpaths shall be provided. 3. Covered/open parking areas shall be provided as per requirement with CC/BT/80mm thick paver blocks of grade M – 40. Roofing if required shall be RCC/Galvalume/CGI/Bamboo sheets supported on RCC/Steel structure. 4. Retro-reflective sign boards shall be made of aluminum/Stainless steel sheet supported on epoxy painted MS/SS frame work. Road markings shall be with thermoplastic reflective paint. 5. MS/SS-304 entrance gates with RCC/Steel support structure with provision for security guard rooms, toilet etc. 6. Horticulture and landscaping shall be carried out as per approved horticulture plan and specifications. 7. Rain water harvesting system shall be designed and provided as appropriate to the site and as per Municipal byelaws and Central Ground Water Board norms. 8. Roof top rain water has to be harvested. 9. Storm water drains shall be provided wherever required with RR masonry /Brick masonry/RCC/Precast RCC/non-pressure RCC pipes/HDPE pipes as per approved development plan and site conditions. <ol style="list-style-type: none"> (i) NP3 / HDPE pipe of required diameter including testing of joints as per specification shall be provided at road crossings. (ii) Manholes of required dia and depth shall be provided with brick wall (with Sewer Bricks/CD-100 bricks) as per CPWD

		specifications or IS codes. IN adverse sub soil conditions, manholes and sewer lines pipes shall be appropriately designed and provided.
15.0	Waterproofing treatment	Waterproofing treatment shall be done as applicable and as required on terraces, sunken slabs, toilet slabs, lifts pits, basement rafts & walls, water tanks, UG sumps, OHTs and any other liquid retaining structures as per Schedule (water stops shall be provided in construction joints of liquid retaining structures).
16.0	Railings & Grills	Railings of Stainless of grade SS-316 L grade .and Grills of Aluminum/Mild steel / shall be provided as per architectural design in Balconies, staircases, steps, Ramps corridors and in other common circulation areas as indicated in drawings and in accordance with provisions of NBC 2016 as per schedule
17.0	Façade/Jalis of shafts	Aluminum louvers, GFRC (Glass fiber reinforced concrete)/WPC (Wood polymer Composite) CNC curtain jails to cover exposed rain water pipe shafts, Toilet shafts and other areas shall be provided as per requirement. The sections for fixing of such jails shall be designed as per codal provisions to withstand wind loads, seismic movements etc. as per Schedule
18.0	Miscellaneous	<ol style="list-style-type: none"> 1. All shafts (Civil and E&M) shall be appropriately closed horizontally and covered with appropriate door system vertically. This arrangement may be augmented as per fire requirements. 2. Kitchen should be so designed as so to ensure that various gadgets ducts are conveyed to service ducts. 3. Accessible roofs shall have parapets.

7. Finishing SCHEDULE

(A) External Walls

S. No.	Location	Description of item / Brief Specifications
	Outer Exposed wall	Providing and laying autoclaved aerated cement blocks masonry with 200-230mm thick AAC blocks in super structure with RCC band at sill level and lintel level with approved block laying polymer modified adhesive mortar all complete as per direction of Engineer-in-Charge
	Parapet wall	Providing and laying autoclaved aerated cement blocks masonry with 200-230mm thick AAC blocks with approved block laying polymer modified adhesive mortar all complete as per direction of Engineer-in-Charge. Duly plastered on both sides and top up to 1.2 meter clear height.

(B) Internal Walls (Dry Area)

S. No.	Location	Description of item / Brief Specifications
	Partition Walls	Providing and laying autoclaved aerated cement blocks masonry with 100-150mm thick AAC blocks in super structure with RCC band at sill level and lintel level with approved block laying polymer modified adhesive mortar all complete as per direction of Engineer-in-Charge

(C) Internal Walls (Wet Area)

S. No.	Location	Description of item / Brief Specifications
	As per drawing	Providing and laying autoclaved aerated cement blocks masonry with 150mm/230mm/300 mm thick AAC blocks in super structure with RCC band at sill level and lintel level with approved block laying polymer modified adhesive mortar all complete as per direction of Engineer-in-Charge

Schedule of Flooring, Skirting and Dado

S. No.	Room / Space/ Location	Description of item / Brief Specifications
	(living/ drawing room, dining & family lounge)	Providing and laying Double charge vitrified tile polished finish of size in floor in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS:15622, of approved brand & manufacturer, in all colours and shade, laid on 20 mm thick cement mortar 1:4 (1 cement: 4 coarse sand) jointing with grey cement slurry @3.3 kg/sqm including grouting the joints with white cement and matching pigments etc. The tiles must be cut with the zero chipping diamond cutter only. Laying of tiles will be done with the notch trowel, plier, wedge, clips of required thickness, levelling system and rubber mallet for placing the tiles gently and easily.
	Common area, Lobby	Providing and laying Double charge vitrified tile polished finish of size in floor in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS:15622, of approved brand & manufacturer, in all colours and shade, laid on 20 mm thick cement mortar 1:4 (1 cement: 4 coarse sand) jointing with grey cement slurry @3.3 kg/sqm including grouting the joints with white cement and matching pigments etc. The tiles must be cut with the zero chipping diamond cutter only. Laying of tiles will be done with the notch

		trowel, plier, wedge, clips of required thickness, leveling system and rubber mallet for placing the tiles gently and easily.
	Lift Wall Dado	Providing and laying Polished Granite stone (colour of Black, Cherry/Ruby Red or equivalent) in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge
	All Stair Case	Providing and laying Polished Granite stone (colour of Black, Cherry/Ruby Red or equivalent) in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge. Nosing design in treads shall be as per architectural design.
	Kitchen	Providing and laying Anti-Skid Vitrified tiles in floor in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS:15622, of approved brand & manufacturer, in all colours and shade, laid on 20 mm thick cement mortar 1:4 (1 cement: 4 coarse sand) jointing with grey cement slurry @3.3 kg/sqm including grouting the joints with white cement and matching pigments etc. The tiles must be cut with the zero chipping diamond cutter only. Laying of tiles will be done with the notch trowel, plier, wedge, clips of required thickness, leveling system and rubber mallet for placing the tiles gently and easily.
	Kitchen Counter/Cooking platform	Providing and fixing Granite stone slab colour black, Cherry/Ruby red 18 mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut for kitchen

		platforms, vanity counters, window sills, facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement: 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels with nosing as per design.
	Toilet/Bathroom/WC	Providing and laying anti-skid Ceramic glazed floor tiles of size 300x300 mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in colours such as White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement : 4 Coarse sand), Jointing with grey cement slurry @ 3.3 kg/sqm including pointing the joints with white cement and matching pigment etc., complete.
	Skirting in rooms and other area	100 high skirting matching the floor material.
	Kitchen dado	Providing and fixing 1st quality Ceramic glazed of size not more than 300 x 450 mm as per design from floor upto full height. conforming to IS : 15622 (thickness to be specified by the manufacturer) of approved make in all colours, shades as approved by Engineer-in-Charge in dados over 12 mm thick bed of cement Mortar 1:3 (1 cement: 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm including pointing in white cement mixed with pigment of matching shade complete.
	Toilet/ bathrooms/ WC dado	Providing and fixing 1st quality Ceramic glazed of size not more than 300 x 450 mm upto full height with decorative brands at certain intervals. conforming to IS : 15622 (thickness to be specified by the manufacturer) of approved make in all colours, shades as approved by Engineer-in-Charge in dados over 12 mm thick bed of cement Mortar 1:3 (1 cement: 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm including pointing in white cement mixed with pigment of matching shade complete.
	Drive Way/Stilt parking	Providing and laying R.C.C. pavement of mix M-30 with ready mixed concrete from batching plant having minimum 200 mm thickness and PCC 100 mm thickness. The ready mixed

		concrete shall be laid with Hardener and finished with screed board vibrator, vacuum dewatering process and finally finished by floating, brooming with wire brush etc. complete as per specifications and directions of Engineer-in-charge.
	Electrical room	25mm thick kota stone slab flooring
	Terrace	Heat Resistant Terrace Tiles (300 mm x 300 mm x 20 mm) with SRI (solar refractive index) > 78, solar reflection > 0.70 and initial emittance > 0.75 on waterproofing surface.

Schedule of doors windows, Ventilators including fittings, fixtures and glazing details

(A) Doors Frame

S. No.	Room / Space/ Location	Description of item / Brief Specifications
	Internal Door (except toilet/bath & WC) of	Single rebate frames. Seamless mild steel tabular frame (with Hot Dip GI Coating) with minimum thickness of 2.0 mm. Joints mitred, welded and grinded finish, with profiles of required size, including fixing of necessary butt hinges, screws etc. and applying a priming coat of approved steel primer.
	Main/External Door	Double rebate or sub frame for double door i.e., Main door and safety grill door with SS 304 wire (Powder Coated) mesh. Seamless mild steel tabular frame (with Hot Dip GI Coating) with minimum thickness of 2.0 mm. Joints mitred, welded and grinded finish, with profiles of required size, including fixing of necessary butt hinges, screws etc. and applying a priming coat of approved steel primer.
	(toilet/bath & WC)	Providing and fixing Fiber Glass Reinforced plastic (FRP) Door Frames of cross-section 90 mm x 45 mm having single rebate of 32 mm x 15 mm to receive shutter of 30 mm thickness. The laminate shall be moulded with fire resistant grade unsaturated polyester resin and chopped mat. Door frame laminate shall be 2mm thick and shall be filled with suitable wooden block in all the three legs. The frame shall be covered with fiber glass from all sides. M.S. stay shall be provided at the bottom to steady the frame.
	Fire doors for staircase, corridors, lobby, exits, mumty door etc. as per architectural drawing	Providing and fixing fire resistant door frame of section 50 x 60 mm on horizontal side & 35 x 60 mm on vertical sides having built in rebate made out of 1.6 mm thick GI sheet (Zinc coating not less than 120gm/sqm) suitable for mounting 120 minutes Fire Rated Glazed Door Shutters. The

		<p>frame shall be filled with mineral wool Insulation having density minimum 96Kg/sqm . The frame will have a provision of G.I. anchor fasteners 14 nos (5 each on vertical style & 4 on horizontal style of size M10 x 80) suitable for fixing in the opening along with factory made template for SS ball bearing hinges of Size 100x89x3mm for fixing of fire rated glazed shutter . The frame shall be finished with a approved fire resistant primer or powder coating of not less than 30 micron in desired shade as per the directions of Engineer - in- Charge</p> <p>with complete hardware accessories set Panic bar, Door closer, Hinges, Dead Lock and D handle as per technical specifications.</p>
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(B) Doors Shutter

S. No.	Room / Space/ Location	Description of item / Brief Specifications
	Main door/External door	Double shutters, one mild steel (Hot Dip Galvanized) grill door with mosquito proof stainless steel wire mesh of SS-304 grade (Powder Coated), painted and other 35 mm thick factory made ISI marked flush door shutters conforming to IS : 2202 (Part I) decorative type, core of block board construction with frame of 1st class hard wood and well matched teak 3 ply veneering with vertical grains or cross bands both side commercial veneered and painted. (including necessary lipping) and ISI marked Stainless steel fittings SS-304 grade
	Other door	35 mm thick, Chemically Treated Hard wood styles and rails with 12 mm thick commercial ply / wood paneling or factory made flush door shutters both side commercial ply veneering and finished with wooden putty and painted. and ISI marked Stainless steel fittings SS-304 grade
		Magic eye and safety chain in front entry door.

(B) Windows / Ventilators

S. No.	Room / Space/ Location	Description of item / Brief Specifications
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	<p>All Rooms, bathroom, toilet, WC</p>	<p>Factory made uPVC white colour sliding glazed window upto 1.50 m in height dimension comprising of uPVC multi-chambered frame with in-built roller track and sash extruded profiles duly reinforced with 1.60 ± 0.2 mm thick galvanized mild steel section made from roll forming process of required length (shape & size according to uPVC profile), appropriate dimension of uPVC extruded glazing beads and uPVC extruded interlocks, EPDM gasket, wool pile, zinc alloy (white powder coated) touch locks with hook, zinc alloy body with single nylon rollers (weight bearing capacity to be 40 kg), G.I fasteners 100 x 8 mm size for fixing frame to finished wall and necessary stainless steel screws etc. Profile of frame & sash shall be mitred cut and fusion welded at all corners, including drilling of holes for fixing hardware's and drainage of water etc. After fixing frame the gap between frame and adjacent finished wall shall be filled with weather proof silicon sealant over backer rod of required size and of approved quality, all complete as per approved drawing & direction of Engineer-in-Charge. Variation in profile dimension in higher side shall be accepted. Three track three panels sliding window with fly proof S.S wire mesh (Two nos. glazed & one no. wire mesh panels) made of (big series) frame 116 x 45 mm & sash 46 x 62 mm both having wall thickness of 2.3 ± 0.2 mm and single glazing bead / double glazing bead of appropriate dimension.</p>
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	Rolling shutter for electrical, DG Room Etc.	Providing & fixing Rolling Shutter of SIZE: 3000mmx2780mm or as per approved architectural drawings Curtain Made of Single Skinned Galvanized Steel Lath with Natural Finish. Pressed GI Sheet hood cover Features – Safety Mechanism for chain failure Emergency Manual Opening- in case of power failure provision for manual operation with F.O.S1:1. EPDM Rubber – With Extruded Bottom that will seal against the floor after closing door- optional Structure Shape – Curved Side Guide – 2mm Thickness Support Bracket – Mild Steel with powder coating Control Switch – Push Button for the operation of the shutter Hold fast – Specially Designed Hold fast up to 100mm wide Locking arrangement optional Safety mechanism with inbuilt limit switch Three stations push buttons.
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(C) Fittings and Fixtures

S. No.	Room / Space/ Location	Description of item / Brief Specifications
	Accessories, Hardware & Fittings of Door and main units	Stainless steel fittings SS-304 grade, Rubberized door flashing at the bottom rails of all external doors shall be provided for protection from insects and rainwater etc.

(D) Details of Railing

S. No.	Room / Space/ Location	Description of item / Brief Specifications
	Balconies	Clear 1.20 m high stainless steel railing made out of tubular balustrades with horizontal tubular SS tubes as rails and hand rail on top (as per approved design); all stainless steel tubular members to be of SS-316 L grade. including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners, stainless steel bolts etc., of required size, Distance between vertical balustrades (40-50 mm dia) 900-1000 mm centre to centre, Minimum three horizontal strips of 15-20 mm dia, Hand rail should be minimum 40 mm dia. Note: Hand rail of the balcony railings in multi storey flats may be so designed that clothes drying lines in sufficient numbers are provided along with.

	Staircase/Ramp	<p>Stainless steel railing made out of tubular balustrades with horizontal tubular SS tubes as rails and hand rail on top (as per approved design); all stainless steel tubular members to be of SS-316 L grade. including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners, stainless steel bolts etc., of required size,</p> <p>Distance between vertical balustrades (40-50 mm dia) 900-1000 mm centre to centre, Minimum three horizontal strips of 15-20 mm dia, Hand rail should be minimum 40 mm dia.</p>
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Schedule of internal finishing including painting, wall paneling, dado & false ceiling

(A) Plastering

S. No.	Room / Space/ Location	Description of item / Brief Specifications
	All Internal wall Dry area	Providing and applying 12 mm thick (average) premixed formulated one coat gypsum lightweight plaster having additives and light weight aggregates as vermiculite/ perlite respectively conforming to IS: 2547 (Part - 1 & II) 1976, applied on hacked / uneven background such as bare brick/ block/ RCC work on walls & ceiling at all floors and locations, finished in smooth line and level etc. complete.
	All Wet area wall	12/15 mm cement plaster 1:6 (1 cement : 6 coarse sand)
	All External wall	18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1:5 (1 cement : 5 coarse sand) and a top layer 6 mm thick cement plaster 1:3 (1 cement : 3 coarse sand) finished rough with sponge.
	All RCC Surface	Smooth finishing of the exposed surface of R.C.C. work with 6 mm thick cement mortar 1:3 (1 Cement : 3 fine sand).

(B) POP

S. No.	Room / Space/ Location	Description of item / Brief Specifications
		Providing and applying plaster of paris putty of 2 mm thickness over plastered surface to prepare the surface even and smooth

	complete.
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(C) Painting

S. No.	Room / Space/ Location	Description of item / Brief Specifications
	Internal wall, Ceiling	Distempering with 1st quality acrylic distemper (ready mixed) having VOC content less than 50 gms/litre, of approved manufacturer, of required shade and colour complete, as per manufacturer's specification. Two or more coats on new work including water thinnable priming coat with cement primer
	External wall	Finishing walls with Premium Acrylic Smooth exterior paint with Silicone additives of required shade: New work (Two or more coats applied @ 1.43 ltr/10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/10 sqm)
	On wood	Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade : Two or more coats on new work over an under coat of suitable shade with ordinary paint of approved brand and manufacture
	On steel	Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade : Two or more coats on new work over an under coat of ready mixed red oxide zinc chromate primer of approved brand and manufacture on steel galvanised iron/ steel works

(D) Dado / Sill linings / Jambs

S. No.	Room / Space/ Location	Height	Description of item / Brief Specifications
	window sill lining, window jambs. wash basin counter		Providing and fixing 18 mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills, facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels.

Schedule of Cup-boards, Wardrobe, Kitchen Cabinets / Modular laboratory tables / Platforms etc.

S. No.	Room / Space/ Location	Description of item / Brief Specifications
	Kitchen cupboard (with shelves and drawers)	Boxes shelves, and shutters of teak veneered or commercial or laminated 19 mm thick block board OR 18 mm thick wood fibre composite board of density 650 kg/m ³ Stainless steel drawers with telescopic channel
	Bedroom wardrobe	Built in wardrobe in each bedroom up to ceiling height minimum about 900 mm wide and 600 mm deep. It may be made up of 18 mm thick blackboard or wood composite plastic or steel. The inner side of one shutter may have mirror of size 600x1200 mm approx... Boxes and shelves of 19 mm thick commercial block board shutters of 19 mm teak veneered or laminated or commercial block board. OR boxes, shelves and shutters of 18 mm thick wood fibre composite board of density 650 kg/m ² 20mm diameter aluminium hanger rods with slotted (non-screw type) brackets Clear distance of hanger rod below the board bottom: 40mm. Or S.S 304
	On all windows and doors in all rooms except kitchen, toilets/baths/WC's	Curtain rod with required accessories of SS Grade 316
	In all toilets/ baths/ WC's and wardrobes	Set of pegs.

Schedule of water supply & sanitary installation including fittings, fixtures

(A) External Water supply line

S. No.	Location	Description of item / Brief Specifications
	from underground water tank to OH tank	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge. (Concealed work)
	Stilt floor	CPVC sluice valve (with cap) complete with bolts & nuts, rubber insertion etc.
	Flushing and other uses at stilt Floor	Masonry Chamber 60x60x75 cm inside, with bricks of designation 75 in cement mortar 1:4 (1 cement: 4 coarse sand) with C.I. surface box complete as per specification.
	in pump room at stilt floor	C.I. dirt box strainer for bulk type water meter with nuts bolts, rubber insertions etc.
	stilt floor and terrace floor	Industrial type pressure gauges with gun metal/ brass valves complete
	water supply pipe in riser	C.I. double acting air valve of approved quality with bolts, nuts, rubber insertions etc. complete
	water Supply Pump	Domestic and Flushing water pump water filling from UGT to Over Head Tank in pump room
	UGT/Pump House	RCC UGT of required capacity with boosting arrangement with necessary installation for supply of water including standby Pump as per drawings, design and scheme as approved by the Engineer-incharge. This shall consist of provisions for drinking water chamber, fire fighting chamber and for un-filtered water supply for horticulture, flushing and other uses.

(B) Sanitary line

S. No.	Toilet / Kitchen / Location	Description of item / Brief Specifications
		UPVC Class-III

(C) Wash basin / Kitchen sink / Toilet fittings and fixtures

S. No.	Location	Description of item / Brief Specifications
	Toilet	Providing and fixing white vitreous china pedestal type water closet (European type) with seat and lid, 10 litre low level white vitreous china flushing cistern & C.P. flush bend with fittings & C.I. brackets, 40 mm flush bend, overflow arrangement with specials of standard make and mosquito proof coupling of approved municipal design complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required : W.C. pan with ISI marked white solid plastic seat and lid Including Water jet, toilet paper holder, CP brass 2 way bib cock and Health faucet, job to be complete in all aspects.
	Toilet/Dining area	Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass pillar taps, 32 mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever require: White Vitreous China Wash basin size 630x450 mm with a single 15 mm C.P. brass pillar tap, job to be complete in all aspects.
	Toilet/Kitchen/Bath/WC	Providing and fixing C.P. brass long body bib cock of approved quality conforming to IS standards and weighing not less than 690 gms. 15 mm nominal bore, job to be complete in all aspects.

Schedule of Waterproofing treatments with 10 years of warranty bonds

S. No.	Location	Description of item / Brief Specifications
	Toilet slab/Sunken slabs/lift pit	Providing and laying water proofing treatment in sunken portion of WCs, bathroom etc., by applying cement slurry mixed with water proofing cement compound consisting of applying : (a) First layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/ sqm. This layer will be allowed to air cure for 4 hours. (b) Second layer of slurry of cement @ 0.242 kg/sqm mixed with water proofing cement compound @ 0.126 kg/sqm. This layer 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 polymer mixed slurry.
	Terrace	Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces etc consisting of following operations: (a) Applying a slurry coat of neat cement using 2.75 kg/sqm of cement admixed with water proofing compound conforming to IS. 2645 and approved by Engineer-in-charge over the RCC slab including adjoining walls upto 300 mm height including cleaning the surface before treatment. (b) Laying brick bats with mortar using broken bricks/brick bats 25 mm to 115 mm size with 50% of cement mortar 1:5 (1 cement : 5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer incharge over 20 mm thick layer of cement mortar of mix 1:5 (1 cement :5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer incharge to required slope and treating similarly the adjoining walls upto 300 mm height including rounding of junctions of walls and slabs. (c) After two days of proper curing applying a second coat of cement slurry using 2.75 kg/ sqm of cement admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge. (d) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 (1 cement :4 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge including laying glass fibre cloth of approved quality in top layer of plaster and finally finishing the surface with trowel with neat cement slurry and making pattern of 300x300 mm square 3 mm deep. (e) The whole terrace so finished shall be flooded with water for a minimum period of two weeks for curing and for final test."All above operations to be done in order and as directed and specified by the Engineer-in-Charge : With average thickness of 120 mm and minimum thickness at khurra as 65 mm.
	OHT/UGT/Sumps	Grouting Work: pressure grouting work with neat cement slurry admixed with expanding grout admixture incl. drilling holes, fixing nozzles, sealing the holes after grouting with

		<p>SBR Latex enriched cement sand mortar etc. complete as per manufacturers specification & direction of EIC.</p> <p>The concrete surface must be brought into surface saturated dry condition (SSD). Providing & Applying Applying 2 coats of 2 component acrylic polymer modified cementitious coating of tensile strength of >2 Mpa as per ASTM D 412, elongation of >150% as per ASTM D 412 ,crack bridging of upto 2 mm as per ASTM C836,Adhesion to concrete >2 Mpa as per ASTM D 4541 & resisting 5 bars hydrostatic pressure as per BS EN 12390 applied@ 2.5 kg/m² all over the slab including the angular fillets and extendable over the vertical walls .The interval between each coat of coating application is 6-8 hrs. Reinforcing all joints with 45gsm geotextile fabric The waterproofing system should be applied directly by the manufacturer with 10 years of system guarantee against leakages.</p> <p>Pipe peripheral treatment: Charges towards filling the annular gap between pipe periphery and concrete / masonry with non-shrink ready to use grouting compound including cleaning the same properly and sealing the inside joint mouths with a moisture insensitive epoxy putty in a continuous, 10mm thick gasket around the pipes to a width of approximately 10mm.</p> <p>Protective Plastering work: Applying 10-12mm avg. thick cement Plaster (1:4) as per direction of EIC.</p> <p>Screed Concrete work (Floor area): laying of avg. 50mm screed concrete in prop. of 1:1.5:3 admixed with integral waterproofing compound over the floor area, as per manufacturer's specification & direction of EIC.</p> <p>Additional for WATER TANKS-Over the plaster providing & applying two coats of antibacterial antifungal food grade epoxy coating at a consumption of @250/Gms/sq.mtr as per CFTRI 21 CFR 175 - 300 of US - FDA, Water absorption nil as per ASTM C 870:90, adhesion strength of 2.5 N/mm² as per ASTM D4541:02 applied with an interval of 6-8 hrs between each coat over the cured plastered surface as per manufacturer's instruction.</p> <p>Additional for STP TANKS-Over the plaster providing & applying 2 coats of Coal Tar Epoxy NON TOXIC at a consumption of</p>
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		<p>@500/Gms/sq.mtr with Bonding / adhesion of 1.2 to 1.4 N/mm² as per ASTM D 4541, Water resistance, immersion – 7 days passes as per ASTM D 870-09, Chemical resistance, immersion in dilute acid alkali & salt solutions – 7 days -Passes as per ASTM 868 as per manufacturer's instruction</p>
	<p>Podium waterproofing</p>	<p>Providing and spray applying two component hybrid polyuria polyurethane waterproofing system at all levels for garden waterproofing by the manufacturer or his approved applicator consisting following operations - Brushing and Vacuum cleaning the surface to make free from any loose material, oil, grease, burr. dirt. dust etc. Repairing the surface if required, as recommendation of manufacturer or his approved applicator to make it water tight for which nothing extra shall paid. Providing and applying by spray or brush, two component solvent free resin I epoxy primer mixed in proportion by volume I weight as</p> <p>recommended by manufacturer over cement concrete surface in dry condition having consumption varies from 0.20 to 0.40 kg/sqm depending on the porosity and undulations in the surface.</p> <p>d) Providing and sprinkling washed coarse sand, as recommended by manufacturer over freshly laid primed tacky surface @ 0.25 to 0.40 kg/sqm as directed by the Engineer-in-Charge.</p> <p>e) Over primed sandy surface providing and spray applying two component hybrid polyurea polyurethane coating system which shall be solvent free, mixed in proportion by volume / by weight as recommended by the manufacturer having elongation Shore A Hardness > 75 (after 28 days). tensile strength of minimum of 10 MPa as per DIN IASTM and Tear strength minimum 30N/mm as per DIN 53515 or minimum 45 N/mm as ASTM and 20 second maximum gel time / reaction time with minimum 1..5 mm dry film thickness of two coats.</p> <p>f) A layer of non-woven polypropylene geotextile of minimum mass / unit area of 120 gsm with an overlap of 50 mm</p>

		<p>shall laid over the polyurea/polyurethane coating surface having minimum tensile strength 2.40 KN/m as per ASTM D 4595.</p> <p>g) Providing and laying screed of cement concrete (I Cement: 1.5 Coarse sand: 3 graded stone aggregate 20mm nominal size) of minimum thickness mm at Khurra with a Slope of 1:100 towards Khurra to ridge of roof.</p> <p>h) Providing and laying Dimple drain boards with inbuilt geo textile membrane on top having dimple height of 20-25 mm, average of sqrn, cornpressive strength not less than 180 kWm2 and geotextile drainage member having mass of 120 gsm. laid with minimum overlap Of 50 mm</p>
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8. FINISHING SCHEDULE

***All items should be executed as per CPWD Specification only**

SI .No.	Description	Latest Applicable Specifications
1	FOUNDATION	
	Foundation & Structure	as per structural design intent
2	SUPERSTRUCTURE	
	2.1 For multi-storey RCC framed structure	RCC frame Structure & filler walls of autoclaved aerated cement concrete (ACC) block. Internal partition – Half brick thick masonry in autoclaved aerated cement concrete (ACC) blocks Or As per specifications of New and Emerging Technology issued vide CPWD circular No. 17/SE(TAS)/BMTPC/2022/105-H dated 24.03.2022 as amended time to time for project work
	Toilet floor slab	No sunken floor slab except floor depression for maintaining slopes. However, camouflaging of water supply and sanitary line of upper floor to be done by false ceiling as per the architectural drawings.
	Kitchen floor	Sunken to be provided on floor under Sink area
3	DOORS AND WINDOWS	
	a) Frames (except of toilet/bath & WC)	
	i) Door	Seamless mild steel tabular frame (with Hot Dip GI Coating)

Sl .No.	Description	Latest Applicable Specifications
		with minimum thickness of 2.0 mm. The external entrance door frame will have double rebate or sub frame for double door i.e., main door and safety grill door with SS 304 wire (Powder Coated) mesh. For internal door single rebate frames.
	ii) window	Factory made uPVC white colour sliding glazed window upto 1.50 m in height dimension comprising of uPVC multi-chambered frame with in-built roller track and sash extruded profiles duly reinforced with 1.60 ± 0.2 mm thick galvanized mild steel section made from roll forming process of required length (shape & size according to uPVC profile), appropriate dimension of uPVC extruded glazing beads and uPVC extruded interlocks, EPDM gasket, wool pile, zinc alloy (white powder coated) touch locks with hook, zinc alloy body with single nylon rollers (weight bearing capacity to be 40 kg), G.I fasteners 100 x 8 mm size for fixing frame to finished wall and necessary stainless steel screws etc. Profile of frame & sash shall be mitred cut and fusion welded at all corners, including drilling of holes for fixing hardware's and drainage of water etc. After fixing frame the gap between frame and adjacent finished wall shall be filled with weather proof silicon sealent over backer rod of required size and of approved quality, all complete as per approved drawing & direction of Engineer-in-Charge. Variation in profile dimension in higher side shall be accepted. Three track three panels sliding window with fly proof S.S wire mesh (Two nos. glazed & one no. wire mesh panels) made of (big series) frame 116 x 45 mm & sash 46 x 62 mm both having wall thickness of 2.3 ± 0.2 mm and single glazing bead / double glazing bead of appropriate dimension.
	iii) Doors & windows of toilet/bath/WC	Providing and fixing Fiber Glass Reinforced plastic (FRP) Door Frames of cross-section 90 mm x 45 mm having single rebate of 32 mm x 15 mm to receive shutter of 30 mm thickness. The laminate shall be moulded with fire resistant grade unsaturated polyester resin and chopped mat. Door frame laminate shall be 2mm thick and shall be filled with suitable wooden block in all the three legs. The frame shall be covered with fiber glass from all sides. M.S. stay shall be provided at the bottom to steady the frame.
	b) Shutters	

Sl .No.	Description	Latest Applicable Specifications
	i) Main door/external door shutters	Double shutters, one mild steel (Hot Dip Galvanized) grill door with mosquito proof stainless steel wire mesh of SS-304 grade (Powder Coated), painted and other 35 mm thick factory made flush door shutter both side commercial veneered and painted. (including necessary lipping)
	Bath, WC & toilet door	30 mm thick Fiberglass Reinforced Plastic (F.R.P.) flush door shutter in different plain and wood finish made with fire retardant grade unsaturated polyester resin, moulded to 3 mm thick FRP laminate all around, with suitable wooden blocks inside at required places for fixing of fittings and polyurethane foam (PUF)/Polystyrene foam to be used as filler material throughout the hollow panel, casted monolithically with testing parameters of F.R.P. laminate conforming to table - 3 of IS: 14856, complete as per direction of Engineer-in-charge.
	Other door	35 mm thick, Chemically Treated Hard wood styles and rails with 12 mm thick commercial ply / wood paneling or factory made flush door shutters both side commercial ply veneering and finished with wooden putty and painted.
	C) Window shutters All windows shutters	Factory made uPVC white colour sliding glazed window upto 1.50 m in height dimension comprising of uPVC multi-chambered frame with in-built roller track and sash extruded profiles duly reinforced with 1.60 ± 0.2 mm thick galvanized mild steel section made from roll forming process of required length (shape & size according to uPVC profile), appropriate dimension of uPVC extruded glazing beads and uPVC extruded interlocks, EPDM gasket, wool pile, zinc alloy (white powder coated) touch locks with hook, zinc alloy body with single nylon rollers (weight bearing capacity to be 40 kg), G.I fasteners 100 x 8 mm size for fixing frame to finished wall and necessary stainless steel screws etc. Profile of frame & sash shall be mitred cut and fusion welded at all corners, including drilling of holes for fixing hardware's and drainage of water etc. After fixing frame the gap between frame and adjacent finished wall shall be filled with weather proof silicon sealent over backer rod of required size and of approved quality, all complete as per approved drawing & direction of Engineer-in-Charge. Variation in profile dimension in higher side shall be accepted. Three track three panels sliding window with fly proof S.S

Sl .No.	Description	Latest Applicable Specifications	
		wire mesh (Two nos. glazed & one no. wire mesh panels) made of (big series) frame 116 x 45 mm & sash 46 x 62 mm both having wall thickness of 2.3 ± 0.2 mm and single glazing bead / double glazing bead of appropriate dimension. (Area of window above 1.75 sqm).	
	d) Hardware & Fittings Main units	Stainless steel fittings SS-304 grade	Rubberized door flashing at the bottom rails of all external doors shall be provided for protection from insects and rainwater etc.
4	FLOORING, SKIRTING & DADO		
	a) Flooring living/ drawing room, dining & family lounge	Vitrified tile flooring of size not more than 600X 600 mm	Laying as per CPWD Specification only
	Bed rooms	Vitrified tile flooring of size not more than 600X 600 mm with joints finished with matching grout	
	Kitchen	Anti-skid vitrified tiles of size not more than 600 X 600 mm with water absorption less than 0.08% laid with joints finished with matching grout.	
	Kitchen counter	18 mm thick pre-polished granite with nosing as per design.	
	Common circulation area	18 mm thick pre-polished granite / vitrified tiles in all designs and shades (with water absorption less than 0.08%) of any size.	Ground floor will be granite
	Main staircase	18 mm thick honed / flamed finish granite in single length of treads & risers	Nosing design in treads shall be as per architectural design.
	Fire escape staircase		
	Toilet / bathroom/ WC	Glazed ceramic anti-skid of size not more than 300 x 300 mm including grouting the	

Sl .No.	Description	Latest Applicable Specifications	
		joints.	
	Skirting in rooms and other area	100 high skirting matching the floor material.	
	Kitchen dado	Ceramic glazed/ vitrified tiles of size not more than 300 x 450 mm as per design from floor upto full height.	Must be read with scale of amenities in the respective categories.
	Toilet/ bathrooms/ WC dado	Ceramic glazed/ vitrified tiles of size not more than 300 x 450 mm upto full height with decorative brands at certain intervals.	
5	RAILINGS / PARAPETS IN BALCONIES / TERRACE/STAIRCASE		
	(a) Railings in balconies/ Staircase	Clear 1.00 m high stainless steel railing made out of tubular balustrades with horizontal tubular SS tubes as rails and hand rail on top (as per approved design); all stainless steel tubular members to be of SS-316 L grade.	Hand rail of the balcony railings in multi storey flats may be so designed that clothes drying lines in sufficient numbers are provided along with.
	(b) Parapet on terrace	200 / 230 mm thick masonry in autoclaved aerated cement concrete (ACC) blocks / RCC / burnt clay FPS bricks duly plastered on both sides and top upto 1.0 meter clear height.	
6	FINISHES		
	(a) Internal finishes	All walls & ceiling to be treated with 2 mm thick POP (one time only) and painted with low VOC acrylic washable distemper. Synthetic enamel paint on all wood works and steel works	
	(b) External finishes	Quartz reinforced texture acrylic paint finish/ premium acrylic smooth water proof exterior finish /washed mosaic plaster in premium cement- based putty/ exposed brick / stone work/GRC / designer cement	In case of large campus etc., the external finishes of

Sl .No.	Description	Latest Applicable Specifications	
		concrete tiles cladding/	the residences shall match the overall colour & texture finishes within the campus

9. SPECIFICATIONS FOR E&M SERVICES

Item No.	Description	Brief Specifications
1	Internal Electrical Installations	As per CPWD General Specification for Electrical Works Part I (Internal) – 2013 amended upto date.
1.1	Conduits & Cable Trays	The work will be carried out in recessed/surface PVC/ MS conduit wiring system with modular socket in accordance of CPWD General Specifications for Electrical Works Part-I (Internal)-2013 amended upto date; Hot Dip Galvanized GI Cable trays (perforated or ladder type) for cable laying. Data and communication cables shall be laid in the recessed/surface PVC/ MS conduit or laid in the metallic raceways/ channels with cover and matching junction boxes.
1.2	Wires & Cables	FRLS PVC insulated Copper conductor cables will be used for points, circuit & sub-main wiring; Power & light point wiring shall be with copper conductor of size as per CPWD specifications & relevant BIS standards; RG-6 Cable TV wiring; Cat-6/6A Cabling / telephone wiring as required for EPABX / Data networking requirements.
1.3	Switches & Sockets	All switches, sockets, stepped type electronic fan regulators, bell push and accessories along with matching mounting boxes shall be of modular type.
1.4	MCB DBs & LT Panels	Meter Boards & Main Distribution Boards as per CPWD specification / requirement; Size of distribution board shall be as per number of light / power circuits. All distribution board shall be MS powder coated MCB based, Single phase/ 3 phase and suitable incomer as per individual DB requirement, double door

		type with RCCB of required capacity and MCCB/MCB of suitable rating. LT panels shall be as per CPWD specifications & IS/IEC 61439 with MCB/MCCB/ACB as required.																				
1.5	Fittings	<p>Lighting fixtures, LED type, in all spaces, common areas on all floors, staircases, corridors, lobbies, services rooms, basement, terrace etc. shall be provided. For basement and wet areas, the degree of protection for the fittings shall be minimum IP 65. The minimum illumination requirement and other parameters shall be as per the NBC 2016 amended upto date. All LED Indoor lighting fixtures should be following parameters:</p> <table border="1"> <thead> <tr> <th>Description</th> <th>Parameters</th> </tr> </thead> <tbody> <tr> <td>CRI</td> <td>> 80</td> </tr> <tr> <td>THD</td> <td><10%</td> </tr> <tr> <td>System efficacy</td> <td>minimum 100 lm/W at temp 0 to +45deg. C and humidity 10% to 90%</td> </tr> <tr> <td>System life time (Burning Hour with driver)</td> <td>50000 hours @ L70 as per LM 70 and testing as per LM 80</td> </tr> <tr> <td>Driver voltage</td> <td>220-240V</td> </tr> <tr> <td>power factor</td> <td>>0.9</td> </tr> <tr> <td>efficiency</td> <td>>_85%</td> </tr> <tr> <td>Surge protection</td> <td>(L-N) 1KV, (E-L/N) 2 KV</td> </tr> <tr> <td>Color Temperature</td> <td>As per site requirement</td> </tr> </tbody> </table>	Description	Parameters	CRI	> 80	THD	<10%	System efficacy	minimum 100 lm/W at temp 0 to +45deg. C and humidity 10% to 90%	System life time (Burning Hour with driver)	50000 hours @ L70 as per LM 70 and testing as per LM 80	Driver voltage	220-240V	power factor	>0.9	efficiency	>_85%	Surge protection	(L-N) 1KV, (E-L/N) 2 KV	Color Temperature	As per site requirement
Description	Parameters																					
CRI	> 80																					
THD	<10%																					
System efficacy	minimum 100 lm/W at temp 0 to +45deg. C and humidity 10% to 90%																					
System life time (Burning Hour with driver)	50000 hours @ L70 as per LM 70 and testing as per LM 80																					
Driver voltage	220-240V																					
power factor	>0.9																					
efficiency	>_85%																					
Surge protection	(L-N) 1KV, (E-L/N) 2 KV																					
Color Temperature	As per site requirement																					
1.6	Fans/ Exhaust fans	Ceiling fans [BLDC] (min 3-star rating as per Bureau of Energy Efficiency) & exhaust fans/ fresh air fans in all residential units, services rooms, bathrooms/ toilets and in common area shall be provided as per CPWD specifications and related BIS.																				
1.7	Earthing	Copper/GI plate earth pits and complete earthing system as required as per CPWD specifications.																				
1.8	Lightening Arrester	Lightning Protection System as per IS/IEC 62305 standard & National Building Code (NBC 2016).																				
2	External Lighting & Power distribution	As per CPWD General Specification for Electrical Works Part II (External) – 1994 and relevant BIS, amended upto date.																				
2.1	Cables	XLPE armoured cable copper/ aluminium between outdoor feeder pillar to termination box of pole etc. and wiring of suitable size between termination boxes to fitting till their termination. The power cabling should be sized to ensure that the distribution losses do not exceed 3% of total power usage.																				
2.2	Feeder Pillars	Outdoor type Feeder Pillars shall be suitable for 3 phase, 50Hz, 415 volts, A.C. system. Rating and size of Feeder pillar shall be as per designed load and requirement; Feeder pillars shall be as per CPWD specifications with MCB/ MCCB/ACB as required. To be provided with astronomical timer/ photo sensor based switching for outdoor and street lighting, to save energy.																				
2.3	Fittings	LED outdoor light fixtures (IP-66) of suitable lumen output / wattage for compound lighting; street lighting, Security light																				

		<p>fittings at perimeter on boundary wall as required. The minimum illumination requirement shall be as per the NBC 2016 amended upto date. All LED outdoor lighting fixtures should be following parameters</p> <table border="1"> <thead> <tr> <th>Description</th> <th>Parameters</th> </tr> </thead> <tbody> <tr> <td>CRI</td> <td>> 80</td> </tr> <tr> <td>THD</td> <td>_ <10%</td> </tr> <tr> <td>System efficacy</td> <td>minimum 100 lm/W at temp 0 +45 deg. C and humidity 10% 90%</td> </tr> <tr> <td>System life time (Burning Hour with driver)</td> <td>50000 hours @ L70 as per LM and testing as per LM 80</td> </tr> <tr> <td>Driver voltage</td> <td>220-240V</td> </tr> <tr> <td>power factor</td> <td>>0.9</td> </tr> <tr> <td>efficiency</td> <td>>_ 85%</td> </tr> <tr> <td>Surge protection</td> <td>(L-N) 1KV, (E-L/N) 2 KV</td> </tr> <tr> <td>Color Temperature</td> <td>As per site requirement</td> </tr> </tbody> </table>	Description	Parameters	CRI	> 80	THD	_ <10%	System efficacy	minimum 100 lm/W at temp 0 +45 deg. C and humidity 10% 90%	System life time (Burning Hour with driver)	50000 hours @ L70 as per LM and testing as per LM 80	Driver voltage	220-240V	power factor	>0.9	efficiency	>_ 85%	Surge protection	(L-N) 1KV, (E-L/N) 2 KV	Color Temperature	As per site requirement
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2.4	Street Light Poles	Octagonal GI poles with sliding door, single / double bracketed arm along the road as per IS standards. Ornamental/ Decorative poles and bollards with LED fittings may also be made as per the site/client requirements.																				
2.5	Earthing	Copper/GI plate earth pits and complete earthing system as required as per CPWD specifications.																				
3.3	LT Panel	Main LT panel (normal supply) for receiving supply from Transformers and having ACB's/ MCCB's as outgoings; Main LT panel (Essential supply) for receiving supply from Transformers and DG sets and ACB's /MCCB's as outgoings; Main Sub LT Panel for supply to smaller loads having MCCB's as outgoings.																				
3.4	APFC Panels	APFC panel shall be provided on separate sections of main LT panel and having switching off arrangement in case of DG supply in the main panel; Designed capacity to maintain overall P.F. as applicable for ECBC building category or better (presently 0.97 or better).																				
3.5	Bus trunking	All Bus trunking and rising mains shall be compact air insulated/ Sandwich type, of required breaking capacity, complete with joints, fire barriers, tap off boxes, mounting arrangement and other accessories of degree of protection. Shall be used for the connections between the Transformer and main LT panel, LT panel to the rising mains, or as per specific site requirements.																				
3.7	Earthing	Earthing sets, connections etc shall be as per CPWD Specifications and relevant BIS.																				
4	Diesel Generating Set	As per CPWD General Specification for Electrical Works Part VII DG Sets – 2013, relevant code, CPCB norms and local body norms covering DG sets, AMF panel, bus duct/ cables from DG																				

		sets to essential panel, DG set enclosure room sound insulation/ventilation/ smoke exhaust as required, earthing of DG set system, control cabling, fuel tank/ piping, DG set exhaust piping/exhaust chimney as per CPCB norms, civil works connected with DG sets including foundation as required. DG sets shall be silent type, minimum rating/ capacity specified is nominal capacity at standard test conditions.
4.1	Engine	The engine shall be capable of driving the alternator continuously at its rated full load and rated speed without getting over loaded under the prevailing operating conditions
4.2	Alternator	Generator Sets shall be 415V, 3 Phase, 4 wire, 50Hz, 0.8 PF with acoustic enclosure
4.3	AMF Panel	Generator sets shall start automatically in the event of a power failure and shall transfer power to emergency / critical loads automatically and shall switch off after some time delay in case of restoration of power supply. Synchronisation arrangement to be provided in case of parallel operations, where more than 1 DG set is installed and such arrangement is required as per site requirement
4.4	Exhaust Pipe	As per CPWD General Specification for Electrical Works Part VII DG Sets – 2013, relevant codes and CPCB/ local body norms
4.5	Cables	Complete Electrical and control wiring for various accessories etc.
4.6	Earthing	Earthing sets as per CPWD Specs and relevant BIS
4.7	Fuel tank	As per OEM standard/ site requirement.
5	Fire Fighting and Wet Riser System	Fire Protection System including Sprinkler System, wet-risers, down comer, Yard-hydrants, internal-hydrants, first aid hose reels, electrical and diesel engine driven pumps etc. designed and provided as per provision given in NBC 2016, relevant BIS Codes, local Fire Bye Laws & CPWD Specification Part V-2020, all with up-to-date amendments; All Materials and other fixtures for Fire Fighting, plumbing work shall be as per CPWD specifications.
6	Fire Alarm System	As per CPWD's General specification for Electrical Works, Part -VI Fire detection and Alarm system-2018, NBC 2016, local Fire Bye Laws, IE Rules, BIS/IEC, Indian Standards amended upto date; covering Manual/ Automatic Fire Alarm System complete with items like detectors, manual call boxes, cabling/ wiring, fire panels, etc. including Integration of FAS panel with Smoke Ventilation & pressurization fans, AHUs, Lifts, sprinkler

		monitoring panel, water curtain system, water levels of Fire water tanks and as required for any other service.
6.1	Cables	Either copper conductor Armoured Fire survival cables of suitable size or copper wire in heavy duty MS conduit of suitable size shall be used compliant to the relevant IS
6.2	PA System	Public Address System with Audio Amplifiers, speakers & required wiring shall be provided to cover all the areas as per the requirement of CPWD specifications, NBC 2016 and local bye laws.
7		
8	CCTV Surveillance System	As per good Engineering practice or as required under the codes or by local/statutory authorities compliant to relevant Indian standard 13252; IP based CCTV system for building security comprising of PTZ/ fixed camera, cabling, digital recording, HD display system with minimum display of 5" x 8" per camera and hardware & software support both for indoor and external surveillance IP based Closed Circuit Surveillance system is proposed to monitor the activities at critical/ desired areas. The video shall be continuously transported to existing server, using IP cameras; The items supplied by the contractor should have specifications compatible with each other required for satisfactory operation of the system. CCTV cameras and storage server/ NVR shall have ONVIF Profile-S compliance for interoperability.
9	Mechanical Ventilation System	The system shall be provided as per National Building Code of India- 2016 and requirement of the local body, CPWD General Specifications for Heating, Ventilation and air conditioning work-2017 and relevant I.S Codes; The system shall be designed and provided to achieve rate of air change in various ventilated areas as prescribed in NBC-2016 and local building bye-laws/ site requirements.
9.1	Fans	All the fan motors which will operate in normal mode shall have IE-3 efficiency. The fan motors required to be operated during fire mode shall be minimum IE-2 efficiency
9.2	Ducting	The Staircase, Lift Lobby & Lift Well pressurisation shall be designed and provided as per provisions given in NBC 2016 and Local by laws. Scope of works include GSS ducting, grills, louvers and all associated works and shall be executed as per CPWD specifications; The pressurization system shall be integrated with fire alarm system for automatic operation on command from fire detection system
10	Lifts	The lifts shall be with power operated centre opening/side opening doors, and AC variable voltage & variable frequency controls, Car safety & Governor, Guides, guide rails, ropes, car platform, cabin finishes (stainless steel), car & landing doors (stainless steel), hoist motors, braking system, Automatic Rescue Device (ARD) etc complete as per the CPWD Specifications and related IS standards upto date. (Lifts can be

		with Machine room or Machine room less depending upon site requirement) Provision of lifts will be made as per National Building Code-2016 / relevant BIS amended upto date) considering no of floors, height of the building and speed of elevators; At least one lift in each block be made compliant to barrier free and accessibility requirements as per CPWD specifications & capacity to be minimum 13 passengers for barrier free lift; One lift in each tower should be goods / bed lift, with size and capacity of lift car to be designed accordingly. Provision of fire lifts shall also be ensured as per local fire authorities requirements/ bye laws.
	Sewage Treatment Plant	STP/ETP shall be based on suitable technology to meet the requisite norms of treatment of sewage to achieve required quality of output water as per local body/ CPCB/ local pollution board, MoE&F, NBC 2016 norms; The work shall be inclusive of interconnecting piping between all units, valves, gates and all other accessories and devices as required, all mechanical equipment duly protected against corrosion, all electric drives, pumps, motors control centers, power and control cables (except main incoming feeder and yard lighting), all instrumentation, control cabling, panels complete in all respects. Water meter on outgoing treated effluent for measuring the outflow should be provided; Dewatering pumps (with automation) as required with 100% standby pumps. All remaining pumps & blowers shall have minimum N+1 redundancy. It shall be complete with required civil works (except) plant room, storage chambers, tertiary treatment etc. for the building/ campus.
	Roof Top Solar PV Power Plant	Roof top grid interactive solar photo voltaic plant system shall be inclusive of the Solar panels of prescribed efficiency, mounting structure, cabling, inverter , panel, metering devices, earthing, lightning protection complete as per state-of-the-art technology as per good engineering practice compliant to relevant Indian standards/ local/statutory authorities/MNRE guidelines.; The capacity of plant shall be derived as per available space on terrace of the buildings; High efficiency PV cells with high efficiency invertors shall be used. Minimum power output guarantee offered for the SPV Module shall not be less than rated for 25 years; Invertors/Power conditioning unit (PCU suitable for mains as well as DG supply) as required.; The inverter output shall always follow the grid in terms of voltage and frequency; AC collection Panel with metering to monitor generation at the terrace and AC cabling from Panel to receiving switch; Measuring devices i/c net metering, indication devices, protection devices, switching devices, all necessary wiring, DC and AC cabling including feeding power to essential supply by providing necessary tap off boxes; Mounting structure of GI on terrace of the building, protection of system for external / internal

		causes and from all kind of surges etc.; Earthing and Lightning protection of Solar system
	Solar Water Heating System	As per good engineering practice; As per capacity requirement of individual house/ building, meeting the minimum local body requirements for each residential unit or building as applicable. Solar water heating system with heat exchanger type including electrical heater backup, make up water tank but without external piping. Solar water heating system shall be compliant to IS: 12976:1990 with latest amendment with Solar Flat Plate shall be BIS marked and as per IS: 12933/2003 with amendment 1 to 3 and Hot water storage tank shall be of SS 316 grade. Tank shall be insulated with 100 mm thick glass wool insulation not less than 80 kg/m2 density & wrapping by 24g aluminum sheet
	Emergency Light & Illuminated Signage	Exit signs shall not exceed 5 W per phase as per ECBC-2017; Self-contained rechargeable emergency exit light with minimum 6 hours battery backup; IP 20 rated; Confirms to IS : 10322 (part-5 / sec1) : 2012, Single side / Double side facia as per requirement of location installed.

Note: Above All items of Civil and MEPF WORKS will be executed at site as per latest CPWD Specifications, SOP, Manuals. Test Procedure

Mandatory Tests as per IS 456:2000

1. Cement

Test	Purpose	Reference Clause / IS Code	Frequency
Fineness test	Check particle size and quality	IS 4031 (Part 1)	Once for each lot or as directed
Setting time (Initial & Final)	To ensure proper workability and strength gain	IS 4031 (Part 5)	Once for each lot
Compressive strength	To verify grade of cement	IS 4031 (Part 6)	Once for each lot
Consistency test	For determining water requirement	IS 4031 (Part 4)	Each lot or batch
Soundness	To detect unsoundness due to free lime or magnesia	IS 4031 (Part 3)	Once for each lot

2. Fine Aggregate (Sand)

Test	Purpose	Reference	Frequency
Sieve analysis	To determine grading zone	IS 2386 (Part I)	Each source and as required
Silt content	To limit clay/silt impurities	IS 2386 (Part II)	Daily or each truck load
Specific gravity	For mix design accuracy	IS 2386 (Part III)	Each source
Bulking of sand	To correct for volume batching	IS 2386 (Part III)	Daily or as required
Moisture content	For water-cement ratio correction	IS 2386 (Part III)	Daily / per batch

3. Coarse Aggregate

Test	Purpose	Reference	Frequency
Sieve analysis	To ensure correct size distribution	IS 2386 (Part I)	Each source / weekly
Aggregate crushing value	To determine strength	IS 2386 (Part IV)	Each source
Impact value	To determine toughness	IS 2386 (Part IV)	Each source
Water absorption	For mix design	IS 2386 (Part III)	Each source
Flakiness & Elongation index	To control shape	IS 2386 (Part I)	Each source

4. Water for Concrete

Test	Purpose	Reference	Frequency
pH value, impurities,	To ensure water quality	IS 3025 / IS 456 Cl. 5.4	Each source or once in 3 months

Test	Purpose	Reference	Frequency
chlorides, sulphates			

5. Fresh Concrete

Test	Purpose	Reference / Clause	Frequency
Workability (Slump test)	To ensure consistency of mix	IS 1199	Every batch or as required
Compaction factor (if applicable)	To check workability in low-slump mixes	IS 1199	As directed
Temperature of concrete	To ensure compliance (hot weather concreting)	IS 7861	During concreting

6. Hardened Concrete

Test	Purpose	Reference / Clause	Frequency
Compressive strength of cube	To check characteristic strength	IS 516 / IS 456 Cl. 15	Minimum one set of 3 cubes per 30 m ³ or part thereof per grade per day
Non-destructive tests (Rebound hammer, UPV)	For assessing in-situ strength	IS 13311 (Part 1 & 2)	As directed / when required
Density of concrete	For quality check	IS 516	As required

7. Reinforcement Steel

Test	Purpose	Reference	Frequency
Physical tests (Yield strength, Elongation, Bend, Re-bend)	To confirm compliance with grade (Fe 415/500)	IS 1786	For every lot / 25 MT or part thereof
Chemical analysis	To check composition (C, S, P)	IS 1786	For every lot / as required

8. Concrete Ingredients – Trial Mix / Design Mix

Test	Purpose	Reference	Frequency
Mix design	To establish proportions meeting target strength	IS 10262	Before start of work / change of source
Trial cube test	Verification of design mix	IS 456 Cl. 9.2	Prior to commencement

9. Additional Field Checks

Test / Check	Purpose
Calibration of batching plant, weigh batchers, cube moulds, CTM	To ensure accuracy
Temperature of materials (in hot/cold weather)	To control setting and quality
Curing quality check	To ensure proper strength gain

Fittings and Fixture of Water supply, Sanitary and Doors

Sl. No.	Description	Make	Model No.
1	Wall Mixer with provision for Overhead Shower	Jaquar or equivalent	FUS-CHR-29273UPR
2	Wall Mixer 3-in-1 System with Provision for Hand & Overhead Shower	Jaquar or equivalent	FUS-CHR-2928
3	Overhead Shower 120 mm dia, Round Shape, Multi Flow	Jaquar or equivalent	OHS-CHR-1799
4	Shower arm 20 mm dia & 300 mm long	Jaquar or equivalent	SHA-CHR-479L300S
5	Hand Shower 100 mm Round Shape, Multi Flow	Jaquar or equivalent	HSH-CHR-1939
6	Flexible Tube 12 mm dia, 1.5 metre long	Jaquar or equivalent	SHA-CHR-549D12
7	Premium Wall Bracket for Hand Shower, 35 mm dia & 100 mm long	Jaquar or equivalent	SHA-CHR-555
8	Single Lever Extended Basin Mixer (Height 85 mm), without Pop up Waste, with 450 mm hoses	Jaquar or equivalent	FUS-CHR-29023B
9	Angular Stop Cock with Wall Flange	Jaquar or equivalent	FUS-CHR-29053
10	Two-way Bib Cock with Wall Flange	Jaquar or equivalent	FUS-CHR-29041
11	Towel Shelf with Lower Hanger (SS) with hooks, 600×250 mm	Jaquar or equivalent	ACH-CHR-1581H
12	Towel Ring, Round with Round Flange (178 mm outer dia)	Jaquar or equivalent	ACH-CHR-1121BN
13	Toilet Roll Holder	Jaquar or equivalent	ACH-CHR-1151N
14	Soap Dispenser with Glass Bottle	Jaquar or equivalent	AKP-CHR-35735P
Sl. No.	Description	Make	Model No.
15	Brass Soap Dish Holder (Chrome finish) with wall mounted arrangements	Jaquar or equivalent	AKP-CHR-35731P
16	Hand Shower (Health Faucet) with 8mm Dia, 1 Meter Long	Jaquar or equivalent	ALD-CHR-573

	Flexible Tube & Wall Hook		
17	Corner Shelf Bracket (Glass)	Jaquar or equivalent	ACH-CHR-1173
18	Reach Eco wall hung toilet bundle in White (Bundle of Reach) Eco wall hung toilet with toilet seat cover in white color	Kohler or equivalent	K-30438IN-0
19	compact outlet connector assembly for EWC	Kohler or equivalent	K-1527926
20	Lynk Dual-flush faceplate (Polished Chrome finish) of 4.5 X 22.5 X 15.8 cm	Kohler or equivalent	K-75890INPCP
21	Evofit In-wall Tank with half frame PNEU	Kohler or equivalent	K-33929IN-P-0
22	Vitreous China 60 cmX 39.6 cmX11.9 cm Modern Life Edge rectangular vessel bathroom sink, no overflow counter	Kohler or equivalent	K-21226IN-HG1
23	Foreward 75 cm wall-hung bathroom vanity cabinet (Rattan Weave Pattern)	Kohler or equivalent	K-28741IN-RWP
24	Modern Life Edge Wall-mount bathroom faucet sink (Matte Black)	Kohler or equivalent	K-25759IN-4ND-BL
25	Complementary Single-handle wall-mount bathroom sink faucet valve (Matte Black)	Kohler or equivalent	K-5679IN-BL
26	Vive 70.50 cm lighted mirror	Kohler or equivalent	K-31389IN-NA
27	60 cmX 45 cm Curve Edge LED Mirror for Bathroom with Lights Color Tone and Touch Sensor (Rectangular Shape)	Germa or equivalent	TR7553
28	Vitreous china white coloured Caston range of 54 cm undercounter lavatory (counter mixer oval shaped wash basin/circular 536 X438X188 mm	Kohler or equivalent	K-2211IN-0
29	Door chain (Brass)	Prayag or equivalent	DCH-0426-SS
30	Eye viewer	Prayag or equivalent	EPBSBS-01-FG
31	Door Handle (125 mm)	Prayag or equivalent	DHC-2125
32	SS tower bolt (200 mm)	Prayag or equivalent	TBS-9200
33	Mortise dead lock	Prayag or equivalent	ML-500D-SS
34	Mortise lock, lever	Prayag or equivalent	ML-1105-SS KY
35	Door stopper maharaja brass	Prayag or equivalent	DSB-MH4-SS

8. Approved Make of Materials

The contractor shall get the make & samples of all items covered in this list, approved from Engineer in Charge/Client before placing order. Wherever makes of items are not specified, approval of Client shall be obtained. The Tenderer shall quote his rates on the basis of the price of quote his rates on the basis of the price of quality of grade of product of the brand/make stipulated in the item of works as described in Specification as well as in the lift of approved make. However, the contractor cannot claim anything extra if owner select any other make from the list of approved makes.

S.No.	Material	Approved Makes / Brands		
CIVIL				
1.	Ordinary Portland Cement / Portland Pozzolona Cement	ACC Shree Cement	Ultratech Ambuja Cement	J. K Cement Birla
2.	White Cement	Birla Cement	J.K. White	Nuvoco
3.	Ready Mix Concrete	ACC Ultratech	Nuvoco Grasim	JK Cement Batching plant at site
4.	Reinforcement Steel (TMT-Fe 500)	SAIL JSW Steel Ltd	Tata Steel Apollo	RINL Jindal Steel & Power Ltd
5.	Structural Steel / M.S. Tube	TATA Jindal Steel & Power Ltd	JSW Steel Ltd Rashtriya Ispat Nigam Ltd	SAIL
6.	Plasticizer, Super Plasticizer, Admixtures, Other construction chemicals	M.C. Bauchemie CICO Asian Laboratories	Fosroc Sika Ultracon	Pidilite BASF Chryso
7.	Waterproofing Compound (Crystalline)	BASF Fosroc Pidilite	Sika Kryton Carlisle	Penetron Fire Stone Chryso
8.	Waterproofing Self Adhesive Membrane (HDPE)	GRACE Kintop	Fosroc Keshun	Pidilite Chryso
9.	PU Elastomeric Membrane (spray applied) for Deck Waterproofing	BASF Keshun	Fosroc Pidilite	Sika Chryso
10.	Glasswool Insulation	UP Twica	Poly Glass	Ownscorning
11.	Rock Wool Insulation	Lloyds	Roxul Rockwool	Grodan
12.	Swellable Bar	Pidilite Hayakawa	Fosroc MYK Schomburg	Keshun
13.	Polycarbonate Sheet	GE Plastic	Gallina	Danplon
14.	Decking Steel Sheet	TATA Steel	Lloyds	JSW
15.	Shuttering Ply	Archid Kitply	Century	Merino
16.	Rebarring Chemical	Hilti Rawl plug	3M India	Birla
17.				
18.	Parallel Threaded Couplers (Compliant to IS 16172:2014)	Dextra	Halfen Moment	G-Tech
19.				
20.	AAC Block	Aerocon Finecrete Shirke	Builttech Magicrete Xtralite	Instablock JK Godrej
21.	AAC Mortar	Ferrouscrete	Ultratech	JK
22.	Moisture Resistant Board	Saint Gobain Greenlam	Gyprox Duro	USG Boral Merino

23.	Veneered Particle Board	Merino	Duro	Greenlam
		Kitply	Archid	
24.	Laminated Particle Board / Laminates	Merino	Greenlam	Century
		Novapan	Duro	Archid
25.	Flush door / Laminated Flush doors	Century	Green	Merino
		Duro	Archid	
26.				
27.	Hardware for Fire Check Door	Dorma	AssaAbloy	Hafale
28.	Plywood / Veneer / Laminate	Merino	Greenlam	Century
		Archid	Duro	
29.	Expansion Joint – Modular	C.S.	Herculus	Z-Tech
		Vexcolt	Devin	Sainfield
30.	Polyster Powder Coating Paints	Nerolac	Berger	Akzonobel
31.	Silicon based water repellent / Weather Sealant	G.E. Plastics	Dow Corning	Pidilite
		M.C.Bauchemie	Wacker	STP
32.	Poly-Sulphide Sealant	Fosroc	Pidilite	Sika
		Laticrete	Wacker	Dow Corning
33.	Wall Putty	Birla Wall Care	JK White	Saint Gobain
		Ferrouscrete	Berger	
34.	Curing Compound	Fosroc	Sika	Cico
		STP	Pidilite	BASF
35.	Oil Bound Washable Distemper	Asian Paints	AkzonobelDulux	Berger
		ICI	Nerolac	Ultratech
36.	Acrylic Distemper	Berger	Asian	Dulux
37.	Premium Acrylic Emulsion paints	Dulux	Nerolac	Asian Paints
		Berger	Opus	
38.	Cement Primer	BP White (Berger)	Decoprime WT (Asian)	Akzonobel (Dulux)
		Nerolac		
39.	Cement Paint	Snowcem Plus	Berger(Durocem Extra)	Nerolac (Nerocem with Titanium)
		Asian	Ultratech	
40.	Steel / Wood Primer	Akzonobel (Dulux)	Nerolac	Asian Paints
		Berger	Jenson & Nicholson	
41.	Textured Exterior Paint	Akzonobel (Dulux)	Asian (Apex Ultima)	Nerolac Kansai (Excel)
		Ultra Tech	Spectrum	Berger
42.	Synthetic Enamel Paint	Akzonobel (Dulux)	Asian (Apcolite)	Kansai Nerolac (Synthetic Enamel)
		Berger		
43.	Epoxy Paint	Kansai Nerolac	Asian Akzonobel(Dulux)	FOSROC
		ICI		
44.	Epoxy Flooring	Flowcrete	BASF	FOSROC
45.	Fire Paint	Asian	Jotun	Akzonobel
46.				
47.	Gypsum Plaster	Ferrous Crete	Elite (90)	Ultratech
		KK		
48.	Pre-Cast GRC Jali	Unistone	Dalal Tiles Industries	Ecovision

49.	Stainless Steel	Salem Steel	Jindal Alloys	SAIL
50.	Welding Electrodes	Advani	Oerlikon	Modi
		L & T		
51.	Stainless Steel Hardware	Dorma	Hafale	Geze
		Godrej	KICH	OZONE
59.	Acrylic Solid Surfaces	Hanex	L.G-Hymac	Dupont
FLOORINGS				
60.	Mosaic / Chequered Tiles	Bisazza	NITCO	Unitile
		Dalal Tiles Industries	Unistone	
61.	Ceramic Tiles / Glazed Tiles	Kajaria	Somany	NITCO
		Asian (AGL)	H&R Johnson	Vermora
62.	Vitrified Tiles (Antiskid / Matt / Glazed)	Somany	Kajaria	NITCO
		Asian (AGL)	H&R Johnson	Vermora
63.	PVC Flooring	Armstrong	Target	LG
64.	Cement Concrete Tiles (designer Tiles)	Unistone	Ultra	Eurocon
		Terra Firma		
65.	Paver Block &Kerb Stone	NITCO	Unitile	Ultra
		Dalal Tiles Industries		
66.	Tile / Stone Adhesive / Tile / Epoxy Grout	Pidilite	Ferrous Crete	MYK Laticrete
		Fosroc	BASF	Chryso
67.	Dash / Anchoring Fasteners	Hilti	Fisher	Bosch
		Rawl plug		
68.	Floor Hardener	Ironite	Fosroc	Hardonite
		Sikka		
69.	Laminated Floor	Action	Tesa	Pergo
70.				
71.	Water Based Melamine Polish	Asian Paint	Pidilite	ICI Dulux
		Berger	Akzonobel Dulux	
72.	Fire Retardant Paint	Asian Paint	Berger Paint	Shalimar
76.	Building Signage	Hindustan Signage	PR Graphics	Motivatte Solution
		Galaxy Signage	Signsutra	
GLAZINGS				
77.	Anodised Aluminum Hardware (Heavy Duty)	Hardima	Indalco	Hindalco
		Everite	Godrej	AluAlpha
		LGF Sysmac		
78.	Aluminum Structural Members – Windows, Glazing and Partitions	Jindal	Indalco	Hindalco
		Nalco	Bhoruka	Indo Alusys
79.	Glazing Structural / Suspended / Skylight	Saint Gobain	Pilkington	Glaverbal
80.	Clear / Float / Frosted Glass	Saint Gobain	AIS	Pilkington
		MODI Guard	Atul	
81.	Glass Spider Fittings	Dorma	Hafale	Ozone
82.	Stainless Steel Railing, Accessories etc. in Grade SS 316	Dorma	D-line	Geze
		Ozone	Jindal	
83.	Hermitically Sealed performance glass Toughened Glass	Saint Gobain	Guardian Glass	Pilkington
		Modiguard		
84.	Fire Rated Vision Panels	Pilkington	Schott	Ferilite

		Saint Gobain	Glaverbel	
85.	Ceramic panel Cladding	Hunter Douglas	Neolith	Terreal
86.	Aluminum Louvers	Hunter Douglas	Kawneer	Indo Alusys
		Colt		
87.	Aluminium Composite Panels	Reynobond	Alucobond	Alpolic
		Aludecor		
88.	G.I. Steel Door Frame	Synergy Thrislington	Navair	Shakti
89.	Friction Stay Hinges	Dorma	LG Sysmac	Dorset
90.	EPDM Gasket	Hanu	Anand	Osaka / Alps
91.	Glass Processor for making DGU / Toughing	Art N Glass	GSC (Noida)	Sejal
		ASAHI	Gold Plus	Kaenat Glass
		Shiv Shakti Float Glass		
92.	Mirror Glass	Atul	Modi Guard	Saint Gobain
		Glaverbel	AIS	
93.	UPVC Doors & Windows	Fenesta	Wintech	Aluplast
		Windowmagic	Rajshri	
94.	Poly Sulphine Sealant	Wacker	Dow Corning	GE
95.	Silicone / Weather Sealant	Wacker	Dow Corning	GE
HARDWARE				
96.	Nuts / Bolts & Screws	GKW	Atul	Hilti
		Rawl plug		
97.	Door/Window Fittings	Godrej	Everite	Doorset
		Hardwyn		
98.	Door Closer	Dorma	Godrej	Hettich
		Everite	Hardwyn	
99.	Die Cast Patch Fittings	Dorma	Geze	AssaAbloy
		Hettich	Ozone	
100.	Fire Rated Doors	Iclean	Shakti	Promat
		Navair	Sukriti	
101.	Floor Springs	Dorma	Geze	Hettich
		Dorset	Everite	
102.	SS Mortise lock with one dead bolt and pair of SS handles steel grade SS 304	Dorma	Godrej	Hafele
		Dorset		
103.	SS Mortise latch & lock with six levers and pair of SS handles steel grade SS304	Dorma	Godrej	Hafele
		Dorset		
104.	SS Tower bolt	Dorma	Godrej	Hafele
105.	SS Butt hinges with ball bearing grade SS 304	Dorma	Godrej	Ingersoll Rand
106.	Stainless Steel Sliding Door bolts	Ingersoll Rand	Hafele	Godrej
107.	Pull handle back to back of length 150mm of Steel Grade SS 304	Godrej	Geze	Ozone
108.	Pull handle, single side of length 150mm of Steel Grade SS 304	Godrej	Geze	Ozone
109.	Aluminium lever	Hardima	Godrej	Everite

	Handles			
110.	Lever handle in SS 304 finish	Dorma Daikin	Hafele	Godrej
PLUMBING & SANITARY				
139.	Sanitary Fittings & Accessories	Hindware Jaquar Duravit	Kohler Somany Somany	Cera Krovit
140.	CP Brass Fittings	Jaquar Hindware	Kohler Grohe	Parryware
141.	G.I. / M.S. Pipe	Tata SAIL	Jindal (Hissar)	Surya Prakash
142.	G.I. Fittings	Unik R-Brand	KS Surya	Zoloto
143.	SS Pipes	Jindal	Tata	VIGA
144.	HDPE Pipes	Reliance Vertex Vectus	Jain Irrigation West Well	Oriplast Supreme
145.	DI Pipes	Electrosteel	Jindal	Tata Ductura
146.	DI Fittings	Kartar	Electrosteel	Kalinga
147.	CI Fittings	Neel	Kartar	Electrosteel
148.	Float Valve	IVC KSB	Leader	Zoloto
149.	UPVC Pipe and Fittings	Astral Prince Vectus	Supreme AKG PKS Export	Finolex Surya Roshni
150.	PVC Pipe & Fittings	AKG Surya (Prakash)	Supreme Vectus	Finolex
151.	CPVC Pipes & Fittings	AKG Finolex SFMC	Astral Surya Prakash	Supreme Vectus
152.	Centrifugally Cast (Spun) Iron Pipes & Fittings	NECO Saint Gobain	SKF	Electrosteel
153.	Centrifugally Cast (Spun) Iron (Class LA) Pipes	NECO	Electro Steel	TATA
154.	Centrifugally Cast (Spun) Ductile Iron Pipes & Fittings	Electro Steel	Jindal (Hissar)	Kalinga
155.	C.I. Manhole covers, Frames & GI Gratings	NECO SKF	RIF Jain Spun Pipe Co.	BIC
156.	SFRC Manhole covers & gratings	KK T-CON	OCR	Pargati
157.	RCC manhole Covers & Frames	KK manhole	Grating Co. Pvt Ltd	
158.	Gun Metal Valves, Globes	Kartar	Castle	Zoloto
159.	Floor Traps	Jayana	Chilly	Nirali
160.	Water Meter	Prima Capstan	Zoloto	Leader
161.	Brass Stop & Bib Cock	Zoloto Leader	Sant Astral	L&K
162.	Non Return Valve (Check valve) 1/2" to 1 1/4"	Zoloto Kartar	Sant	Leader
163.	Brass Ferrules	Dhawan Sanitary	Kalsi	Annapurna

		Udyog		
164.	Polythylene water storage tank	Sintex	Polycon	SPL
		Vectus		
165.	Insulation for hot water pipes	Kaiflex	Armaflex	Careflex
		Lloyd		
166.	Insulation for external / exposed hot water pipe	Kaiflex	Armaflex	Careflex
		Lloyd		
167.	Pipe protection for external water supply pipes	Pypkote	Armaflex	Makpolykote
168.	Stainless Steel Sink	Neelkanth	Nirali	Jayna
		Cera	Anupam	Franke Fabre
169.	Stoneware Pipes	Perfect	Hind	Burn
		RK		
170.	Gully Traps	Perfect	Hind	Burn
		RK		
171.	RCC Pipes (NP-2)	Lakshmi	Sood & Sood	Jain & Co.
		Pragati Concrete		
172.	Atactic Polypropylene	STP	HTL	Hydro Tech
		Pidilite		
173.	C.P. Waste, Spreaders, Urinal Flush Pipes	Jaquar	Parko	Cera
174.	Ball Valves / wafer type valves	Zoloto	Leader	AIP
175.	Ball Cocks	GPA	Sant	L&K
176.	Air Release Valves	Sant	Leader	Zoloto
177.	Pipecoat	IWL Ltd	Pypkote	STP
178.	CI Double Flanged Sluice Valve	Kirloskar	IVC	Sondhi
		Kejriwal		
179.	Adhesives	Nuwood	Duratuff	Pidilite
180.	PE-AL-PE	Kitec	Jindal	Supreme
181.	Solar Water Heating System	Tata BP	Honey Well	Solar
182.	Water Heater (Geyser)	Venus	Bajaj Spherhot	Photon
		Racold	Havells	Finolex
FIRE FIGHTING				
183.	M. S Pipe	Tata	Jindal Hissar	Prakash Surya
		SAIL		
184.	G. I Pipes	Jindal Hissar	Prakash Surya	SAIL
		TATA		
185.	Forged Fittings	SS	VS	True Forge
186.	ERW / butt Welded Fittings	MEC (Jainsons)	Unik	Jindal
187.	Groove Fittings (UL listed)	Victaulic	Jainson	New
188.	Ball Valve / Gate Valve (Gunmetal)	Sant	Leader	Zoloto
		CIM		
189.	Butterfly Valve	Zoloto	Kirloskar	Leader
		Audco		
190.	Motorized Butterfly Valve	Advance	AUDCO	L&T
		Zoloto		
191.	Balancing Valve	Advance	Utam & VTM	L&T
192.	Non Return Valve	Advance	Utam & VTM	L&T
193.	Y-Strainer	Emerald	AUDCO	Kirloskar

		Zoloto		
194.	Pot Strainer	Rapidcool	Emerald	Sant
		AUDCO	Zoloto	
195.	Thermometer	Emerald	Anergy	Honeywell
196.	PICB Valve	Danfoss	Frees	Ovenrop
		Spirotech	Reflex	
197.	Control Valve	HD	Viking (VL Listed)	Siemens
198.	Airvent	Anergy	Siemens	Grundfos
199.	Expansion Tank	Anergy	Emerald	Spirotech
200.	Hot Water Generator	Sant	Emerald	Rapidcool
201.	Air Pressure Valve	Anergy	Flemco	Castle
		SKS	Leader	
202.	C.I. Double flanged sluice valves	Kirloskar	Zoloto	Sant
		IVC	Sondhi	Kejriwal
203.	C.I. Double flanged Non-return valves	Kirloskar	Zoloto	Leader
		IVC		
204.	Dual Plate / Wafer Type Non-return valves	Kirloskar	Zoloto	Leader
		IVC		
205.	Foot valve with Strainer	Kirloskar	Leader	Zoloto
206.	Y-Type / Pot / Suction Strainer	Kirloskar	Leader	Zoloto
		Tyco	Advance	
207.	Fire Extinguishers	Zenith	Minimax	Safex
		Ceasefire	Newage	Safe Fire
		Superex		
208.	First Aid Hose Reel Drum	Superex	Newage	Safex
		Safe Fire		
209.	Thermo Plastic Hose Reels for Drums	Superex	Newage	Safex
		Safe Fire		
210.	R.R.L. Hose & C.P. Hose	Superex	Newage	Eversafe
		Safe Fire		
211.	Branch Pipe, Nozzle, Coupling etc.	Superex	Newage	Eversafe
		Minimax	Lifeguard	Safeguard
		Safe Fire		
212.	Landing Valves	Superex	Newage	Eversafe
		Safe Fire		
213.	Fire Brigade Connections	Superex	Newage	Eversafe
		Minimax	Safe Fire	
214.	Fire Fighting Equipment not covered elsewhere	Superex	Newage	Eversafe
215.	Hose Box	Superex	Newage	Eversafe
216.	Sprinkler & Rosette Plates	Tyco	Viking	HD
		Spray Safe		
217.	Flexible Connector (Drop) for Sprinkler	Easyflex	Viking	Newage
218.	Flow Switches	System Sensor	Honeywell	Potter
		Tyco		
219.	Inspector Test valve	Viking	Tyco	Hd
220.	Pre-Fabricated Structural supports and clamps	Chilly	Hitech	Camry
		Easyflex		
221.	Pressure Gauge	Emerald	Fiebig	H.Guru
		Danfoss		
222.	Alarm Valve	Viking	Tyco	HD
223.	Antivibration pads & suction	Easyflex	Resistoflex	Dunlop

	& delivery flexible pipe connectors	SAIL	Tata Steel Ltd	RINL
224.	Flexible Duct Connector	Mapro	Kanwall Industrial corporation	Resistoflex
225.	Stainless Steel Brach Pipe	Safex	Padmini	GETech
226.	Fireman Axe / Installation Control Valve	Safex	Padmini	GETech
227.	2-way / 4-way FBC	Safex	Newage	GETech
228.	Sprinkler Heads	Tyco	HD	Omax UL
229.	Pipe Protection Pypcoat wrapping	IWL	Taxa	Mac-poly coat
230.	Rubber Bellow	Kanwal Industrial Corporation	Resistoflex	AIP Valves
231.	Deluge Valve	Safex	Tyco	HD
232.	Flexible Drop (UL Approved)	Safex	HD	Kofulso
233.	Anti Vibration Pad	Cori Dunlop	Diamond Pipe Support	Easyflex
		Flexionics	Resistoflex	Emerald
234.	Motors for Fire Pumps	Siemens	Kirloskar	Crompton
		ABB		
235.	Fire Pumps	Kirloskar	Mather & Platt	Grundfoss
		Siemens	Schneider	ABB
236.	Electrical Switch Gears	Siemens	Schneider	ABB
		L&T		
237.	Power and Control Cables	Universal	Polycab	Havells
		Indo cables	Finolex	Grandlay
238.	Control Panel of Terrace Pumps	Advance panel & Switchgear	Adlec	Tricolite Elect Industry
		SPC Electrotech	Neptune	RST
239.	Voltmeter & Ammeter	Schneider	Neptune	Rishabh
		Conserve		
240.	Indicating Lamp and Selector Switches	BCH	Rishabh	Conserve
241.	CT	AE	Kappa	Nutech Electrical
242.	MCCB / MPCB / MCB/RCCB	Siemens	Schneider	Legrand
		ABB	Havells	
243.	Contractors / Times, Overload Relays / Starter	L&T	Siemens	Schneider
244.	Annunciation panels	PCD	Agni	Tricolite
		Adlec		
245.	Single phase preventor	Minilac	L&T	Siemens
246.	Anti Vibration Mounting	Kanwal Industrial Corporation	Resistoflex	Ewren
247.	Starter	L&T	Siemens	Crompton
		GE	ABB	BCH
248.	Current Transformer (Cast Resin)	AE	L& T	Kappa
249.	Nuts / bolts	GKW	Hilti	Atul
INSULATION				
250.	Glass Wool	U.P. Twiga	Owen Corning	K-Wool
251.	Nitrile Rubber	Armacell	K-flex	Aerocell

252.	Expanded Polystyrene	SHI	Beardshell	Styrene packaging
253.	Vibration Isolator Pads	Resistoflex	Kanwal	Easyflex
254.	Paracoat BPC	Paramount	Pidilite	Indian Polycoat
PUMPS				
255.	Pumps	Grundfoss	Xylem	WILLO
		KSB	Shakti	Crompton
256.	Submersible Drainage Pumps	KSB	Grundfoss	Crompton
257.	Ball Valves	ARCO	SANT	Zoloto
258.	Butterfly Valve	KSB	SKS	AUDCO
259.	C.I. double flanged sluice valve	Zoloto	Sant	Castle
		Kartar		
260.	Non Return Valve	Zoloto	Sant	Castle
		Kartar	Leader	
261.	Y – Strainers	Zoloto	Sant	Castle
		Kartar		
262.	Float Switch	Nolta	Danfoss	Honey Well
263.	Pressure Gauge	Fiebig	H. Guru	Danfoss
264.	Dosing system	Milton Roy	Asialmi	Grundfoss
265.	Liquid Level Controllers/ Liquid Level Indicator	Advance	Honey Well	Danfoss
266.	Filter / Softener	Ion Exchange	Renaissance Aqua	Pentair
		Watcon		
267.	Salt Saturator	Ion Exchange	Renaissance Aqua	Pentair
		Watcon		
268.	Water Meter	Kent	Marshall	Sant
270.	Vessels	Astral	KGM	Structural
ELECTRICAL				
300.	Distribution Pannels	Legrand	Schneider	ABB
		IndoAsian		
301.	Air Circuit Breaker	Schneider	Siemens	ABB
		L&T	GE	Legrand
302.	LT Panel	Advance Panel & Switchgear	Adlec	Tricolite
		Control & Switchgear	Sterling Generator	SPC Electrotech
		RST	Ambit	
303.	TTA (Type Tested Assembly) Electrical Panels	Schneider	ABB	Siemens
		L&T	Legrand	
304.	MCCB	Siemens	Legrand	Schneider
		ABB	Havells	L&T
		GE	IndoAsian	
305.	MCB / MPCB	Siemens	Legrand	Schneider
		ABB	Havells	IndoAsian
		L&T		
306.	Modular Type light & power Accessories (Switches, socket etc.) G.I. Switch Boxes	Legrand	Schneider Electric	Havell's
		MK Honeywell	L&T	RR
		Schneider		
307.	Multifunction Meters	Schneider	Siemens	Neptune

		Secure		
308.	Power Contactor-AC 3 Rating / Capacitor Duty Contactor / Starter / Thyrister Module / Harmonic	Siemens Schneider	L&T	ABB
309.	APFC Relay	Epcos BCH	L&T Schneider	Syntron
310.	Capacitor	Epcos Crompton Greaves	L&T ABB	Siemens Siemens
311.	Electrical Motor / Motor Starter / Contactor / Switches	Siemens L&T	ABB	Crompton
312.	Bus Ducts / Rising Mains	Schneider L&T RMCN	Legrand Tricolite	C&S RST
313.	FRLS PVC Insulated Copper Wire	BatraHenlay Universal Grandlay	Finolex Polycab	Havel's RR Cables
314.	Power Cables / Control Cables up to 11 KV Grade	Havells Universal Grandlay	Polycab Indo cables	BatraHenlay Finolex
315.	Lugs / Gland	Dowel	Comet	Braco
316.	PVC Conduit	AKG Prince ISI Marked JPC	BEC Nor pack	Polypack PKS Export
317.	MS Conduit ISI Marked	BEC JPC	AKG RMCN	NIC
318.	ESE Lighting Protection System	Erico Nimbus	Alltec ABB	Tercel
319.	DLP Trunking	MK Honeywell	OBO Betterman	Legrand
320.	Floor Trunking / Raceway	MK Honeywell	OBO Betterman	Legrand
321.	Cable Tray	Slotco Steelcraft Maheshwari Electricals	Ricco Indeana RMCN	BEC LLyod
322.	Solar Street Light Fitting with pole	Philips Trilux	Bajaj Wipro	Aviation Power System AINP
323.	Ceiling Fan / Exhaust Fan	Crompton Greaves Orient	Havells RR	Usha FINOLEX
324.	Octagonal Steel Pole	Bajaj	Twinkle	Valmart
325.	Internal Lighting LED	Philips Orange Elec Trilux	Osram Wipro Jaquar	Havells InstaPower AINP
326.	Outdoor Lighting	KeselecSchreder InstaPower Osram	Philips Orange Elec AINP	Wipro Trilux
327.	Automatic Fire System	Fire Trex	Rotarex	Innovex 1230
328.	Solar Panels	Tata Solar Power	Photon	Top sun

		Power tech	BHEL	Indo solar
		Waaree	Vikram	Adani
DG SETS & RELATED ITEMS				
341.	DG Set	Kirolskar	Sudhir	Jackson
342.	Diesel Engine	Cummins	Caterpillar	MTU
		Perkins		
343.	Alternator	Leroy Somer	Caterpillar	Stamford
		Toyo Denki	KEC	
344.	Batteries	Panasonic	Exide	Amaron
345.	Batteries Charger	Uptron	Volstat Electronics	Statcon
		AE		
346.	PLC	Schneider	Allen Bradle	Siemens
347.	NIS / NGR	Resitech	Essen	RSI Switchgear
		Lachhman Electronics		
FIRE DETECTION & ALARM SYSTEM				
348.	Detectors & Devices – Intelligent multi criteria detector, smoke, heat & duct detectors, control & monitor module, fault isolator, hooters etc. Addressable Main Fire Alarm Panel with Digital Voice Evacuation System	Notifier	Edwards	Siemens
		Honeywell		
349.	Fire Survival Cable	Rallison	Polycab	Bonton
		BatraHenlay	No Burn	
350.	UPS System	APC	Emerson	Schneider
		Mitsubishi	Siemens	Autometers Alliance
351.	Public Address & Background music system	Honeywell	Bosch	Bose
		Heinrich	Vonamic	BiAmp
352.	Access Control	Dorma	HID	Geze
		Bosch	Link	Siemens
		UTC	Honeywell	
353.	Emergency Break Glass Unit	Honeywell	GE	Bosch
IP BASED CCTV SYSTEM				
354.	NVR & Accessories Encoder Decoder	Honeywell	Bosch	Pelco
		Siemens		
355.	CCTV Cameras	Honeywell	Bosch	Pelco
		Siemens		
356.	Power Supply	Protec	Semac	Wago
357.	Weatherproofing housing	Honeywell	Bosch	Pelco
		Siemens		
358.	Network Switch (L2 / L3)	Cisco	Microsens	HP
		Signamax		
359.	Multipurpose Poles	KeselecSchreder	Heper	Wipro
360.	Digital Lighting	Osram	Heper	Serenity
		Signamax		
361.	Boom Barriers	Came	Nice	Beninca
		Godrej		
362.	Co-Axial TV Cable	L&T	Havells	Polycab

		Finolex	Skytone	
363.	CAT6 24Port Jack Panel	Tyco	Systemax	Siemens
364.	Passive networking - Cat6A cable and accessories	Siemon	Sistemax	Orange Electric
365.	Passive networking - IT racks	Siemon	Rittal	Nikon
		Orange Electric		
366.	Structured Cabling and components	Schinder	Siemon	Systimax
		Legrand	Tyco	
367.	Fire Cable	Netapp	Netgear	EMD
368.	Network Attached Storage	HP	Dell	Lenovo
369.	Desktop PC	HP	Dell	Lenovo
370.	Professional Display Panel	HP	Dell	Lenovo
371.	EPABX	NEC	Avaya	Alacatel
LIFT				
372.	Lift	Mitsubishi	Kone	Schindler
		OTIS	TKE	
MISCELLANEOUS WORKS				
375.	Customized Cable tray for multi services, Lighting & LV wiring	BEC	Leeway Design	OBO Betterman
376.	Optical Turnstiles	Boon Edam	Gunnebo	Kaba
377.	Central Vacuum System	Sistemair	Sachvac	Schonbach
378.	Multi-Purpose Poles	Keselec	Heper	Wipro
379.	Garbage Chute system	Ecotech Chutes	Horizon Chutes	Hardal
380.	Waste Compacter bins	Universal e cube	Big Belly Solar	Schonbach
381.	Polyurethane Sealent	Choksey	Fosroc	Pidilite
382.	Adhesive for Wood Work	Dunlop	Fevicol	Vamicol
383.	Landscape Furniture	KK Manhole & Grating Co. Pvt. Ltd.	JSL Architecture Ltd	
384.	Hdpe Grass Pavers & Hdpe Drain Board	Ovilite	Aceturf	Plydex
385.	Ornate Pots (Removable Planters)	Smart Exteriors	Yuccabe	Raunaq Sales
386.	Stone	R.K.Marble	ArasiEmpexs	Mangla Group
		DBS		
387.	Scuptures	Kalanishtha Enterprises	Art View Studio	Us India Art & Culture Exchange
388.	Insulated Aluminium Panels	Luxalon	Qbiss	Hunter Douglas
STP				
	Bar Screen	Fabricated		
	Effluent Transfer Pump	Kirloskar	CNP	Wilo
	Air Blowers	AI	Airvak	Everest
	Mixing Arrangement in Anoxic Tank	CNP	HCP	
	Air Diffusers	Scogen	Rehaw	MM Aqua
	Effluent Recirculation Pump	Kirloskar	CNP	Wilo

Sludge Recirculation Pump from Settling Tank	Kirloskar	CNP	Wilo
Tertiary Filter Feed Pump	Kirloskar	Lubi	Wilo
Pressure Sand Filter	Pentair	Universal	SRI
Activated Carbon Filter	Pentair	Universal	Universal
Dosing Pump	E-dose	Milton Roy	Milton Roy
Dosing Tank	Sintex	Perfect	Perfect
Tube Settler Media	Marvellous	Cooldeck	Cooldeck
MBBR Media	Marvellous	Cooldeck	Cooldeck
Pressure Gauge	H-Guru	Wika	Baumer
Level Switch	Aster	Blue Sea	
Flow Meter	Aster		
UPVC / PVC / CPVC Pipe	Asual	Prince	Ashirvad
MS Pipe	TATA	Jindal	
Connecting / Power Cable	Polycab	Finolex	KEI
NRV / Gate Valve	Normax	Sant	Audco
Butterfly Valve	Sant	Audco	Leader
C.I. double flanged sluice valve	Kirloskar	Leader	Sant
C.I. Disk Type non return valves (65mm dia and above – Dual plate type)	Kirloskar	Leader	Sant
C.I. Strainer more than 65mm dia	Leader	Sant	Castle
PVC Valves	Cepex	Astral	Audco
C.I./D.I. Manholes cover	NECO	Kartar	SKF
Plastic Encapsulated Foot Rest	KGM	KK	Waltzer
Filter feed pump	Grundfoss	ITT	WILO / KSB
Hydro-Pneumatic Pumping Systems (Flushing, Soft and garden hydrant)	Grundfoss	ITT	WILO / KSB
Submersible Sump Pumps for collection chamber, equalization tank, Plant room drainage, Filter backwash sump	KSB	Grundfoss	Crompton
Pressure Transmitters / Hydrostatic Level Indicators	WIKA	Siemens	Johnson Control
Pressure Gauges	Fiebig	H. Guru	WIKA
Dosing System	ASIA LMI	Milton Roy	Grundfoss
Pump Vibration Pads & Suction & Delivery Flexible Connectors	Easyflex	Resistoflex	Dunlop
Pressure Sand & Activated carbon filter	M.S. Prefabricated		
Air Blowers	Everest	Beta	ABL
Ultra Violet Disinfection for Treated Effluent	Alpha UV	Sukrut	Neotec
Air Diffusors	BOBKAY	MM Aqua	REHAU
MBBR media for Aeration	MM Aqua	PP Aqua	Tecpro

	tank			
	Dosing Pumps	Milton Roy	Asia LMI	Grundfoss
	Sludge Pumps (Centrifugal)	Kirloskar	Grundfoss	ITT Industries
	Sludge Pumps (Screw)	Roto	UT Pumps	Stork
	Tube Settler media	MM Aqua	PP Aqua	Tecpro
	Centrifuge	Hiller	Alpha	Humboldt Wedag
	Pressure Gauge	H. Guru	Fiebeig	WIKA
	Level Gauge	H. Guru	Fiebeig	WIKA
	pH Meter	Hach	Toshniwal	Ionix
	Conductivity Meter	Hach	Toshniwal	Ionix
	DO Meter	Hach	Toshniwal	Oakton
	TDS Meter	Hach	Toshniwal	Oakton

SECTION 6 - DESIGN BASIS REPORT(DBR)

DESIGN BASIS REPORT – STRUCTURE

INTRODUCTION

1.GENERAL

All design criteria, assumptions and conceptual proposals to be adopted in undertaking the structural engineering design for this project are presented. All design should be vetted from IIT or VJTI Mumbai. Structural Consultant appointed by EPC Contractor should carry valid license and provide structural stability certificate after construction of Building. The EPC Contractor have to carry out a fresh soil testing done, if required, as the responsibility of all design, safety, stability of building lies with the EPC Contractor.

2. DESIGN PHILOSOPHY FOR THE PROPOSED BUILDING

The building shall be designed and constructed in accordance with the National Building Code (NBC) of India, relevant Indian Standards (IS Codes), and CPWD Specifications up to date revisions, ensuring a minimum design/service life of 60 (sixty) years. All materials, structural systems, workmanship, durability requirements, and exposure conditions shall be selected accordingly.

Multi-storey RCC framed structure & filler walls of autoclaved aerated cement concrete (ACC) block. Internal partition – Half brick thick masonry in autoclaved aerated cement concrete (ACC) blocks **or** As per specifications of New and Emerging Technology issued vide CPWD circular No. 17/SE(TAS)/BMTPC/2022/105-H dated 24.03.2022 as amended time to time for project work

The structure shall be analyzed and designed for all possible combinations of gravity loads (dead and live loads), and lateral loads (earthquake load, wind loads as per applicable/ relevant BIS Codes).

A three-dimensional Etabs model will be formulated, incorporating all gravity, wind and seismic loads using Response Spectrum Method to develop the structural elements design and detailing for the building and ensure that the designed structural system provides satisfactory building response. The building shall be designed in accordance with the design requirements of relevant latest BIS Codes.

2.1 STANDARDS, CODES & REFERENCES

S. NO.	CODE	DESCRIPTION
1.	IS:456 – 2000 Amendment-5	Code of Practice for plain and Reinforced Concrete.
2.	IS: 800 – 2007 Amendment-1	Code of Practice for General Construction in Steel.
3.	IS-875 (Part 1) - 1987Amentment-1 and 2	Code of Practice for Design Loads (other than earthquake) for Buildings and structures – Unit weights of buildings and Stored material.
4.	IS-875 (Part 2) – 1987	Code of Practice for Design Load (other than earthquake) for buildings and structures-imposed loads.
5.	IS-875 (Part 3) -2015 Amendment-2	Code of Practice for Design Load (other than earthquake) for buildings and structures wind loads.

6.	IS-875 (Part 5) – 1987 Amendment - 1	Code of Practice for design loads (other than Earthquake) for buildings and structures – Special loads and load combinations.
7.	IS: 1893 – 2016 Amendment-2	Criteria for Earthquake resistant design of structures.
8.	IS: 13920 – 2016 Amendment-2	Ductile detailing of reinforced concrete structures subjected to seismic forced – Code of practice.
10.	IS: 16700 – 2017 Amendment-1/2	Criteria for Structural Safety of Tall Concrete Buildings
11.	IS 16172 - 2014	Reinforcement couplers for mechanical splice of bars in concrete
12.	IS 2950 – 1981 Amendment-1	Indian Standard Code of practice for design & construction of raft foundation – (Part- 1)
13.	IS 4326 – 2013 Amendment-1	Code of practice for earthquake resistant design and Construction of buildings.
14.	IS 3370 - 2021	Concrete structures for storage of liquids
15.	SP-16 - 1980	Structural use of concrete. Design charts for singly reinforced beams, doubly reinforced beams and columns.
16.	SP 34 - 1987	Handbook on Concrete Reinforcement & detailing
17.	Handbook- by Reynolds & Stedman	Reinforced Concrete Designer's Handbook.
18.	NBC SP 7 - 2016	National Building Code of India

2.2 LOAD CONSIDERATION

2.2.1 DEAD LOAD

The unit weight/mass of materials, and parts or components in a building that apply to the determination of dead loads in the design of buildings are taken in compliance with IS 875 (part 1) - 1987 Table-1.

Sr. No.	Material	Density (kN/m ³)	Density (kg/m ³)
a	Plain Cement Concrete	24.00	2446.5
b	Reinforced Cement Concrete	25.00	2548.4
c	Steel	78.50	8002.0
d	Earth Fill (Saturated)	20.00	2038.7
e	Soil	18.00	1834.9
f	Water in Saturated Fill	10.00	1019.4

Sr. No.	Material	Density (kN/m ³)	Density (kg/m ³)
g	Gravel (Rammed)	18.85	1921.5
h	Brick	20.00	2038.7
i	Tiles	28.00	2854.2
j	Marbles	26.70	2721.7
k	Glass	26.70	2721.7
l	Cement Mortar	20.00	2038.7
m	AAC Block (IS:2185-III)	10.00	1019.4
n	Mortar	20.80	2120.3

The minimum design superimposed dead load to be used for the detailed design of reinforced concrete floor structures shall be as follows:

Sr. No.	Description	Thickness (m)	Density (kN/m ³)	Load (kN/m ²)	Remarks
1	Floor Finish (Floors)	0.05	20.8	1.04	Density of Mortar = 20.8 kN/m ³
2	Floor Finish (Toilet Sunk)	0.15	20.8	3.12	Density of Mortar = 20.8 kN/m ³
3	Ceiling and Services	—	—	0.50	Assumed
4	Light Weight Partition	—	—	1.00	Assumed

Lightweight Partition does not include brick wall or block wall, which shall be considered separately.

2.2.2 IMPOSED LOAD

As per IS – 875 part 2 - 1987 Table - 1

S. No.	Building / Structure Use	Intensity (kN/m ²)	Remarks
1	Flat Roof (Accessible)	1.50	
2	Flat Roof (Inaccessible)	0.75	
3	Mechanical & Electrical Rooms, Fan Rooms, Pump Room, etc.	actual load	
4	Electrical Transformer Room	As per vendor	—
5	Commercial Shops, etc.	4.00 or actual equipment load (whichever is higher)	—
6	Lift Lobby, Lounge, Waiting Area, Garden	3.00	—
7	Corridors, Passages, Staircases (including fire escapes and lobbies)	4.00	—
8	Apartment Floor	2.00	—
9	Toilets, Bathrooms, Apartment Kitchen	2.00	—
10	Garage Floors / Parking Area / Repair Workshops (for vehicles ≤ 2.5 tonnes gross weight, including access ways and ramps)	2.50	—
11	Refuge Area (Similar to Corridors/Passages/Fire Escape)	4.00	
12	Lift Machine Room Floor	As per vendor	
13	Service Loads at Terrace (Equipments, Solar Panels, etc.)	As per vendor	
14	Overhead Tank Load	as per actual capacity	

2.2.3. HORIZONTAL LOADS ON PARAPETS WALLS AND BALUSTRADES

Stairways, landings and balconies and all parapets and handrails to roofs Shall be designed for all horizontal load intensity 2.25 kN/m as per Clause - 5.1 IS 875 Part-2 were Vertical load applicable, value is calculated.

2.2.4 WALL LOAD

Sr. No.	Description	Thickness (m)	Density (kN/m ³)	Calculation	Load (kN/m ²)
1	Brick Masonry Wall	0.230	25.0	0.230×25	5.75
2	Brick Masonry Wall	0.115	25.0	0.115×25	2.875
	Inner & Outer Plaster	0.030	20.8	$0.030 \times 20.8 \times 4$	2.50
3	Parapet Wall	0.230	25.0	0.230×25	5.75
	Inner & Outer Plaster	0.030	20.8	$0.030 \times 20.8 \times 1.5$	0.94

2.2.5 SLABS/SUNKEN SLAB LOAD

THICKNESS OF SLAB	THICKNESS x DENSITY	SELF WEIGHT OF SLAB
125 mm thick	0.125×25	3.125 kN/m ²
150 mm thick	0.15×25	3.75 kN/m ²
175 mm thick	0.175×25	4.375 kN/m ²
200 mm thick	0.200×25	5 kN/m ²

FLOOR FINISH

THICKNESS OF FLOOR FINISH	THICKNESS x DENSITY	SELF WEIGHT OF FLOOR FINISH
50 mm	0.050×20.80	1.04 kN/m ²
100 mm	0.100×20.80	2.08 kN/m ²

2.2.6. SEISMIC LOAD

Seismic Load is to be calculated as per IS 1893 Part-1: 2016 using Response Spectrum Method.

2.2.7. WIND LOAD

Parameters considered for wind load calculations is to be as per IS 875 Part 3 – 2015

2.3. LOAD COMBINATION

Structures shall be designed for the worst combination of loadings. All load actions shall be combined in the most unfavorable way for design of structural elements and stability check of the entire building structure.

2.3.1. LOAD COMBINATION FOR P-Δ ANALYSIS

An iterative P-delta analysis is performed in the analysis models to investigate the secondary effects on the structure.

Where DL = Dead load, LL = Superimposed live load, WL = Wind load, EQL = Earthquake load in x and y = Horizontal and z = Vertical direction.

2.4. HORIZONTAL DEFLECTION AND VERTICAL DEFLECTION

2.4.1. ALLOWABLE DEFLECTION

Allowable deflections under the serviceability limit state shall be determined in accordance with the nature of the design and recommendation of the relevant code of practice and standards.

2.4.2. DAMPING FOR CONCRETE

Damping for Concrete is taken as 2% for wind effect clause 6.2.2.4 IS 16700 – 2017 and damping. Taken as 5 % of critical damping for the purposes of estimating A_h in the design lateral force V_B of a building (As per Clause 7.2.1)

3. MATERIAL

3.1. CEMENT CONTENT

3.1.1. Maximum Cement Content

As per Cl. 8.2.4.2 of IS 456 Cement content not including fly ash and ground granulated blast furnace slag in excess of 450 kg/m³ should not be used unless special consideration has been given in design to the increased risk of cracking due to drying shrinkage in thin sections, or to early thermal cracking and to the increased risk of damage due to alkali silica reactions.

3.1.2. Minimum Cement Content

The minimum grade of concrete for plain and reinforced concrete shall be as per Table 5 as mentioned in Cl.6.1.2. of IS 456, and under any circumstances should not be less than 300 kg/m³.

4. WATER

The pH value of water shall be not less than 6 as per Cl. 5.4.2 of IS 456.

5. CONCRETE GRADES

- Recommended Mix for all RCC = minimum M 40
- P.C.C. Mix = M 15, M 10

6. STEEL REINFORCEMENT AND STRUCTURAL STEEL GRADE

6.1. High Yield Strength Deformed TMT Bars = Fe 500 (CRS) conformed to

IS 1786 – 2008, Mechanical properties of TMT bar grade Fe500: - (1) their yield strength (f_y) is 500N/mm², (2) ultimate tensile strength (f_u) is 600 N/mm², (3) The actual 0.2 % proof strength of steel bars based on tensile test must not exceed their characteristics 0.2 % proof strength by more than 20 %.

6.2. Pipes, Tubes & Rolled Structural Steel Sections grade = Fe 250/310/345/450, conformed to IS 226, IS 2062 and IS 800

6.3. No lapping of bars shall be allowed in RC columns and walls, when diameter of bars is 16 mm or higher, mechanical couplers as per IS 16172 shall be used to extend bars. If lapping of bars is required in exceptional case, relevant clauses of IS 13920 shall apply.

7. TYPE OF CONSTRUCTION & DESIGN LIFE

7.1. Conventional timber or MS formwork is used cast in situ concrete. In such type of construction, Formwork is used as a mold for column, wall and slab, in which fresh concrete is poured after a set period of time, the construction structure gathers required strength and thereafter the formwork is removed.

7.2. The design life of this structure has been assumed as 60 years.

8. WATER PROOFING

Waterproofing shall be applied to

- a) Bottom of Raft,
- b) Stitching/Grade Slab,
- c) U.G. Tank
- d) S.T.P. Tank
- e) Terrace
- f) O.H Tank
- g) Toilets
- h) Lift pit

9. ENVIRONMENTAL EXPOSURE CONDITIONS

The general environment condition is classified as mild as per IS 456-cl 8.2.2.1 to, which the concrete will be exposed during its working life. For which Concrete surfaces should be protected against weather or aggressive conditions

The minimum size of structural element required for fire 3 and 4-hour resistance are as per IS 456 - 2000 Table 16A.

10. CONCRETE COVER AND FIRE RESISTANCE REQUIREMENTS

The Structural element required to more fire resistance should be designed to possess an appropriate degree of resistance to flame penetration, heat transmission and failure.

According to fire resistance type 1 construction has been adapted for structure.

- a) Slab = 25 mm
- b) Beam = 40 mm
- c) Column = 40 mm
- d) Shear Wall = 40 mm
- e) Footing/Raft = 50 mm (As per Table no – 16, Clause 26.4.2.2 IS 456 -2000)
- f) Retaining Wall = 50 mm

As per NBC Clause No. 3.31 Table 1

- a) Column / Shear wall and Lift = 4 hours
- b) Slabs = 2 hours; Beam = 3 hours
- c) Stairs = 3 hours

11. EXCAVATION

Excavation shall be done as per recommendations of Geotechnical consultant. For excavation it is contractor's responsibility to design earth retention system.

In case of waterlogged site, water table shall be brought down by installing discharge point. The contractor shall prepare a scheme for discharging water volume from site.

12. RETAINING STRUCTURE

Retaining wall structure are designed to withstand lateral pressure due to earth filling, Surcharge and water pressure. Wall face in contact with earth shall be waterproof.

Water Retaining Structures foundation and walls shall be designed according to IS 456 & IS 3370. In addition, concrete for such structures shall be waterproof.

13. NON-TOWER AREA

Internal roads

6-meter-wide carriage way with 2% camber, 750 mm wide unpaved shoulders on both sides sloping outwards to drain off rain water. Paver finished bituminous road section will consist of 150 mm GSB, 150 mm WMM, 50 mm BM and 40 mm thick bituminous concrete. OR 150 mm thick vacuum dewatered M 30 concrete laid over 100 mm thick base of M10 concrete, in chequered bays of maximum 3×3 metre size. The grooves will be 5 mm wide, 50 mm deep and filled with suitable sealant (or as per service load 0.5 kN/sqm + Fire tender load over the specified area)

Footpath

200 mm high and 1200 mm wide footpath finished with 60 mm thick paver blocks of M30 and kerb stone.

14. FOUNDATION SYSTEM

Foundation designs are based on the Geo Technical Investigation and as per structural design intent

DESIGN BASIS REPORT – ELECTRICAL

1. General:

This detail design report to be prepared to elaborate the Electrical system design. The EPC Contractor shall propose 3 suitable MEPF design firms and one shall be finalized after considering their profile, work experience, preliminary proposal of building design etc.

The Electrical Installation work shall be carried out in accordance with the Indian Standard Code of Practice. It shall also be in conformity with the current Indian Electricity Rules and Regulations and requirements of the Local Electricity Supply Authority and Fire Insurance Regulations, so far as these become applicable to the installation.

Electrical work in general shall be carried out as per the following CPWD General Specifications for Electrical Works, amended up to date:

- Part-I – Internal Work – 2023
- Part-II – External Work – 2023
- Part-IV – Substation Work – 2013
- Part-VII–DG Set Work – 2013
(Amendment upto date)

Wherever these specifications call for a higher standard of material and/or workmanship than those required by any of the above-mentioned regulations and specifications, then the specification hereunder shall take precedence over the said regulations and standards.

Design Requirements –

- i) Sufficient lighting in the Common Areas like stair cases, lift lobbies etc.
- ii) Power supply to various consumers and services.
- iii) Power backup standby Generating System only for common area lighting and essential services such as lifts, STP, etc.
- iv) Low Voltage Equipment including Fire Alarm and CCTV systems.
- v) General Lighting / Power Layout for car parks and apartments, including Conventional Lightning Protection System.
- vi) Earthing System.
- vii) External Lighting Installation (50% solar lights with battery backup).
- viii) Complete Internal Lighting.
- ix) Complete Internal Electrical Work including low voltage systems for TV, Telephone, and Intercom System.

- x) FRLS PVC insulated copper wires shall be used for all sub-mains and final circuit wiring in conduit.
- xi) All life safety equipment cabling shall be of Fire Survival category.
- xii) Heavy Duty PVC conduit shall be used for wiring / extra low voltage wiring, e.g., Telephone cable and security co-axial cable, etc. Wherever concealed in concrete, heavy-duty PVC conduit shall be used. In all other areas, MS conduit shall be used in case of surface conduit installations such as risers, plant rooms, car park, and above false ceiling.
- xiii) XLPE Armoured cable/wire shall be used for all external cabling, including external and landscape lighting.
- xiv) Each floor/area slab/wall concealed electrical copper wiring/cabling/conduiting (Steel/PVC/GI) network including fan boxes, plastic conduits, wires/cables, etc.
- xv) Various types of LED lighting fixtures, fans, and exhaust fans.
- xvi) Switchboards, switches, plugs, fans, exhaust fans, regulators, etc.; Distribution boards, circuit breakers, MCB, RCCB, MCCB, junction boxes, meters, electrical panels (Low Voltage / Medium Voltage / High Voltage), earthing, etc.
- xvii) L.T. and M.V. cables laying including customized cable trays for multiple service installations with necessary supporting accessories, fittings, and fixtures, etc.

1. Design Philosophy:

Power distribution system to be designed keeping in view the following:

- i) Continuity and reliability of power supply.
- ii) Flexibility of operation.
- iii) Concentration/distribution of loads.
- iv) Safety of personnel and equipment.
- v) Investment and operational costs.
- vi) Compliance with various statutory provisions such as Indian Electricity Act and Rules, National Electrical Code and the relevant B.I.S. Specifications and State Electricity Authority' norms.
- vii) Easy future extensions/modifications.
- viii) Ease of maintenance.
- ix) Maximum interchangeability of equipment resulting in minimum inventories and spare parts.
- x) Minimum fire risk.
- xi) Simplicity of operation.

xii) Energy Conservation

To economize on the use of energy, following main systems are proposed to be adopted

- i) Adequate design to limit the losses in transmission and distribution system.
- ii) Use of energy efficient devices like light sources such as LED lamps.
- iii) Use of insulation on roof top to reduce air-conditioning load.
- iv) Use of capacitors at load centers to improve voltage and power factor to reduce distributional losses and also to avoid penalty by state electricity authority. All high efficiency motors will be used in the building.
- v) Variable Frequency Drives are proposed to be installed for hydro-pneumatic system for water supply

2. Load Requirement:

Transformer 800 kVA (Tentative)

Silent type DG set 350 KVA (Tentative)

The contractor shall carry out the final calculations in accordance with the prevailing local bye-laws and the National Building Code (NBC), whichever is more stringent. The capacities mentioned in the Design Basis Report (DBR) represent the minimum requirements; any additional ratings or capacities required beyond these shall be provided by the contractor. After completing the load calculations, the contractor shall coordinate with the power service provider to facilitate the provision of infrastructure facilities and ensure timely submission of all necessary documents, building plans, and prescribed standard forms required by power service provider for the installation of the transformer and meter.

The transformer and meters shall be supplied and installed by the power service provider. However, all electrical works from the meter to the flats and other areas of the building shall fall within the contractor's scope. The contractor shall also provide all necessary infrastructure—such as the substation, platforms, earthing, electrical room and related provisions—required by the service provider for the installation of the transformer and meters

3. Selection of Size of DG Sets:

100% DG backup load has been considered for Utilities and Tower's common areas.
DG Set Configuration:

Power backup has been envisaged through standby DG sets. 1 Nos. 350 KVA DG set has been provided.

Silent type DG sets shall be located at Ground level with required platform.

- Generators shall be provided with controller for AMF.
- DG Panel shall be connected from LT Panel for supply of essential services.

- DG Panel shall have suitable PLC for interlocking, load sharing.
- All Meter boards are proposed in stilt area having sub main from individual flats. LT supply from Main LT Panel to meters shall be fed through Block Panel.
- Non-flammable MPP type automatic power factor improvement capacitors shall be used.
- The capacitor panel shall be part of the Main LT Panel.
- The power factor shall be maintained to 0.95.

4. L.T. Panel , Block Panels & Bus Trunking (Rising main):

The panel shall be completely modular and compartmentalized with Form 4B Separation as per IEC 61439. The panel shall be free standing floor mounted type. The panel shall be manufactured as per IEC 61439.

The L.T. Panel will have air circuit breakers for controlling the feeders of more than 630 Amp. rating whereas feeders of 630 Amp. and below will have MCCBs to control them. LT panel shall supply power to Block Panels, Common Services Panel and Common Area Panels/Lift Panels. The power of stilt floor to 11th Floor and mummy through bus trunking /Rising main systems. Block Panel feeds the meter boards for flats in stilt floor of every tower.

5. Wiring System:

Internal wiring shall be done as per CPWD specifications. PVC insulated 1.5 Sq. mm/2.5 Sq. mm/ 4 sq.mm./6 sq. mm. copper conductor FRLS wires of 650/1100 Volts grade for lighting, fans, 6A/16A/6pin outlets conforming to IS-694-1990 (Amended to date), in single core formation, shall be used. The outer sheath colors shall be in accordance with R-Y-B(Red-Yellow-Blue), Black for Neutral and Green for Earthing. Normally the size used shall be 1.5 sq. mm for lighting outlets and for circuit wiring, 6/4.0sq. mm - for power outlets and 20A AC outlets. PVC conduits shall be used.

6. Low Current Services:

Cable TV System:

Cable TV Points are proposed as per CPWD PAR 2025.

Wiring and Conduiting up to LV shaft will be made to provide Cable TV signal to each user. However high side equipment shall be provided by service provider. Set top box required to process received signal into a suitable form for interfacing to a TV shall be required at each apartment.

Voice (Tele-Communication System) & Internet Point:

Telephone point as per CPWD PAR 2025. Wiring and Conduiting up to & within the LV shaft is included. One internet point for in drawing/dining room.

Tag Block which further on, shall be connected to individual flats of all the Towers.

7. CCTV System:

IP based CCTV system for building security comprising of PTZ / fixed camera, cabling, recording, display system and hard ware software support

8. Earthing:

Earthing system shall be provided in accordance with IS: 3043-1987 with latest amendments and other statutory regulations.

Copper earthing shall be provided for neutral earthing for transformer/DG.

G.I. earthing system is proposed for body earthing.

The body earthing for HT Panel and transformer shall be GI earth plate and all MV panels shall be done to a common earth bus connected to two separate and distinct earth electrodes.

All the cable trays shall be provided with suitable size of 2 nos. G.I. strips in the full length. All electrical equipment shall be earthed with 2 nos. G.I. strips/wires

9. Fire Detection & Alarm System:

Fire Alarm shall be Intelligent Fire Detection & Alarm System.

All arrangements for firefighting shall be provided with as per latest NBC / State Fire Authorities Norms.

10. Lighting System:

Internal electrification of various areas shall be designed with following illumination levels, as per IS, in Parking / Service areas: to be confirmed at site with Lux meter

S.No.	Area	General Lighting Level (In Lux)	Type of Illumination
i.	Corridor / Staircase	100 Lux	LED Light
ii.	Lift Lobby	250 Lux	LED Light
iii.	Services Areas	200 Lux	LED Light

11. Conventional Lightning Protection and Aviation Lighting:

Lightning Protection will be provided with Conventional lightning protection system in accordance with National/international codes for the protection of Buildings and Allied Structures against Lightning as per latest IS/IEC standard and 'Latest NBC' (as per up to date amendment).

Aviation Obstacle Lights: Aviation Obstacle lights (AOL) shall be placed on the mummy of the towers.

12. Solar System:

a) Ongrid, roof top solar PV plant of 50 kWp installed capacity, Power conditioning unit. Net metering and data monitoring system.

b) Solar water heating system of 5 KLD

13. External Lighting:

Street lighting with LED light fixtures of reputed make and hot dipped galvanized self-standing poles of 6 m & 4 m for street lighting to meet BIS requirements of road lighting.

14. GI Cable tray :

The GI cable tray is designed for electrical supply, LV cables, CCTV etc. in separate compartments & will be suspended as boxed / closed cable trays from the ceiling / beam above. Typically, these will also have light, CCTV Camera.

15. Signage system.

The signages system is designed for occupant flat number, floor number, locations & informatory /directional/warning signages as required.

16. Electrical vehicle Charger

EV charging system is designed in parking area for charging the electrical vehicle (4 wheelers and 2 wheelers) as per requirement.

17. Elevators

Elevators is used for easy access of people from stilt floor to 11th floor. Here we consider 13 Passenger elevators and service lift and fire tower lift in the building.

18. PA SYSTEM

PA system is used for common area, Lift Lobby, Stilt Floor, for announcement of emergency alerts.

19. Lightning Arrester

The lightning protection system shall be based on conventional Lightning protection system and shall be carried out as per IS / IEC – 62305-3 as relevant with GI 25X5 mm Strip.

20. Electrical Fittings

Modular switches and sockets. Energy efficient LED luminaries of minimum 110 lumens per watt. 5-star, brushless direct current motor fans of 1200 mm sweep. Occupancy sensors. Master switch outside hostel and guest house rooms. Fittings will be provided as per furniture layout. Minimum two 5A and one 15A sockets will be provided in each room. Fans and lights shall be fitted symmetrically as per furniture layout.

21. Exhaust fans

125 mm inline duct booster exhaust ventilation fan.

22. Distribution Boards

Powder coated, prewired DBs with detachable cassette for safe removal of MCBs, RCCBs and terminal blocks

23. Ventilation system

corridors will have supply air fans, ducts, grills, and exhaust air fans. The lift shaft, lift lobby, and staircase will have pressurization system consisting of axial flow fan. Fan motor and casing shall be suitable for smoke exhaust application having thermal rating of 250° C for 2 hours as per BS EN12101-3-2015. The ventilation system will be designed for minimum 12 air change per hour and pressure differential of 25 to 30 Pa

DESIGN BASIS REPORT – PLUMBING, FIRE FIGHTING

1.0 PLUMBING SYSTEM DESIGN CODES, STANDARDS AND REFERENCE DOCUMENTS

S.No	I.S. Code	Description / Title
1	IS:1536	Specification for centrifugally cast (spun) iron pressure pipes for water, gas and sewage.
2	I.S:783	Width and depth of trench for R.C.C pipes
3	I.S: 780	Specification for sluice valve for water works purposes.
4	I.S:7558	Code of practice for domestic hot water installation.
5	I.S: 1742	Code of practice for building drainage
6	I.S: 2064	Code of practice for selection, installation and maintenance of Sanitary appliances
7	I.S:2065	Code of practices for water supply in building
8	I.S: 2183 (Part-I)	Code of practice for Plumbing in multistoried buildings.
9	I.S:778	Specifications for copper alloy gate, globe and check valves for water works purposes.
10	I.S:5312 (Part-I)	Specifications for swing check type reflux (Non return) valve
11	I.S. : 12820	Code of practice for dimensional requirements of rubber gaskets for mechanical joints and push on joints for use with cast iron pipes and fittings for carrying water, gas & sewage.
12	I.S. : 1172	Code of basic requirements for water supply, drainage & sanitation (4th Rev.)
13	I.S : 13095	Butterfly valves for general purposes
14	I.S : 458	Precast Concrete pipes (with or without reinforcement) (3rd rev.) (Amendment 2)
15	I.S : 1726	C.I. Manhole covers & frames (3rd rev.)
16	I.S : 12592(part1)	Pre-cast concrete manhole covers and frames: Part 1 Covers (Amendment 3)
17	I.S : 12592(part2)	Pre-cast concrete manhole covers and frames: Part 2 Frames
18	I.S : 4985	Un plasticized PVC pipes for potable water supplies (2nd Rev) (Amendment 2)
19	I.S : 4985	UPVC pipes

20	I.S : 15778	CPVC pipes
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2.0 DESIGN OBJECTIVES

The design objectives include energy efficiency, green eco-friendly design, and centralized location of services installation to ensure easy maintenance, state of the art technology, fast track installation and compliance to all statutory regulations. The PHE (Public Health Engineering) system for the projects all be designed keeping in view the following:

- Water supply demand like domestic and flushing water.
- Requirement of adequate and uniform pressure availability for domestic and Flushing water lines in Toilets and various consumption points.
- Adequate storage of water in underground water tanks.
- Efficient sanitary and storm water drainage system.
- Rain water Storage & Reuse in Building

3.0 CONCEPT OF SYSTEM

The following concept for Plumbing Services is envisaged:

- Adequate storage of raw water and domestic water for one & Half day as per the NBC-2016.
- Sewage and Sludge collection system based on BIS: 1742 and applicable standards.
- Sewage Treatment Plant (MBBR) comprising of preliminary, biological and tertiary treatment for recycling of the effluent. The treated effluent shall be used for, flushing in toilets and for gardening

/ irrigation purpose.

- Storm/rain water drainage system from various levels of the building, runways and roads collection and discharge.
- Separate water supply distribution system shall be installed for domestic as well as flushing system.

4.0 Design Concept

The water from municipal supply (or Rain water collection) will be brought into compartment no-1, will act, as fire water Tank, shall be with the capacity of 150 KLD, then brought at compartment 2 will act as domestic tank then after will carry compartment-3 which will work as flushing water tank

The compartment No. 2 termed as domestic water tank shall transfer the water through Pumping system to Terrace Water reservoir & from here the water shall transfer through pumping system to overhead domestic water tank for Building and the Water shall be supplied to the toilets, pantries and other fixtures from overhead water tank by gravity. Same System shall be provided for Flushing water supply.

5.0 Water Supply System

The purpose of a water supply system is to convey the water through a gravity system to the respective wet points of the consumption area.

1. Approaches To Planning:

The Plumbing services for the project are designed keeping in view the following:

1.1 Requirement of adequate and equal pressure of cold & hot water in toilets, kitchen and other designated areas.

1.2 The water storage capacity shall be adequate to ensure availability of water for one day (in UGT) and half a day (in OHT). (As per NBC-2016 guidelines)

1.3 Recycling of treated waste water (from sewage treatment plant) for flushing, horticulture, and car wash (in non-human contact areas only).

1.4 Implementation of requirements of MoEF relating to rain water harvesting, water conservation, solar energy use etc.

1.5 Drainage and water supply provision for landscape layout.

1.6 Water conservation using low flow fixtures.

5.1 Design Criteria

Water Demand will be based on Residential Building, maintenance staff and visitors.

According to NBC-2, Part -9, 135 liters per capita per day demand has been taken for Residences Fire Demand has been taken as per NBC-1, part-4.

Minimum underground water Tank capacity

SN	Description	KLD
1	DOMESTIC WATER DEMAND (Storage capacity of Domestic Water Requirement (1.5 DAYS REQUIREMENT))	75
2	Flushing water Tank	30
3	Fire Fighting Underground Tank	100
	Total	205

Minimum overhead water Tank capacity

SN	Description	KLD
1	Domestic Cold water Demand	20
2	Domestic Hot water Demand	5
3	Flushing water Tank	10
4	Fire Fighting Tank	10
	Total	45

Domestic water pump (Automatic): minimum 3 no's having capacity 7.5 HP or as per design.

Internal Plumbing System

SN	System Designed	Two Pipe System
	Soil / Waste & Vent Pipe / Rain Water / Water Supply	
a)	All main soil / waste & Vent pipes and branches	40mm to 110mm UPVC Confirming to IS: 13592
b)	Internal Water Supply Pipes	CPVC SDR-11 for Concealed & Exposed inside the building
c)	Water Supply pipes running in shaft & terrace	CPVC SDR-11 & Schedule – 25 & 40 mm for shaft & terrace
d)	Water Supply pipes running in External (Buried in ground)	CPVC Pipe -IS.4985.2000
e)	Wash Basin waste connection to floor traps.	up IS: 4985 (6 kg pressure rating) / 32/40mm Dia GI heavy class with malleable cast Iron fittings Conforming to IS: 1239
f)	External Sewerage Pipe	UPVC or DWC SN8 As per IS: 16098 or R.C.C. NP - 3
g)	Manhole Covers	FRP cover Conforming to EN 124
h)	Piping for Rainwater & Balcony drain	UPVC Confirming to IS: 13592 or uPVC IS: 4985 (6 kg pressure rating)
i)	External Storm Water Drain	UPVC or DWC SN8 As per IS: 16098 or R.C.C. NP-3 / P.C.C Drain
j)	Drain Covers	Precast R.C.C. / FRP Cover

Sanitary Fixtures and Faucets

Sanitary fixtures shall be provided as per CPWD specification.

Valves & Fittings for Water Supply

- Valves on branches, main line and delivery line of pumps shall have ball valve / gate
- Valve /butterfly valve of good approved quality, as per Requirement.

- Flexible connections will be provided where the pipes are crossing the expansion joints.
- For Water supply systems with pumps, max. Design velocity would be 2.5 m/s.

6.0 SEWERAGE SYSTEM

The purpose of the sewerage system is to convey the sewage through gravity pipes to the Sewage treatment plant (STP). Design of sewerage network and sewage treatment plant has been done in accordance with the Manual on Sewerage and Sewage Treatment published by Ministry of Urban Development, GOI, and New Delhi. HDPE pipes of 300, 200, and 100 mm diameter laid to minimum slope of 300:1. Manholes at 30 m intervals

7.0 Sewage Treatment Plant (MBBR – 60 KLD)

The sewage treatment plant of 60 KLD of MBBR Technology type is proposed to treat the sewage coming from toilets, kitchen and other wet areas. The sewage is conveyed through the sewerage system to an equalization tank/sump from where it is pumped to the treatment plant. Treated water from STP will be collected into a sump and pumped for horticulture purpose, landscaping purpose, green area irrigation. The bidder shall make all necessary provisions for storage, distribution, and reuse of STP-treated water in compliance with applicable standards and local authority guidelines.

7.1 Design Criteria

The design of the sewerage system is based on the design criteria given in the manual on “Sewerage and Sewage Treatment” - Central Public Health and Environmental Engineering Organization (CPHEEO), Govt. of India and the prevailing standard design practices. Some of the criteria are briefly described as: Capacity of STP is 60 KLD.

8.0 STORM WATER DRAINAGE

Pipe diameters for main external storm water drain will be 250 mm dia in line with local authority requirements.

All construction specifications with respect to the manhole sizes etc. will be respected and followed and as per NBC-2, Part -9, Section 2 Drainage and Sanitation Clause-4.5.10.

The complete storm water drainage system shall be designed with UPVC OR DWC, Drain channel, clay brick masonry chambers and manholes etc.

8.1 Planning of Storm Water Drainage System

The rainwater from the roof / terraces, open surface areas, as per design, shall be collected in the masonry chambers, collection chambers and shall be ultimately connected to the main storm- water drainage system.

Manhole shall be provided with all the junctions, change of directions, change in diameters and as per connection requirement from every unit

8.2 Rain Water Disposal (Internal):

Rain Water from the various roofs will be drained through rain water vertical down take. These vertical down take pipes will be located suitably inside the shafts or embedded inside the wall. All the terraces will be sloped in a slope of 1:150 or 1:133 downwards towards the vertical pipes. Rain Water khurras of suitable size with MS/CI grating shall be provided at roof level with each rain water vertical down takes.

Rain water disposal shall be designed as per NBC i.e. 110 mm dia covers an area 56 sq.m. @ 150.0 mm/hour rainfall as per NBC. (Rainfall data from Meteorological Department)

Storm / rain water drainage system from the roof terrace and various levels of the buildings, including balcony drains will be collected in Rain Water Collection Tank. After de-silting the collected rain water will be pumped into the Underground Fire Water Storage tank for domestic use. Surface and other run-off water shall be directed to rain water recharge pits through drain channels or a piped network. All vertical rain water pipes and fittings shall be made of Rigid PVC Conforming to IS 13592 Type A.

8.3 Rain Water Disposal (External):

Rain Water Catchments: It is proposed to provide an underground piping or drain channel network connected to the catch basins located in paved areas for catchments of rain water. The rain water in the landscaped areas will be absorbed by the soil & percolate into the ground. For excess water in the landscape area, a surface runoff system connected to the piping/channel network may be planned. All horizontal rain water pipes and fittings shall be made of RCC and Drain Channel shall be made of CC Blocks.

9.0 Water Conservation Features:

Water conserving flushing fixtures operating on infrared sensors shall be used for Urinals. Water demand meters shall be installed to monitor daily consumption patterns & regulate water flows to each area in use. Rainwater shall recharge the ground water by means of rainwater harvesting. Dual flush cisterns shall be used for WC flushing. Water regulators in wash basins shall be installed. Fixtures with aerators and low flow rate shall be installed.

10.0 Sanitary Fixtures and Fittings:

Final selection of sanitary fixtures, C.P. fittings and accessories shall be made by PMC / SEEPZ. We recommended use of green rated CP Fittings and Sanitary Fixtures.

11.0 Rainwater harvesting

2 pits each of size 1.5×2×2 m with borewell of 100 mm diameter and 15 m depth.

FIRE FIGHTING SYSTEM

1.0 DESIGN CODES, STANDARDS AND REFERENCE GUIDELINE SOURCES

S.N	Reference Code	Description / Title
1	I.S:778	Specifications for copper alloy gate, globe and check valves for water works purposes.
2	I.S:5312 (Part- I)	Specifications for swing check type reflux (Non return) valve
3	I.S:908	Specifications for fire hydrant (2nd Revision)
4	I.S:5290	Specifications for landing valve
5	I.S:901	Specifications for coupling double male and female instantaneous pattern for firefighting (3rd revision)
6	I.S:884	Specifications for first aid hose reel for firefighting (1st Revision)
7	I.S:903	Specifications for fire hose delivery couplings branch pipe, nozzles and nozzles spanner (3rd revisions)
8	I.S:3844	Code of practice for installation and maintenance of internal fire hydrants and hose reels on promises
9	NBC -2016	National Building Code for Firefighting & Fire Alarm System
10	MIDC fire department	

2.0 Objective

The main objective of firefighting system will be protecting loss to Life and Property duly complying or exceeding statutory provisions. However, scope of this report will be to highlight the proposed firefighting measures, which include installation of sprinkler for the entire facility, external/ internal hydrants and hand-held fire extinguishers (fire extinguishers) gas-flooding system.

The fire protection system will provide the following:

- Life safety of occupants-passengers, staff and fire service personnel.
- Property protection - building and contents.
- Compliance with all statutory requirements.
- Protection of operational function of the building.

The system meets the requirement of NBC-2016 Code.

3.0 Fire Requirements of the Buildings

The firefighting system shall be provided mainly as per the National Building Code of India 2016 - Part IV and UDCPR other relevant I.S codes and it shall be consisting of

DESIGN BASIS REPORT FOR GRIHA COMPLIANCE

1. Introduction

GRIHA is an acronym for **Green Rating for Integrated Habitat Assessment**. The term *GRIHA* is derived from Sanskrit, meaning '**Abode**'. Human habitats—such as buildings—interact with the environment in multiple ways. Throughout their life cycle, from construction through operation to demolition, buildings consume resources such as energy, water, and materials, and generate waste, either directly (municipal waste) or indirectly (emissions from electricity generation).

GRIHA aims to minimize a building's resource consumption, waste generation, and overall ecological impact, keeping them within nationally acceptable limits and benchmarks. It is an indigenous building rating system specifically developed to address and assess non-air conditioned or partially air-conditioned buildings.

GRIHA is designed to rate commercial, institutional, and residential buildings in India, focusing on national environmental concerns, regional climatic conditions, and indigenous solutions.

The rating system is structured around various criteria grouped into the following sub-categories:

1. **Sustainable Site Planning**
2. **Water Conservation and Management**
3. **Energy Optimization**
4. **Sustainable Building Materials**
5. **Waste Management**
6. **Health and Well-being**
7. **Building Operation and Maintenance**
8. **Innovation**

DESIGN BASIS REPORT FOR MISCELLANEOUS WORKS

1. Signage System for Towers:

Signage system shall be provided at various locations starting from boundary wall gate to each building/ tower as per nomenclature approved by Engineer-In-Charge. The signage system shall be so designed to help/ guide visitors with the shortest available route to his destination which can be selected from a logically segregated directory of all destinations.

The contractor to design based on the National Building Code 2016, supply, install & commission signage systems for following areas: -

- i. Way to indicate parking numbers for vehicles and people entering the campus to cover all internal roads and other areas for effective guidance.
- ii. Internal signages for individual quarter/residential unit numbers, lifts, stairs, lobby with floor no. marking and other miscellaneous service rooms including warning signs as per norms.
- iii. External signage for main gate, tower location, tower numbers, shops, letter box and other public amenities in the campus.
- iv. To mark various utilities like toilets, DG room, pump room, STP, basement, parks and other services.

Any other area required by National Building Code 2016 & directed by Engineer-in-charge.

2. Horticulture works

Grassing in select areas, tree and shrub plantation.

3. Column Guard and Marking in Parking Area

This specification covers the supply, fabrication, fixing, and painting of column guards, corner guards, and pavement/parking markings in the stilt surface parking areas to ensure protection of structural members and proper traffic movement.

Column guards shall be fabricated from heavy-duty MS angle / pipe or rubber / HDPE guard as per architectural or client requirement.

Recommended steel guard:

- MS angle 50×50×5 mm or MS pipe 50 NB (medium class).
- Rubber corner guard: High-impact resistant moulded EPDM rubber, 100 mm × 100 mm × 800 mm long, with reflective strips.

Fabrication and Fixing:

- For MS type:
 - Guard to be U-shaped / L-shaped as per column geometry.

- Fixed to floor using anchor bolts (Hilti / Fischer make) with 10 mm bolts embedded min. 50 mm.
- Bottom of guard to be sealed with bitumen or epoxy grout to avoid rust.
- For rubber type:
 - Fixed to the column using stainless steel bolts or epoxy adhesive.
 - Height: 600 mm to 800 mm from finished floor level.
 - Thickness: minimum 10 mm rubber with 2 yellow reflective strips.

Finish:

- Steel guards: Two coats of epoxy paint (black and yellow bands) over one coat of zinc chromate primer.
- Rubber guards: Reflective yellow strips shall be 75 mm wide, alternately spaced at 300 mm.

Floor / Traffic Markings

a. Material: Marking with thermoplastic paint with glass beads or epoxy-based traffic paint.

- White for general markings.
- Yellow for caution / parking bay lines.
- Red for no-parking / restricted zones.

b. Application:

- Surface to be clean and dry before application.
- Line thickness: 2 mm (minimum).
- Line width: 100 mm for lane marking, 75 mm for parking bay line.
- Directional arrows and hatchings as per approved parking layout.

c. Reflectivity:

- Glass beads: 250 gm/m² evenly sprinkled on hot thermoplastic paint.

• 4. Technical data for lifts: -

MACHINE ROOM LESS (MRL) LIFTS		
1	Type	Passenger Elevator
2.	No. of lifts	Three (03) lifts shall be installed. Provision for two (02) additional lifts for future installation shall be made, and the unused lift shafts shall be fully enclosed and closed at all floor levels with proper safety gates.
3.	Load	13 Passengers (884 Kgs. Appr.)
4.	Speed	1.5 Mtrs/Second with precision leveling
5.	No. of floors stops and openings	S+11 Floors
6.	Size of Hoist way (Available)	1900mmx2400mm
7.	Inside size of lift car	1100*2000mm
8.	Head room	4.8 M

Brief specifications

1.	Power supply	415 ±10%V, 3 Phase 50Hz Alternate Current Supply	
2.	Operation	Duplex full collective control (with or without attendant) with one set of two call buttons for each lift on each landing for all the blocks	
3.	Machinery	Gearless traction machine i.e. lift machine in which motive power is transmitted to the driving sheave from motor with intermediate reduction gearing and has brake drum mounted directly on the motor shaft.	
5.	Depth of the pit well	1800mm	
6.	Car Enclosure	Lift for 13 Passengers and Service Lift : Made out of stain less steel matt finish panels (scratch resistant as approved by Engineer-In-charge/ Architect) of approved design with 35mm dia stainless steel handrail on rear side with 35mm space from wall.	
7.	Car & Landing door operation	Automatic with closed loop system.	
8.	Car Entrance	Centre opening sliding Stainless steel matt finish doors (1 hour fire rated)	
9.	Hoistway Entrance	Centre opening sliding doors (1 hour fire rated) of stainless steel panel of approved design.	
10.	Car lighting and fan	LED lights (in two rows) to provide bright and diffused lighting and cross flow fan on the top of the cabin. Both the fan and light to be made concealed with powder coated & vapour cured decorative grill and acrylic light shades.	
11.	False Ceiling	Ceiling of Powder coated M.S. frame and perforated stainless steel panels of approved design with arrangement of air throw from cabin fan suitably concealed.	
12.	Flooring in CAR	All lifts will be with 20 MM thick Granite flooring .	
13.	Other Inclusions	a)	Combined luminous hall button and digital car position indicator at all floors.
		b)	Integral full height car operating panel with luminous Buttons, digital car position indicator combined with direction arrows, overload warning indicator in car.
		c)	Battery Operated Alarm Bell

			and Emergency Light including provision of chargeable batteries and battery charger.
		d)	Fireman's switch at main lobby in Podium/ground floor.
		e)	3 Way Hand free Intercom system in car with press and speak facility. Provision of intercom with instrument at 3 places.
		f)	Voice Synthesizer in the car.
		h)	Automatic Rescue Device complete with rechargeable maintenance free batteries .
		i)	Multi level infra red safety along-with mechanical safety on entrance door. Lowest beam 25 mm and highest 1823 mm above floor level
		j)	Dot Matrix LED direction / position indicator in all landings. Floor enunciator for announcing recorded voice of the floor number on arrival accompanied by greetings/ music.
		k)	Sensor to switch off lights and fans when lift is not in use.
		l)	Shuttering for installation of lifts.
		m)	Auto self levelling
		n)	Home landing feature
		o)	False call cancellation
		p)	Pit switch
		q)	Speed governor
		r)	Suspension ropes of steel cable
		s)	5 pin 6 amp plug point for hand lamp shall be fitted on the top of the car.
		t)	SS Button with SS cover with Braille
14.	Controller		A.C.Variable Voltage Variable Frequency of microprocessor based technology shall be provided to control starting, stopping and speed of elevator and automatically apply

		brake, if any of the safety devices operate or power supply fails. Control cabinet will be provided with doors and adequate ventilation. Control relays shall have silver cadmium contacts. The controller will also provide with over load and phase reversal protection of the motor. Necessary Selenium rectifier will be provided to convert AC to DC Supply for operating circuits in the controller.
15.	Fascia Plates	Rectangular CI Fascia Plates at all landings between sill and the header of the next landing.
16.	Machine	Gearless traction machine i.e. lift machine in which motive power is transmitted to the driving sheave from motor with intermediate reduction gearing and has the brake drum mounted directly on the motor shaft.
17.	Electrical control board	This shall be cubical type control board.
18.	Protection Devices	<ul style="list-style-type: none"> . Re-levelling . Thermistor protection . Earth leakage protection . Voltage drop protection . Over speed protection . Phase failure and phase reversal protection . Full load bypass
19	Maintenance	Free maintenance service for five year.

5. CCTV Surveillance System (IP Based)

1. Scope of Work

The work includes supply, installation, testing, and commissioning of a complete IP-based CCTV surveillance system, including cameras, network switches, NVR, cabling, mounting accessories, and all necessary hardware/software for a fully functional system.

2. System Overview

- The CCTV system shall be IP-based, scalable, and compatible with ONVIF standards.
- The system shall provide 24x7 real-time monitoring, recording, and playback capabilities.
- The system shall support remote viewing via LAN/internet using secured login credentials.

Dome Camera

S.No.	Features	Specification
	General	
1	Imaging Device	1/2.7" Progressive scan CMOS
2	Maximum resolution	5MP - (2592X1944)
3	Video Compression	H.265/H.265+/H.264/H.264+/MJPEG
4	Video Quality Adjustment	8Kbps ~ 8Mbps
5	ONVIF	ONVIF profile S,G & T
6	Minimum Illumination	Color 0.05lux @ F1.2 ; B/W 0 lux (IR ON)
7	IR Range	45 Mtr.
8	Day/Night Method	AUTO ICR
9	Signal-to-Noise ratio	50 db minimum
10	Electronic shutter Range	Auto/Manual, 1/5 - 1/100000s
11	Dynamic Range	120 db minimum
12	Back light compensation	HLC, WDR(120db)
13	Digital Noise reduction	3D Noise Reduction
14	Analytics	Face Detection, Customer Flow statistics, Heat Map, Human & Vehicle Detection, Pedestrian Intrusion Detection & Line cross Detection. Queue length detection, Regional population statistics, Stationary Object Detection, Tempering detection, Rare Sound Detection, License plate detection.
15	Privacy Zone	4 Configurable windows
16	Region of Interest	8
17	Motion Detection	On/OFF (1 to 8 Level)
18	Image setting	Compression, 3D digital noise reduction (ON/OFF) color, brightness, sharpness, contrast, white balance, exposure control, backlight compensation
19	Alarm	I/O, 1-IN and 1-OUT

20	Audio	1 In & 1 Out
21	Audio Code type	G711A/G711U
22	Audio Type	Two Way
23	Electrical	
24	Network	RJ-45 (10/100Base-T)
25	Power Input	PoE 802.3af/12VDC
26	Power Consumption	Max 4.55W
27	Local Storage	Yes 256GB
28	Cloud Storage	Yes
29	Cloud Overwrite	OFF/Automatic/1/3/7/14/30/90Days
30	Video Type	RF/AVI/MP4
	Mechanical	
31	Lens	2.7 - 13.5 mm auto focus motorized optical zoom
32	Angular Field of View	Horizontal: 107-33.6°, Vertical:54.7-18.9°, Diagonal: 133.7-37.6°
	Video	
33	Video Encoding	H.265, H.264 Smart Codec bit rate control (CBR & VBR)
34	Video Quality Adjustment	8Kbps ~ 8Mbps
35	Video Stream	Quad-Stream(Main/Sub/Mobile/Fourth)
36	Maximum frame Rate	50Hz: 25fps@5MP/4MP/3MP/2MP/960P/720P/VGA /Q VGA
		60Hz: 30fps@5MP/4MP/3MP/2MP/960P/720P/VGA /Q VGA
37	Multiple streaming	Quad Stream
		Main Stream: 2592x1944,2592x1520, 2048x1536, 1920x1080, 1280x960, 1280x720 Sub Steam: 1920x1080, 640x480, 320x240

		Mobile Stream: 640x480, 320x240 Fourth Stream: 640x480, 320x240
38	Supported Protocols	IPv4, IPv6, IPv4 DNS, IPv6 DNS, TCP/IP, HTTP, HTTPS, UPnP, RTSP/RTP/RTCP, IGMP, SMTP, DHCP, NTP, FTP, DNS, DDNS, SNMP,NFS/SMB/CIFS, SSL/TLS, P2P.
39	Security	IP address filter; complicated password; Authenticated username and password, AES 256
40	Mobile Surveillance	Support mobile surveillance through app on android and i-phone
41	Supported browser	IE8,9,10,11, Chrome 44/lower, Firefox 51/lower, Safari 11/lower
42	Video backup file type	RF, AVI, MP4
43	Snapshot	Yes
44	Hardware Reset	YES
45	User	
46	Max. User	7 users
47	Multicast	Unlimited
48	Security Access	Multiple user access level with password protection Ip filtering, HTTPS.
49	Environmental	
50	Operating Temperature	-30~+55°C
51	Operating Humidity	less than ≤ 95% RH
52	Housing	IP66 & IK10
53	Camera & Housing type	Dome, Metal
54	Certification	UL,CE,FCC,BIS

Bullet Camera

S.No.	Features	Specification
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	General	
1	Imaging Device	1/2.7" Progressive scan CMOS
2	Maximum resolution	5MP - (2592X1944)
3	Video Compression	H.265/H.265+/H.264/H.264+/MJPEG
4	Video Quality Ajustment	8Kbps ~ 8Mbps
5	ONVIF	ONVIF profile S,G & T
6	Minimum Illumination	Color 0.01lux @ F1.2 ; B/W 0 lux (IR ON)
7	IR Range	45 Mtr.
8	Day/Night Method	AUTO ICR
9	Signal-to-Noise ratio	50 db minimum
10	Electronic shutter Range	Auto/Manual, 1/5 - 1/100000s
11	Dynamic Range	120 db minimum
12	Back light compensation	HLC, WDR(120db)
13	Digital Noise reduction	3D Noise Reduction
14	Analytics	Face Detection, Customer Flow staistics, Heat Map, Human & Vehicle Detection, Pedestrian Intrusion Detection & Line cross Detection. Queue length detection, Regional population statistics, Stationaary Object Detection, Tempering detection, Rare Sound Detection, License plate detection.
15	Privacy Zone	4 Configurable windows
16	Region of Intrest	8
17	Motion Detection	On/OFF (1 to 8 Level)
18	Image setting	Compression, 3D digital noise reduction (ON/OFF) color, brightness, sharpness, contrast, white balance, exposure control, backlight compensation
19	Alarm	I/O, 1-IN and 1-OUT
20	Audio	1 In & 1 Out
21	Audio Code type	G711A/G711U

22	Audio	Two Way
23	Electrical	
24	Network	RJ-45 (10/100Base-T)
25	Power Input	PoE 802.3 af/12VDC
26	Power Consumption	Max 6.72W
27	Local Storage	Yes 256GB
28	Net HDD	Yes
29	Cloud Storage	YES
30	Cloud Overwrite	OFF/Automatic/1/3/7/14/30/90Days
	Video Type	RF/AVI/MP4
31	Mechanical	
32	Lens	2.7 - 13.5 mm auto focus motorized optical zoom
	Angular Field of View	Horizontal: 107 - 33.6°, Vertical:54.7 - 18.9°, Diagonal: 133.7 - 37.6°
33	Video	
34	Video Compression	H.265/H.265+/H.264/H.264+/MJPEG
35	Video Encoding	H.265, H.264 Smart Codec bit rate control (CBR & VBR)
36	Video Quality Ajustment	8Kbps ~ 8Mbps
	Video Stream	Quad-Stream(Main/Sub/Mobile/Fourth)
37	Multiple streaming	Quad Stream Main Stream: 2592x1944,2592x1520, 2048x1536, 1920x1080, 1280x960, 1280x720 Sub Steam: 1920x1080, 640x480, 320x240 Mobile Stream: 640x480, 320x240 Fourth Stream: 640x480, 320x240
38	Maximum frame Rate	50Hz: 25fps@5MP/4MP/3MP/2MP/960P/720P/VGA/Q VGA

39		60Hz: 30fps@5MP/4MP/3MP/2MP/960P/720P/VGA/Q VGA
40	Supported Protocols	IPv4, IPv6, IPv4 DNS, IPv6 DNS, TCP/IP, HTTP, HTTPS, UPnP, RTSP/RTP/RTCP, IGMP, SMTP, DHCP, NTP, FTP, DNS, DDNS, SNMP,NFS/SMB/CIFS, SSL/TLS,
41	Security	IP address filter;complicated password;Authenticated username and password, AES 256
42	Mobile Surveillance	Support mobile surveillance through app on android and i-phone
43	Supported browser	IE8,9,10,11, Chrome 44/lower,Firefox 51/lower, Safari 11/lower
44	Video backup file type	RF, AVI, MP4
45	Hardware Reset	YES
46	User	
47	Max. User	7 users
48	Multicast	Unlimited
49	Security Access	Multiple user access level with password protection Ip filtering, HTTPS.
50	Environmental	
51	Operating Temperature	-30~+55°C
52	Operating Humidity	less than ≤ 95% RH
53	Housing	IP67 & IK10
54	Camera & Housing type	Bullet, Metal
55	Certification	UL,CE,FCC,BIS

**SECTION 7 - GENERAL CONDITIONS OF
CONTRACT(GCC)**

1 GENERAL

1.1 Tenets of Interpretation

Unless where the context requires otherwise, throughout the contract:

- 1) The heading of these conditions shall not affect the interpretation or construction thereof.
- 2) Writing or written includes matter either whole or in part, in digital communications, manuscript, typewritten, lithographed, cyclostyled, photographed, or printed under or over signature or seal or digitally acceptable authentication, as the case may be.
- 3) Words in the singular include the plural and vice-versa.
- 4) Words importing the masculine gender shall be taken to include other genders, and words importing persons shall include any company or association or body of individuals, whether incorporated or not.
- 5) Terms and expression not herein defined shall have the meanings assigned to them in the contract Act, 1872 (as amended) or the Sale of Goods Act, 1930 (as amended) or the General Clauses Act, 1897 (as amended) or of INCOTERMS, (current edition published by the International Chamber of Commerce, Paris) as the case may be.
- 6) Any reference to 'Services' shall be deemed to include the incidental Works/ Goods also.
- 7) Any generic reference to GCC shall also imply a reference to SCC as well.
- 8) In case of conflict, provisions of SCC shall prevail over those in GCC.
- 9) Any reference to 'Contract' shall be deemed to include all other documents (inter-alia GCC, SCC) as described in GCC-clause.
- 10) Any reference to any legal Act, Government Policies or orders shall be deemed to include all amendments to such instruments, from time to time, till date.
- 11) GCC-clause (Book Examination clause) shall not apply unless invoked explicitly in the contract.

1.2 Definitions

In the contract, unless the context otherwise requires:

- 1) "Agent" is a person employed to do any act for another or represent another in dealings with a third person. In the context of public procurement, an Agent is a representative participating in the Tender Process or Execution of a Contract for and on behalf of its principals.
- 2) "Allied Firm" are all business entities that are within the 'controlling ownership interest' (ownership of or entitlement to more than twenty-five percent of the company's shares or capital or profits) or 'control' (including the right to appoint a majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholder agreements or voting agreements) of the principal firm acting alone or together

or through one or more juridical persons. All successor firms or assigns of the principal firm shall be considered as allied firms.

- 3) "Beneficiary" (of Services/ Works) means the person for whom the Services/ Works are to be delivered as stipulated in the contract.
- 4) "bid" (including the term 'tender', 'offer', 'quotation' or 'proposal' in specific contexts) means an offer to supply goods, services or execution of works made as per the terms and conditions set out in a document inviting such offers.
- 5) "Bidder" (including the term 'Bidder', 'Bidder' or 'service provider' in specific contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a Tender Process.
- 6) "Bill of Quantities" (including the term Price Schedule or BOQ) means the priced and completed Bill of Quantities forming part of the bid.
- 7) "Commercial Bank" means a bank, defined as a scheduled bank under section 2(e) of the Reserve Bank of India Act, 1934.
- 8) "Contract" (including the terms 'Purchase Order' or 'Supply Order' or 'Withdrawal Order' or 'Work Order' or 'Consultancy Contract' or 'Contract for Services', 'rate contract' or 'framework contract' or 'Letter of Award – LoA' (letter or memorandum communicating to the contractor the acceptance of his bid) or 'Agreement' or a 'repeat order' accepted/ acted upon by the contractor in specific contexts), means a formal legal agreement in writing relating to the subject matter of procurement, entered into between the Procuring Entity and the contractor on mutually acceptable terms and conditions and which are in compliance with all the relevant provisions of the laws of the country;
- 9) "Contractor" (including the terms 'Supplier' or 'Service Provider' or 'Bidder' or 'Firm' or 'Vendor' or 'Manufacturer' or 'Successful Bidder' in specific contexts) means the person, firm, company, or a Joint Venture with whom the contract is entered into and shall be deemed to include the contractor's successors (approved by the Procuring Entity), agents, subcontractor, representatives, heirs, executors, and administrators as the case may be unless excluded by the terms of the contract;
- 10) "Contract Manager" means the Procurement Officer or any other officer or a third-party agency who has been assigned the authority to take all actions on behalf of the Procuring Entity during the execution of the contract by the contractor;
- 11) "Day", "Month", "Year" shall mean calendar day/ month or year (unless reference to financial year is clear from the context).
- 12) "Drawing" means the drawing or drawings stipulated in or annexed to the Specifications or the Tender Document/ Contract;
- 13) "Equipment" means the contractor's machinery and vehicles brought temporarily to the Site for the performance of Service.

- 14) "General Conditions" means the General Conditions of Contract, also referred to as GCC.
- 15) "Goods" (including the terms 'Stores', 'Material(s)' in specific contexts) includes all articles, material, commodity, livestock, medicines, furniture, fixtures, raw material, consumables, spare parts, instruments, machinery, equipment, industrial plant, vehicles, aircrafts, ships, railway rolling stock assemblies, sub-assemblies, accessories, a group of machines comprising an integrated production process or such other categories of goods or intangible, products like technology transfer, licenses, patents or other intellectual properties (but excludes books, publications, periodicals, etc., for a library), in specific contexts), procured or otherwise acquired by a Procuring Entity. Any reference to Goods shall be deemed to include specific small work or some services that are incidental or consequential to the supply of such goods;
- 16) "Government" means the Central Government or a State Government as the case may be and includes agencies and Public Sector Enterprises under it, in specific contexts;
- 17) "Inspection" means activities such as measuring, examining, testing, analysing, gauging one or more characteristics of the goods or services or works, and comparing the same with the specified requirement to determine conformity.
- 18) "Intellectual Property Rights" (IPR) means the rights of the intellectual property owner concerning a tangible or intangible possession/ exploitation of such property by others. It includes rights to Patents, Copyrights, Trademarks, Industrial Designs, Geographical indications (GI).
- 19) "Joint Venture" means a Joint Venture or a Consortium (that is an association of several persons, or firms or companies - also referred to as JV/C)
- 20) "Materials" means all supplies, including consumables, used by the contractor for service performance or use by his staff.
- 21) "Outsourcing of Services" means deployment of outside agencies on a sustained long-term basis (for one year or more, excluding short-term stand-alone Services) for the performance of routine Services (e.g., Security Services, Horticultural Services, Janitor/Cooking/Catering/Management Services for Hostels and Guest Houses, Cleaning/Housekeeping Services, Errand/Messenger Services and so forth) that were traditionally being done in-house in the Government.
- 22) "Parties": The parties to the contract are the "Contractor" and the "Procuring Entity", as defined in this clause;
- 23) "Performance Security" (includes the terms 'Security Deposit' or 'Performance Bond' or 'Performance Bank Guarantee' or other specified financial instruments in specific contexts) means a monetary guarantee to be furnished by the successful Bidder or Contractor in the form prescribed for the due performance of the contract;
- 24) "Procurement" or "public procurement" (or 'Purchase', or 'Government Procurement/ Purchase' including an award of Public-Private Partnership projects, in specific contexts) means the acquisition of Goods/ Services/ works

by way of purchase, lease, license or otherwise, either using public funds or any other source of funds (e.g. grant, loans, gifts, private investment etc.) of goods, works or services or any combination thereof, by a Procuring Entity, whether directly or through an agency with which a contract for procurement services is entered into, but does not include any acquisition without consideration. The term “procure”/ “procured” or “purchase”/ “purchased” shall be construed accordingly;

- 25) “Procuring Entity” means the entity in The Procuring Organization procuring Goods, Works, or Services;
- 26) “Procurement Officer” means the officer signing the Letter of Award (LoA) and/or the contract on behalf of the Procuring Entity;
- 27) “Service(s)” (including the term ‘Non-consultancy services’ or ‘Outsourcing of Services’ in specific contexts) are defined by exclusion as services that cannot be classified as Consultancy Services. Services (non-Consultancy) involve routine, repetitive physical, procedural, and non-intellectual outcomes for which quantum and performance standards can be tangibly identified and consistently applied and are bid and contracted on such basis but does not include the appointment of an individual made under any law, rules, regulations, or order issued in this behalf. Any reference to Services shall be deemed to include the supply of goods or performance of consultancy service or small works, which are incidental or consequential to such services;
- 28) “Special Conditions” means Special Conditions of Contract, which override the General Conditions, also referred to as SCC.
- 29) “Specification” or “Technical Specification” means the drawing/ document/ standard or any other details governing the construction, manufacture or supply of goods or performance of services that prescribes the requirement to which goods or services have to conform as per the contract.
- 30) “Signed” means ink signed or digitally signed with a valid Digital Signature as per IT Act 2000 (as amended from time to time). It also includes stamped, except in the case of Letter of Award or amendment thereof.;
- 31) “Sub-Contractor” means a person or corporate body with an agreement with the contractor to carry out a specific part of the contract that may or may not include working on the Site.
- 32) “Temporary Works” means works designed, constructed, installed, and removed by the contractor needed during the Services' performance.
- 33) “Variation” means an instruction given by the Contract Manager, which varies the scope, quantum or performance standards of the Service performed.
- 34) “Tender”; “Tender Document”; “Tender Enquiry” or “Tender Process”: ‘Tender Process’ is the whole process from the publishing of the Tender Document till the resultant award of the contract. ‘Tender Document’ means the document (including all its sections, appendices, forms, formats, etc.) published by the Procuring Entity to invite bids in a Tender Process. The Tender Document and Tender Process may be generically referred to as “Tender’ or ‘Tender Enquiry’, which would be clear from context without ambiguity.

35)“Works” refer to any activity involving construction, fabrication, repair, overhaul, renovation, decoration, installation, erection, excavation, dredging, and so on, which make use of a combination of one or more of engineering design, architectural design, material and technology, labour, machinery, and equipment.

1.3 Document Conventions

All words and phrases defined in GCC-clause are written as ‘Capitalised word’ and shall have the defined meaning. The rest of the words shall be as per grammar, inter-alia ‘Services’ shall indicate definition as given in the GCC while ‘services’ shall have usual dictionary meaning.

1.4 Abbreviations:

Abbreviation	Definition
AITB	Appendix to Instructions To Bidders
BOQ	Bill of Quantities
BSD	Bid Securing Declaration
DPIIT	Department for Promotion of Industry and Internal Trade
EFT	Electronic Funds Transfer
EPFO	Employees Provident Fund Organization
ESI	Employees State Insurance
GCC	General Conditions of Contract
GeM	Government e-Marketplace
GST	Goods and Services Tax
GSTIN	GST Identification Number
GTE	Global Tender Enquiry (International Competitive Bidding)
HSN	Harmonized System of Nomenclature
IEM	Independent External Monitor
IPR	Intellectual Property Rights
INR	Indian Rupee
ITB	Instructions To Bidders
JV	Joint Venture
JV/C	Joint Venture/ Consortium

Abbreviation	Definition
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LoA	Letter of Award (Acceptance)
MII	Make in India
MSE	Micro and Small Enterprises
MSME	Micro Small and Medium Enterprises
MSMED	MSME Development (Act)
NEFT	National Electronic Funds Transfer
NIT	Notice Inviting Tender
PAN	Permanent Account Number
PC	(Indian) Penal Code
PPD	Procurement Policy Division
PQB	Pre-Qualification Bidding
PVC	Price Variation Clause
RAP	Reverse Auction Process
RCM	Reverse Charge Mechanism
SC	Scheduled Caste
SCC	Special Conditions of Contract
ST	Scheduled Tribe
TCS	Tax Collected at Source
TDS	Tax Deducted at Source
TIA	Tender Inviting Authority
TIS	Tender Information Summary

2 OBLIGATIONS OF THE CONTRACTOR

2.1 Obligations of the Contractor

2.1.1 Subject to and on the terms and conditions of this Agreement, the Contractor shall undertake the survey, investigation, design, engineering, procurement, and construction of the Project and observe, fulfil, comply with and perform all its obligations set out in this Agreement or arising hereunder.

2.1.2 The Contractor shall comply with all Applicable Laws and Applicable Permits (including renewals as required) in the performance of its obligations under this Agreement.

2.1.3 Save and except as otherwise provided in this Agreement or Applicable Laws, as the case may be, the Contractor shall, in discharge of all its obligations under this Agreement, confirm with and adhere to Good Industry Practice at all times.

2.1.4 The Contractor shall remedy any and all loss or damage to the Project, occurring on or after the Appointed Date and until the date of Provisional Certificate, with respect to the Works completed prior to the issuance of the Provisional Certificate and/or Completion Certificate, with respect to the Works referred to in the Punch List, at its own cost, save and except to the extent that any such loss or damage shall have arisen from any default of the Authority or on account of a Force Majeure Event in which case the provisions of GCC Clause shall apply.

2.1.5 The Contractor shall remedy any and all loss or damage to the Project during the Defects Liability Period at its own cost, to the extent that such loss or damage shall have arisen out of the reasons specified in Clause GCC.

2.1.6 The Contractor shall, at its own cost and expense, in addition to and not in derogation of its obligations elsewhere set out in this Agreement:

- make, or cause to be made, necessary applications to the relevant Government Instrumentalities with such particulars and details as may be required for obtaining Applicable Permits set forth in Schedule-E and obtain and keep in force and effect such Applicable Permits in conformity with Applicable Laws;
- procure, as required, the appropriate proprietary rights, licences, agreements and permissions for Materials, methods, processes, know-how and systems used or incorporated into the Project;
- make reasonable efforts to maintain harmony and good industrial relations among the personnel employed by it or its Sub-contractors in connection with the performance of its obligations under this Agreement;
- ensure and procure that its Sub-contractors comply with all Applicable Permits and Applicable Laws in the performance by them of any of the Contractor's obligations under this Agreement;
- always act in a manner consistent with the provisions of this Agreement and not cause or fail to do any act, deed or thing, whether intentionally or otherwise, which may in any manner be violative of any of the provisions of this Agreement;
- support, cooperate with and facilitate the Authority in the implementation and operation of the Project in accordance with the provisions of this Agreement;
- ensure that the Contractor and its Sub-contractors comply with the safety and welfare measures for labour in accordance with Applicable Laws and Good

Industry Practice;

- keep, on the Site, a copy of this Agreement, publications named in this Agreement, the Drawings, Documents relating to the Project, and Change of Scope Orders and other communications sent under this Agreement, and provide access to all these documents at all reasonable times to the Authority's Engineer and its authorised personnel;
- cooperate with other contractors employed by the Authority and ~~person~~ of any other public authority; and
- not interfere unnecessarily or improperly with the convenience of the public, or the access to and use and occupation of all the existing facilities within the Right of Way, irrespective of whether they are public or in the possession of the Authority or of others.

2.1.7 The Contractor shall undertake all necessary superintendence to plan, arrange, direct, manage, inspect and test the Works.

3.2 Obligations relating to sub-contracts and any other agreements

3.2.1 The Contractor shall not sub-contract Works comprising more than 25 % (Twenty-five per cent) of the Contract Price and shall carry out Works for at least 75 % (Seventy-five per cent) of the total Contract Price directly under its own supervision and through its own personnel. The Parties expressly agree that for the purposes of computing the value of sub-contracts under this Clause, the Contract Price shall exclude any sub-contract for the procurement of goods and equipment such as [bitumen, cement, steel and equipment]. {The Parties agree that the obligation of the Contractor to carry out Works corresponding to at least 75 % (Seventy percent the Contract Price shall be discharged solely by the Lead Member.}

The works contract may provide for the contractor to get specified works executed from sub-contractors included in the pre-qualification application or later agreed to by the Procuring Entity, with a caveat that the responsibility for all sub-contract work rests with the prime contractor. Sub-contracting may be for specialized items of work, such as reinforced earth retaining walls, pre-stressing works, and so on.

Procurement of material, hiring of equipment or engagement of labor will not mean sub-contracting. The total value of subcontracting work Should not exceed the per cent of the contract price specified in the contract (twenty-five percent). Sub-contracting by the contractor without the approval of the Procuring Entity shall be a breach of contract, unless explicitly permitted in the contract.

3.2.2 In the event any sub-contract for Works, or the aggregate of such sub-contracts with any Sub-contractor, exceeds 5% (five percent) of the Contract Price, the Contractor shall communicate the name and particulars, including the relevant

experience of the sub-contractor, to the Authority prior to entering into any such sub-contract. The Authority shall examine the particulars of the sub-contractor from the national security and public interest perspective and may require the Contractor, no later than 15 (fifteen) business days from the date of receiving the communication from the Contractor, not to proceed with the sub-contract, and the Contractor shall comply therewith.

3.2.4 It is expressly agreed that the Contractor shall, at all times, be responsible and liable for all its obligations under this Agreement notwithstanding anything contained in the agreements with its Sub-contractors or any other agreement that may be entered into by the Contractor, and no default under any such agreement shall excuse the Contractor from its obligations or liability hereunder.

3.3 Obligations relating to employment of foreign nationals

The Contractor acknowledges, agrees and undertakes that employment of foreign personnel by the Contractor and/or its Sub-contractors and their sub contractors shall be subject to grant of requisite regulatory permits and approvals including employment/residential visas and work permits, if any required, and the obligation to apply for and obtain the same shall and will always be of the Contractor. Notwithstanding anything to the contrary contained in this Agreement, refusal of or inability to obtain any such permits and approvals by the Contractor or any of its Sub-contractors or their sub-contractors shall not constitute Force Majeure Event, and shall not in any manner excuse the Contractor from the performance and discharge of its obligations and liabilities under this Agreement.

3.4 Obligations relating to Contractor's personnel

3.4.1 The Contractor shall ensure and procure that the personnel engaged by it or by its Sub-contractors for performance of its obligations under this Agreement are at all times appropriately qualified, skilled and experienced in their respective functions in conformity with Applicable Laws and Good Industry Practice.

3.4.2 The Authority's Engineer may, for reasons to be specified in writing, direct the Contractor to remove any member of the Contractor's or Sub-contractor's personnel from the Project. Provided that any such direction issued by the Authority's Engineer shall specify the reasons for the removal of such person.

3.4.3 The Contractor shall, on receiving a direction from the Authority's Engineer under the provisions of Clause ensure and procure the removal of such person or persons from the Project with immediate effect. The Contractor shall further ensure that such persons have no further connection with the Project.

3.5 Obligations relating to Contractor's care of the Works

The Contractor shall bear full risk in and take full responsibility for the care of Works, and of Materials, goods and equipment for incorporation therein, on and from the Appointed Date and until the date of Provisional Certificate, with respect to the Works completed prior to the issuance of the Provisional Certificate, and/or Completion Certificate, with respect to the Works referred to in the Punch List, save and except to

the extent that any such loss or damage shall have arisen from any default or neglect of the Authority.

3.6 Obligations relating to electricity, water and other services

The Contractor shall be responsible for paying all charges of electricity/power, water and other services facilitated by SEEPZ Authority

3.7 Unforeseeable difficulties

Except as otherwise specified in the Agreement:

- the Contractor accepts complete responsibility for having foreseen all difficulties and costs of successfully completing the Works;
- the Contract Price shall not be adjusted to take account of any unforeseen difficulties or costs; and
- the Scheduled Completion Date shall not be adjusted to take account of any unforeseen difficulties or costs.

For the purposes of this Clause, unforeseeable difficulties include physical conditions like man-made or natural physical conditions including sub-surface and hydrological conditions which the Contractor encounters at the Site during execution of the Works.

5.1 Representations and warranties of the Contractor

The Contractor represents and warrants to the Authority that:

- ✓ it is duly organised and validly existing under the laws of India, and has full power and authority to execute and perform its obligations under this Agreement and to carry out the transactions contemplated hereby;
- ✓ it has taken all necessary corporate and other actions under Applicable Law to authorise the execution and delivery of this Agreement and to validly exercise its rights and perform its obligations under this Agreement;
- ✓ this Agreement constitutes its legal, valid and binding obligation, enforceable against it in accordance with the terms hereof, and its obligations under this Agreement will be legally valid, binding and enforceable obligations against it in accordance with the terms hereof;
- ✓ it is subject to the laws of India, and hereby expressly and irrevocably waives any immunity in any jurisdiction in respect of this Agreement or matters arising thereunder including any obligation, liability or responsibility hereunder;
- ✓ the information furnished in the Bid and as updated on or before the date of this Agreement is true and accurate in all respects as on the date of this Agreement;
- ✓ the execution, delivery and performance of this Agreement will not conflict with,

result in the breach of, constitute a default under, or accelerate performance required by any of the terms of its memorandum and articles of association or any Applicable Laws or any covenant, contract, agreement, arrangement, understanding, decree or order to which it is a party or by which it or any of its properties or assets is bound or affected;

- ✓ there are no actions, suits, proceedings, or investigations pending or, to its knowledge, threatened against it at law or in equity before any court or before any other judicial, quasi-judicial or other authority, the outcome of which may result in the breach of this Agreement or which individually or in the aggregate may result in any material impairment of its ability to perform any of its obligations under this Agreement;
- ✓ it has no knowledge of any violation or default with respect to any order, writ, injunction or decree of any court or any legally binding order of any Government Instrumentality which may result in any material adverse effect on its ability to perform its obligations under this Agreement and no fact or circumstance exists which may give rise to such proceedings that would adversely affect the performance of its obligations under this Agreement;
- ✓ it has complied with Applicable Laws in all material respects and has not been subject to any fines, penalties, injunctive relief or any other civil or criminal liabilities which in the aggregate have or may have a material adverse effect on its ability to perform its obligations under this Agreement;
- ✓ no representation or warranty by it contained herein or in any other document furnished by it to the Authority or to any Government Instrumentality in relation to Applicable Permits contains or will contain any untrue or misleading statement of material fact or omits or will omit to state a material fact necessary to make such representation or warranty not misleading;
- ✓ no sums, in cash or kind, have been paid or will be paid, by it or on its behalf, to any person by way of fees, commission or otherwise for securing the contract or entering into this Agreement or for influencing or attempting to influence any officer or employee of the Authority in connection therewith;
- ✓ all information provided by the {selected bidder/ members of the Consortium} in response to the Request for Qualification and Request for Proposals or otherwise, is to the best of its knowledge and belief, true and accurate in all material respects;
- ✓ all undertakings and obligations of the Contractor arising from the Request for Qualification and Request for Proposals or otherwise shall be binding on the Contractor as if they form part of this Agreement; and
- ✓ nothing contained in this Agreement shall create any contractual relationship or obligation between the Authority and any Sub- contractors, designers,

consultants or agents of the Contractor.

5.2 Representations and warranties of the Authority

The Authority represents and warrants to the Contractor that:

- it has full power and authority to execute, deliver and perform its obligations under this Agreement and to carry out the transactions contemplated herein and that it has taken all actions necessary to execute this Agreement, exercise its rights and perform its obligations, under this Agreement;
- it has taken all necessary actions under Applicable Laws to authorise the execution, delivery and performance of this Agreement;
- it has the financial standing and capacity to perform its obligations under this Agreement;
- this Agreement constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms hereof;
- it has no knowledge of any violation or default with respect to any order, writ, injunction or any decree of any court or any legally binding order of any Government Instrumentality which may result in any material adverse effect on the Authority's ability to perform its obligations under this Agreement;
- it has complied with Applicable Laws in all material respects;
- it has good and valid right to the Site and has the power and authority to grant the Right of Way in respect thereof to the Contractor; and

5.3 Disclosure

In the event that any occurrence or circumstance comes to the attention of either Party that renders any of its aforesaid representations or warranties untrue or incorrect, such Party shall immediately notify the other Party of the same. Such notification shall not have the effect of remedying any breach of the representation or warranty that has been found to be untrue or incorrect nor shall it adversely affect or waive any obligation of either Party under this Agreement.

6.1 Disclaimer

- 6.1.1 The Contractor acknowledges that prior to the execution of this Agreement, the Contractor has, after a complete and careful examination, made an independent evaluation of the Request for Qualification, Request for Proposals, Scope of the Project, Specifications and Standards, Site, local conditions, physical qualities of ground, subsoil and geology, traffic volumes, suitability and availability of access routes to the Site and all

information provided by the Authority or obtained, procured or gathered otherwise, and has determined to its satisfaction the accuracy or otherwise thereof and the nature and extent of difficulties, risks and hazards as are likely to arise or may be faced by it in the course of performance of its obligations hereunder. Save as provided in Clause, the Authority makes no representation whatsoever, express, implicit or otherwise, regarding the accuracy, adequacy, correctness, reliability and/or completeness of any assessment, assumptions, statement or information provided by it and the Contractor confirms that it shall have no claim whatsoever against the Authority in this regard.

- 6.1.2 The Contractor acknowledges and hereby accepts to have satisfied itself as to the correctness and sufficiency of the Contract Price.
- 6.1.3 The Contractor acknowledges and hereby accepts the risk of inadequacy, mistake or error in or relating to any of the matters set forth in Clause above and hereby acknowledges and agrees that the Authority shall not be liable for the same in any manner whatsoever to the Contractor, or any person claiming through or under any of them, and shall not lead to any adjustment of Contract Price or Scheduled Completion Date.
- 6.1.4 The Parties agree that any mistake or error in or relating to any of the matters set forth in Clause above shall not vitiate this NIT, or render it voidable.
- 6.1.5 In the event that either Party becomes aware of any mistake or error relating to any of the matters set forth in Clause above, that Party shall immediately notify the other Party, specifying the mistake or error.
- 6.1.6 Except as otherwise provided in this NIT, all risks relating to the Project shall be borne by the Contractor; and the Authority shall not be liable in any manner for such risks or the consequences thereof.

7.1 Performance Security

- 7.1.1 The Contractor shall, for the performance of its obligations hereunder, provide to the Authority, within 15 (fifteen) days of the date of this Agreement, an irrevocable and unconditional guarantee, for an amount equal to 5% (three per cent) of the Contract Price, from a Nationalised Bank/Scheduled Bank, (the "**Performance Security**"). The Performance Security shall be initially valid up to the stipulated date of completion plus 60 days beyond that. In case the time for completion of works gets extended, the contractor shall get the validity of Performance Guarantee extended to cover such extended time for completion of work.
- 7.1.2 Notwithstanding anything to the contrary contained in this Agreement, the Parties agree that in the event of failure of the Contractor to provide the Performance Security in accordance with the provisions of Clause and within the time specified therein or such extended period as may be provided by the Authority, in accordance with the provisions of Clause, the Authority may encash the Performance Security and appropriate the proceeds thereof as Damages, and thereupon all rights, privileges, claims and entitlements of the

Contractor under or arising out of this Agreement shall be deemed to have been waived by, and to have ceased with the concurrence of the Contractor, and this Agreement shall be deemed to have been terminated by mutual agreement of the Parties.

- 7.1.3 In the event the Contractor fails to provide the Performance Security within 15 (fifteen) days of the date of this Agreement, it may seek extension of time for a period not exceeding a further 15 (fifteen) days on payment of Damages for such extended period in a sum calculated at the rate of 0.05% (zero point zero five per cent) of the Contract Price for each day until the Performance Security is provided.

7.2 Appropriation of Performance Security

- 7.2.1 Upon occurrence of a Contractor Default, the Authority shall, without prejudice to its other rights and remedies hereunder or in law, be entitled to encash and appropriate from the Performance Security the amounts due to it as Damages for the Contractor's Default. Upon such encashment and appropriation from the Performance Security, the Contractor shall, within 30 (thirty) days thereof, replenish, in case of partial appropriation, to its original level the Performance Security, and in case of appropriation of the entire Performance Security provide a fresh Performance Security, as the case may be, and the Contractor shall, within the time so granted, replenish or furnish fresh Performance Security as aforesaid failing which the Authority shall be entitled to terminate the Agreement in accordance with Article 21. Upon such replenishment or furnishing of a fresh Performance Security, as the case may be, the Contractor shall be entitled to an additional Cure Period of 30 (thirty) days for remedying the Contractor Default, and in the event of the Contractor not curing its default within such Cure Period, the Authority shall be entitled to encash and appropriate such Performance Security as Damages, and to terminate this Agreement in accordance with Article 21.

7.3 Release of Performance Security

The Authority shall release the Performance Security within 60 (sixty) days of the completion record of project.

7.4 Retention Money

- 7.4.1 From every payment for Works due to the Contractor in accordance with the provisions of Clause **Money**) subject to the condition that the maximum amount of Retention Money shall not exceed 5% (five per cent) of the Contract Price.
- 7.4.2 Upon occurrence of a Contractor's Default, the Authority shall, without prejudice to its other rights and remedies hereunder or in law, be entitled to appropriate the relevant amounts from the Retention Money, the Authority shall deduct 6% (six per cent) thereof as guarantee money for performance of the obligations of the Contractor during the Construction Period (the "**Retention** as Damages for such Contractor's Default).

- 7.4.3 Retention Money/Security deposited shall be release upon expiry of Defect liability period of two years from the date of completion record of project.
- 7.4.4 Authority reserves the right of part or full forfeiture of security deposit in addition to other claims in the event of contractor's failure to fulfil any of the contractual obligations or in the event of termination of contract as per terms and conditions of contract.

8.0 Labour Codes and Related Obligations

8.1 Independent Contractor

The contractor's status shall be that of an independent contractor and Primary Employer of staff deployed during the contract by him or his sub-contractors or other associates. The contractor, its employees, agents, and subcontractors performing under this Contract are not employees or agents of the Procuring Organisation or Procuring Entity or Central or State Government or their agencies/ Enterprises, simply by Services delivered under this Contract.

8.1.1 Obligations of the contractor under Labour Codes and Rules

- ✓ In cases where Services are to be performed by the contractor at the premises of the Procuring Entity or Beneficiary of Services, the contractor shall comply with the provisions of the Labour Codes including Code on Wages, 2019, The Industrial Relations Code 2020, Code on the Social Security 2020, and The Occupational Safety, Health and Working Conditions 2020, and Draft Rules made thereunder, as modified from time-to-time, wherever applicable and shall also indemnify the Procuring Entity from and against any claims under the aforesaid Labour codes and the Rules.
- ✓ The contractor shall obtain a valid licence under the aforesaid Labour codes and the Rules as modified from time to time before the commencement of the contract and continue to have a valid licence until the completion of the contract. Any failure to fulfil this requirement, the Procuring Entity shall treat it as a breach of contract for default as per the contract and avail any or all remedies thereunder.
- ✓ In respect of all labour directly or indirectly employed in the contract for the performance of the contractor's part of the contract, the contractor shall comply with or cause to comply with the provisions of the aforesaid Labour codes and the Rules wherever applicable. The contractor shall be solely responsible for submitting all the necessary returns under these Codes and the Rules. Nevertheless, the contractor shall submit monthly returns to the Procuring Entity to confirm compliance with such Codes and rules. Failure to do so shall entitle Procuring Entity to take any measure to ensure compliance to such codes and rules by the contractor and his associates, including, but not limited to, withholding contractor's on-account bills.
- ✓ The contractor shall pay the wages as per the Code on Wages to their workers not below the rate of minimum wages, as notified by the State Government or Central Government, whichever is higher, through the bank transfer. The

contractor shall, notwithstanding the contract's provisions to the contrary, cause to be paid the wages to labour directly or indirectly engaged on the contract, including any engaged by his Sub-Contractors in connection with the said contract as if he had immediately employed the labour. The Procuring Entity shall, without any commitments or being obliged to do, may its discretion, monitor that such payments are being made. The contractor shall be required to submit, every month, documentary evidence in the form of a Bank Statement of having transferred the gross minimum wages to each worker. Failure to do so shall entail Procuring Entity taking up any measure to ensure the payment of wages including, but not limited to, withholding contractor's on-account bills.

- ✓ In every case in which, by virtue of the provisions of the aforesaid Labour codes and the Rules, the Procuring Entity is obliged to pay any amount of wages to a workman employed by the contractor or his Sub-Contractor in execution of the contract or to incur any expenditure in providing welfare and health amenities required to be provided under the aforesaid Labour codes and the Rules or to incur any expenditure on account of the contingent liability of the Procuring Entity due to the contractor's failure to fulfil his statutory obligations under the aforesaid Labour codes and the Rules the Procuring Entity shall recover from the contractor, the amount of wages so paid or the amount of expenditure so incurred, and without prejudice to the rights of the Procuring Entity under the aforesaid Labour codes and the Rules, the Procuring Entity shall be at liberty to recover such amount or part thereof by deducting it from the security deposit and/ or from any sum due by the Procuring Entity to the contractor whether under the contract or otherwise. The Procuring Entity shall not be bound to contest any claim made against it under the aforesaid Labour codes and the Rules except on the contractor's written request, and upon giving the Procuring Entity complete security for all costs, for which the Procuring Entity might become liable in contesting such claim. The decision of the Procuring Entity regarding the amount recoverable from the contractor as stated above shall be final and binding on the contractor.

8.1.2 Occupational Safety, Health, Working Conditions, Social Security, and Industrial Relations Requirements:

As per Labour Codes, which included Code on Wages, 2019, The Industrial Relations Code 2020, Code on the Social Security 2020, and The Occupational Safety, Health and Working Conditions 2020 and rules thereunder, the following provisions shall be ensured by the contractor.

(1) Provisions for Workers:

- ✓ At his own expense, the contractor shall make adequate arrangements for the housing, supply of drinking water, and provision of clean sanitation, including urinals, etc., for his staff and workers, directly or through the petty contractors or sub-contractors.

- ✓ The contractor shall also provide a temporary creche (Bal-mandir) where 50 or more workers are employed at a time.
 - ✓ Suitable sites on Procuring Entity's land, if available, but without any obligation to do so, may be allotted to the contractor for the erection of labour camps, either free of charge or on such terms and conditions that the Procuring Entity may prescribe.
 - ✓ All camp sites shall be maintained in clean and sanitary conditions by the contractor at his own cost.
- (2) During the execution of services, unless otherwise stipulated in the contract, the contractor shall at his own cost provide the following materials as is necessary for:
- ✓ the safety, hygiene, satisfaction, elegance, acceptance, proper handling of assets and shall ensure that no damage, injury, or loss is caused or likely to be caused to any person or assets or hindrance to other works/ services.
 - ✓ environmental requirements to conserve energy, water, wood, paper, and other resources, reduce waste, phase out the use of ozone-depleting substances, and minimise the release of greenhouse gases, volatile organic compounds, and other substances damaging health and the environment.
- (3) **Medical Facilities:** the contractor shall provide medical facilities at the site as prescribed by the Contract Manager on the advice of the Procuring Entity's Medical Authority commensurate with the strength of the contractor's resident staff and workers. Such facilities shall include a First-Aid facility manned with staff trained in first aid as per labour codes or the Contract Manager's directions.
- (4) **Medical Certificate of Fitness for Labour**
 the contractor shall not employ a person below 18 years of age. For delivery of Services under the contract, unless a medical certificate of fitness in the prescribed form under labour codes (or as directed by the contract manager) is granted to each worker by a certifying surgeon certifying that he is fit to work as an adult, is obtained and kept in the custody of the contractor or a person nominated by him in this behalf and the person carries with his, while at work, a token giving a reference to such certificate.
- ✓ **Period of Validity of Medical Fitness Certificate:** A certificate of fitness granted or renewed for the above-said purposes shall be valid only for one year at a time. The certifying surgeon shall revoke a certificate granted or renewed if, in his opinion, the holder of it is no longer fit for work in the capacity stated therein. Where a certifying surgeon refuses to grant or renew a certificate or revoke a certificate, he shall, if so required by the person concerned, state his reasons in writing for doing so.
 - ✓ **Medical Re-Examination of Labour:** Where any official appointed on this behalf by the Ministry of Labour believes that any person employed in connection with the execution of any work under this Contract in the age group 18 to 65 years is without a certificate of fitness or is having a certificate of fitness but no longer

fit to work in the capacity stated in the certificate, he may serve on the contractor, or the person nominated by him in this regard, a notice requiring that a certifying surgeon and such person shall examine such persons shall not if the concerned official so directs, be employed or permitted to do any work under this Contract unless he has been medically examined and certified that he has been granted a certificate of fitness or a fresh certificate of fitness, as the case may be.

8.1.3 Mandatory Compliance of Government Welfare Schemes

the contractor must ensure and provide documentary evidence for the following and must submit documentary evidence to show the coverage of all his workers or labour under the following schemes at all times during the contract period on an annual basis:

- ✓ All the contractor's workers or labour employed directly or indirectly must be enrolled under the Pradhan Mantri Jan Dhan Yojana (PMJDY), a scheme that aims to provide all the citizens of India a bank account, credit facility, insurance cover and debit card.
- ✓ All the workers or labour employed directly or indirectly by the contractor between the ages 18-70 years must be enrolled under the Pradhan Mantri Suraksha Bima Yojana (PMSBY), an accident insurance scheme which shall be a one-year cover, renewable from year to year, offering accidental death and disability cover for death or disability on account of an accident. The contractor shall pay the premium per annum per member for all his workers during the contract period.
- ✓ All the workers or labour employed directly or indirectly by the contractor between the ages 18-50 years must be enrolled under the Pradhan Mantri Jeevan Jyoti Bima Yojana, an insurance scheme which shall be a one-year cover, renewable from year to year, offering life insurance cover for death due to any reason. The contractor shall pay the premium per annum per member for all his workers during the contract period.

8.1.4 Contract Labour Records and Management System

A comprehensive record needed for contract labour management and monitoring attendance (Identity Cards, Labour Records, Attendance, Time Sheets, Training Record, acknowledgements of labour Codes) for efficient performance and safeguarding workers' welfare must be maintained by the contractor. It shall be inspected during Site Inspections by the Contract Manager. The contractor shall put this system in place unless otherwise stipulated in the Special Conditions of Contract. If so stipulated in Special Conditions of Contract¹, a computerised Contract Labour Management system shall be mandatory.

8.1.5 The obligation of Contractor to ensure awareness of Labour Codes

- ✓ the contractor has to mandatorily provide a comprehensive day-long training carried out by a certified Third-Party agency for the awareness of Labour codes and the Rules, grievance redressal mechanism and other provisions applicable to his and his Sub-contractor's staff, workers, labour employed by him directly or indirectly in delivery of service to the Procuring Entity. The contractor must submit relevant documentary proof to Procuring Entity of having conducted such training to all workers.
- ✓ The contractor must provide a comprehensive booklet (Procuring Entity approves that) containing all the relevant updated labour codes, rules, and other applicable provisions, to every worker at the outset of the contract in the local vernacular language.
- ✓ Procuring Entity, without any commitments or being obliged to do, may its discretion, provide following facilities for Contractor's Contract Labour working on this Contract:
- ✓ Helpline for complaints from labour regarding payment of wages, work site facilities, sexual harassment etc
- ✓ Provision for recording anonymous complaints from workers, citizens etc., regarding violation of Labour codes and the Rules by Contractor.

8.2 Insurances

- (1) the contractor (a) shall take out and maintain, and shall cause any Subcontractors to take out and maintain, at its (or the Subcontractors', as the case may be) own cost but on terms and conditions approved by the Procuring Entity, insurance against the risks, and for the coverage, as stipulated in the contract or any applicable law including Labour Codes; and at the Procuring Entity's request, shall provide evidence to the Procuring Entity showing that such insurance has been taken out and maintained and that the current premiums have been paid.
- (2) the contractor at his cost shall provide, in the joint names of the Procuring Entity and the contractor, insurance cover from the start date to the date of completion of the contract, in the amounts and deductibles as per the instructions of the contract manager and the contract for the following events which are due to the contractor's risks:
 - ✓ loss of or damage to Equipment, materials for which advances have been paid;
 - ✓ loss of or damage to property of the Procuring Entity in connection with the contract;
 - ✓ Personal injury or death.
 - ✓ Penalties and demands by labour regulatory authorities

Insurance policies and certificates for insurance shall be delivered to the Contract Manager for approval before the Start Date. All such insurance shall provide compensation payable in Indian Rupees to rectify the loss or damage incurred.
- (3) Alterations to the terms of insurance shall not be made without the approval of the Contract Manager.
- (4) Both parties shall comply with any conditions of the insurance policies.

8.3 Permits, Approvals and Licenses

Whenever the delivery of Services and incidental Goods/ Works requires the contractor to obtain permits, approvals, and licenses from local public authorities, it shall be the contractor's sole responsibility to obtain these and keep these current and valid. Such requirements may include but not be restricted to licences or environmental clearance if required. If requested by the contractor, the Procuring Entity shall make its best effort to assist the contractor in complying with such requirements in a timely and expeditious manner, without any dilution of the Contractor's responsibility in this regard.

8.4 Accounting, Inspection and Auditing

the contractor shall keep accurate and systematic accounts and records regarding the provision of the Services under this Contract, as per accounting principles prescribed in India.

8.5 Book Examination Clause

If explicitly invoked in the contract, the Procuring Entity reserves the right for 'Book Examination' as follows:

- (1) the contractor shall, whenever called upon and required to produce or cause to be produced, for examination by any Government Officer duly authorised in that behalf, any cost or other book of account, voucher, receipt, letter, memorandum, paper or writing or any copy of or extract from any such document. The contractor shall also furnish information relating to the execution of this contract or relevant for verifying or ascertaining the cost of execution of this contract to such Government Officer in such manner as may be required. The decision of such Government Officer on the question of relevancy of any document, information of return being final and binding on the parties. The obligation imposed by this clause is without prejudice to the contractor's obligations under any other statute, rules or orders which shall be concurrently binding on the contractor.
- (2) The contractor shall, if the authorised Government Officer so requires (whether before or after the prices have been finally fixed), afford facilities to the Government Officer concerned to visit the contractor's premises to examine the processes of production and estimate or ascertain the cost of performance of Contract. The authorised Government Officer shall have power, *mutadis mutandis*, to examine all the relevant books of Contractor's subcontractor, or any subsidiary or allied firm or company, If any portion of the contract is entrusted or carried out by such entities.
- (3) If on such examination, it is established that the contracted price is more than the actual cost-plus reasonable margin of profit, the Procuring Entity shall have the right to reduce the price and determine the amount to a reasonable level.

- (4) The contractor or its agency is bound to allow examination of its books within 60 days from the date the notice is received by the contractor or its agencies calling for the production of documents under sub-clause (1) above. In the event of the contractor's or his agency's failure to do so, the contract price would be reduced and determined according to the best judgment of the Procuring Entity, which would be final and binding on the contractor and his agencies.

8.6 LABOUR SAFETY PROVISION

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 as directed by Engineer-in-charge. 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 Govt. from time to time for the protection of health and sanitary arrangements for workers.

1.0

Suitable scaffolds should be provided for workmen for all works that cannot safely be done from the ground, or from solid construction except such short period work as can be done safely from ladders. When a ladder is used an extra 'mazdoor' shall be engaged for holding the ladder and if the ladder is used for carrying materials as well, suitable footholds and hand holds shall be provided on the ladder and the ladder shall be given an inclination not steeper than $\frac{1}{4}$ to 1 (1/4 horizontal and 1 vertical).

2.0

Scaffolding or staging more than 3.6m (12 feet) above the ground or floor, swung or suspended from an overhead support or erected with stationery support shall have a guard rail properly attached or bolted, braced and otherwise secured at least 90 cm. (3 feet) high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such opening as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.

3.0

Working platforms, gangways, and stairways should be so constructed that they should not sag unduly or unequally, and if the height of the platform or the gangway or the stairway is more that 3.6m (12 feet) above ground level or floor level, they should be closely boarded, should have adequate width & should be suitable fastened as described in (2.0) above.

4.0

Every opening in the floor of a building or in a working platform shall be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be 90 cm (3 feet).

5.0

Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9m. (30 feet) in length while the width between side rails in rung ladder shall in no case be less than 29 cm. (11.5") for ladder up to and including 3m (10 feet) in length. For longer ladders this width should be increased at least 1/4" for each additional 30 cm (1 ft.) of length. Uniform step spacing shall not exceed 30 cm (12"). Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites of the work shall be so stacked or placed as to cause danger or inconvenience to any person or the public. The contractor shall provide all necessary fencing and lights to protect the public from accident, and shall be bound to bear the expenses of defense of every suit, action or other proceeding at law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and cost which may be awarded in any such suit, action or proceedings to any such person or which may, with the consent of the Contractor, be paid to compensate any claim by any such person.

6.0

All trenches, 1.2 mts. (four feet) or more in depth, shall at all times be supplied with at least one ladder for each 30 m. (100 feet) in length or fraction thereof, ladder shall be extended from bottom of the trench to at least 90 cm (3 feet) above the surface of the ground. The side of the trenches, which are 1.5 m. (5 feet) or more in depth shall be stepped back to give suitable slope or securely held by timber bracing, so as to avoid the danger or sides to collapsing. The excavated materials shall not be placed within 1.5 m (5 feet) of the edges of the trench or half of the depth of the trench whichever is more. Cutting shall be done from top to bottom. Under no circumstances undermining or undercutting shall be done.

7.0

Demolition - Before any demolition work is commenced and also during the progress of the work following precautions shall be observed:

7.1

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

7.2

No electric cable or apparatus which is likely to be a source of danger or a cable or apparatus used by the operator shall remain electrically charged.

7.3

All practical steps shall be taken to prevent danger to persons employed from risk or

fire or explosion or flooding. No floor, roof or other part of the building shall be overloaded with debris or materials so as to render it unsafe.

8.0

All necessary personal safety equipment as considered adequate by the Engineer-in-charge should be kept available for the use of persons employed on the site and maintained in a condition suitable for immediate use, and the contractor should take adequate step to ensure proper use of equipment by those concerned. The following safety equipment shall be invariably provided.

8.1

Workers employed on mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective goggles.

8.2

Those engaged in white washing and mixing or stacking of cement bags or any materials which are injurious to the eye shall be provided with protective goggles.

8.3

Those engaged in welding works shall be provided with welders protective eye shields.

8.4

Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe interval.

8.5

When workers are employed for works in sewers and manholes, which are in active use, the Contractors shall ensure that the manhole covers are opened and ventilated at least for an hour before the workers are allowed to get into the manholes, and the manholes so opened shall be cordoned off with suitable railing and provided with warning signals or boards to prevent accident the public. In addition, the contractor shall ensure that the following safety measures are adhered to:

a) Entry for workers into the sewer line shall not be allowed except under supervision of the JE or any other higher officer.

b) At least 5 to 6 manholes upstream and downstream should be kept open for at least 2 to 3 hours before any man is allowed to enter into the manholes for working inside.

c) Before entry, presence of Toxic gases should be tested by inserting wet lead acetate paper which changes color in the presence of such gases and gives indication of their presence.

d) Presence of Oxygen should be verified by lowering a detector lamp into the manhole. In case, no Oxygen is found inside the sewer line, workers should be sent only with Oxygen kit.

e) Safety belt with rope should be provided to the workers. While working inside the manholes such rope should be handled by two men standing outside to enable him to be pulled out during emergency.

f) The area should be barricaded or cordoned off by suitable means to avoid mishaps of any kind. Proper warning signs should be displayed for the safety of the public whenever cleaning work is undertaken during night or day.

g) No smoking or open flames shall be allowed near the blocked manhole being cleaned.

h) The mal ba obtained on account of cleaning of blocked manholes and sewer lines should be immediately removed to avoid accidents on account of slippery nature of the mal ba.

i) Workers should not be allowed to work inside the manhole continuously. He should be given rest intermittently. The Engineer-In-charge may decide the time up to which a worker may be allowed to work continuously inside the manhole.

j) Gas masks with Oxygen Cylinder should be kept at site for use in emergency.

k) Air-blowers should be used for flow of fresh air through the manholes. Whenever called for, portable air-blowers are recommended for ventilating the manholes. The Motors for these shall be vapour proof and of totally enclosed type. Non sparking gas engines also could be used but they should be placed at least 2 metres away from the opening and on the leeward side protected from wind so that they will not be a source of friction on any inflammable gas that might be present.

l) The workers engaged for cleaning the manholes / sewers should be properly trained before allowing to work in the manhole.

m) The workers shall be provided with Gumboots or non-sparking shoes, bump helmets and gloves non sparking tools, safety lights and gas masks and portable air blowers (when necessary). They must be supplied with barrier cream for anointing the limbs before working inside the sewer lines.

n) Workmen descending a manhole shall try each ladder step or rung carefully before putting his full weight on it to guard against insecure fastening due to corrosion of the rung fixed to manhole well.

o) If a man has received a physical injury, he should be brought out of the sewer immediately and adequate medical aid should be provided to him.

p) The extent to which these precautions are to be taken depend on the site situation but the decision of the Engineer-In-charge regarding the steps to be taken in this regard in an individual case will be final.

8.6 The Contractor shall not employ men and women below the age of 18 years on the work of painting with products containing lead in any form wherever men above the age of 18 are employed on the work of lead painting the following precautions should be taken.

8.6.1 No paint containing lead or lead products shall be used except in the form of paste or readymade paint.

8.6.2 Suitable face masks should be supplied for use by the workers when paint is applied in the form of spray or a surface having lead paint is dry rubbed and scrapped.

8.6.3

Overalls shall be supplied by the Contractor to the workmen and adequate facilities shall be provided to enable the working painters to wash during the cessation of work.

8.6.4.1

a) White lead, sulphate or lead work products containing those pigments shall not be used in painting operation except in the form of paste or in paints ready for use.

b) Measures shall be taken whenever required in order to prevent danger arising from the application of paint in the form of spray.

c) Measures shall be taken, whenever practicable to prevent danger arising out of dust caused by dry rubbing down and scrapping.

8.6.4.2

a) Adequate facilities shall be provided to enable working painter to wash during and on cessation of work.

b) Suitable arrangements shall be made to prevent clothing put off during working hours being spoiled by painting materials.

8.6.4.3

a) Cases of lead poisoning and of suspected lead poisoning shall be notified and shall be subsequently verified by a medical man appointed by the competent authorities of AUTHORITY.

b) The AUTHORITY may require when necessary a medical examination of workers.

c) Instructions with regard to the special hygienic precautions to be taken in the painting trade shall be distributed to working painters.

9.0

When the work is done near any place where there is risk of drowning, all necessary equipment should be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provision should be made for prompt first aid treatment for all injuries likely to be sustained during the course of the work.

10.0

Use of hoisting machines and tackle including their attachment encourage and supports shall conform to the following standard of conditions.

10.1

a) These shall be of good mechanical construction, sound material and adequate strength and free from patent, defects and shall be kept in good working order.

b) Every rope used in hoisting or lowering materials or as a means of suspension shall be of durable quality and adequate strength, and free from patent defects.

10.2

Every crane driver or hoisting appliance operator shall be properly qualified and no person under the age of 21 years should be in-charge of any hoisting machine including any scaffolding, winch or giving signals to operator.

10.3

Every hoisting machine and of every chain ring hook, shackle swivel and pulley block used in hoisting or means as suspension shall be properly maintained and of good construction. The safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load. In case of a hoisting machine having a variable safe working load, each safe working load and the conditions under which it is applicable shall be clearly indicated. No part of any machine or any gear referred to above in this clause shall be loaded beyond the safe working load except for the purpose of testing.

10.4

In case of AUTHORITY machines, the safe working load shall be notified by the Engineer-in-Charge. As regards Contractor's machines the Contractor shall notify the safe working load of the machine to the Engineer-in-charge whenever he brings any machinery to site of work and get it verified by the Engineer-in-Charge.

11.0

Motors gearing, transmission electric wiring and other dangerous parts of hoisting appliances should be provided with efficient safeguard. Hoisting appliances should

be provided with such means as will reduce to the minimum the risk of accidental descent of the load. Adequate precautions should be taken to reduce the minimum the risk of any part of a suspended load becoming accidentally displaced. When workers are employed on electrical installations, which are already energized, insulating mats, wearing apparel, such as gloves sleeves and boots as may be necessary be provided. The worker should not wear any rings, watches and carry keys or other materials, which are good conductors of electricity.

12.0

All scaffold, ladders, and other safety devices mentioned or described herein shall be maintained in safe condition and no scaffold ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities shall be provided at or near places of work.

13.0

These safety provisions should be brought to the notice of all concerned by display on a notice board at a prominent place of work spot. The person responsible for compliance of the safety codes shall be named therein by the contractor.

14.0

To ensure effective enforcement of the rules and regulations relating to safety precautions the arrangements made by the Contractor shall be open to inspection by AUTHORITY Official or their representatives.

15.0

Notwithstanding the above Clauses from (i) to (xiv) there is nothing in these to exempt the contractor from the operations of any other Act or Rule in force in the Republic of India.

8.7 MINIMUM WAGES ACT

The contractor shall comply with all the provisions of the minimum wages Act, 1948 Code on Wages, 2019, contract labour Act (Regulation & Abolition) 1970, and rules framed there under and other labour laws/local laws affecting contract labour that may be brought into force from time to time.

8.8 LABOUR RECORDS

The contractor shall submit to the Engineer-in-Charge a true statement, showing in respect of the second half of the preceding month and the first half of the current month, respectively, of the following data:

- a) The number of the labour 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.

9.0 Procuring Entity's Obligations

9.1 Facilities to be Provided by the Procuring Entity

- (1) No Facilities (including Reference Documents, Medical facilities, Rooms, Furniture, Transport, Access to IT Services etc.) other than those stipulated explicitly in the contract shall be provided or loaned by the Procuring Entity to the contractor for performance of the contract. Whenever such assets are required to be issued to the contractor as per the contract, these would be issued only as per terms and conditions and against appropriate safeguards (including Insurances, Bank Guarantee, Indemnity Bonds, Retention Money etc.) specified therein. The contractor shall use such property for the execution of the contract and for no other purpose whatsoever.
- (2) Unless otherwise stipulated in the contract, The Procuring Entity may hire to the contractor non-key Equipment owned and sparable by Procuring Entity for use during execution of the Services on terms and conditions and on the chargeable basis as may be stipulated in the contract or a separate agreement for Hire of such equipment.

9.2 Provision of Utilities at Site by Procuring Entity

Unless otherwise stipulated in the contract, The Procuring Entity may supply without any obligation to do so, to the contractor part or whole of the quantity of the water and electricity required for the delivery of Services from the Procuring Entity's existing water/ electricity supply system at or near the site of Services on specified terms and conditions and on chargeable basis (unless specified otherwise), provided that the contractor shall arrange, at his own expense, to effect the connections and lay additional pipe/ power lines and accessories on the site. Nevertheless, it shall be the responsibility of the contractor to install adequate alternative arrangements to tide over outages in utilities or failure in supply by the Procuring Entity, and that the contractor shall not be entitled to any compensation– nor shall this be a reason for the delay in delivery of Services.

9.3 Custody and Return of the Procuring Entity's Assets loaned to Contractor

- (1) The contractors shall sign accountable receipts for all tools, plants and materials or other assets/ properties made over to him by the Contract

- Manager. All such assets shall be deemed to be in good condition when received by the contractor unless he has within twenty-four hours of the receipt thereof notified the Procuring Entity to the contrary. Otherwise, he shall be deemed to have lost the right to do so at any subsequent stage.
- (2) These assets shall remain the property of the Procuring Entity, and the contractor shall take all reasonable care of all such assets. The contractor shall be responsible for all damage or loss from whatever cause caused while assets are possessed or controlled by the contractor, staff, workmen, or agents.
 - (3) Where the contractor insures such assets against loss or fire at the request of the Procuring Entity, such insurance shall be deemed to be by way of additional precaution and shall not prejudice the contractor's liability as aforesaid.
 - (4) The contractor shall return all such assets in good order and repair, fair wear and tear excepted, before the completion/ closure/ termination of the contract and shall be responsible for any failure to account for the same or any damage done to that as assessed by the Procuring Entity whose decision shall be final and binding.

10.0 Scope of Services, Performance Standards and Quality Assurance

10.1 Scope of Services

- (1) This contract is for the performance/ delivery of Services of the description, scope/ quantum, performance standards and quality outlined in the contract during the contract Period specified therein. Unless otherwise specified, the Services shall conform to performance and quality standards as stipulated in the contract or as per best standards in the market, where not so specified.
- (2) The contractor shall deliver Services and submit the reports, deliverables, outputs, and documents stipulated in Format 1.1: Description of Services to the Procuring Entity.
- (3) The Services shall include all such work-elements not mentioned explicitly in this Contract, but that can be reasonably inferred from this Contract as being required for attaining Completion of the Services as if such items were expressly mentioned in this Contract.
- (4) **Incidental Works/ Goods:** If so stipulated, the contractor shall be required to perform/ deliver specified incidental Works/ Goods as an integral part of the Services in the contract.

10.2 Performance Standards

- (1) the contractor shall perform the Services as per Format 1.1: Description of Services, and carry out its obligations with all due diligence, efficiency, and economy, observing sound management practices, and employ appropriate advanced technology and safe methods as per the

performance standards and quality control parameters as stipulated in the contract. For matters where the contract does not specify any Standard, the Services delivered shall conform to National/ International Standards or generally accepted professional techniques and practices.

- (2) **The shortfall in Performance:** In cases where the performance or/and quality of Services is/are found to be unsatisfactory, Procuring Entity or his representatives shall impose damages for the shortfall in performance as per GCC-clause below. This levy of damages shall not absolve the contractor from rectification or reperformance of the defective Service without further payment.

10.3 Quality Control

- (1) The Procuring Entity shall check the quality of the Services and shall inspect the contractor's performance according to latest CPWD Specifications.
- (2) The Contractor shall raise a standard format of Request for Inspection (RFI) prior to commencement of any concreting work.
- (3) The reinforcement work shall be checked and certified by the Structural Consultant appointed by the Contractor before inspection by the Engineer-in-Charge Description of Services. The Procuring Entity shall promptly notify the contractor of any identified defects, requesting the correction of the notified defect within a reasonable time.
- (4) If the contractor has not corrected notified defect within the time stipulated in the Procuring Entity's notice, the Procuring Entity shall assess the cost of having the defect corrected. Without prejudice to any of its other remedies under this Contract or applicable law, procuring Entity shall be legally entitled to deduct such cost from the contract's payments, together with the damages for the shortfall in performance (as per clause above), a sum equivalent to the percentage stipulated in the contract.
- (5) All works under or in course of execution or executed in pursuance of the contract, shall at all times be open and accessible to the inspection and supervision of the Engineer-in-charge, his authorized subordinates in charge of the work and all the superior officers, officer of the Quality Assurance Unit of the AUTHORITY or any organization engaged by the AUTHORITY for Quality Assurance and of the Chief Technical Examiner's Office, and the contractor shall, at all times, during the usual working hours and at all other times at which reasonable notice of the visit of such officers has been given to the contractor, either himself be present to receive orders and instructions or have a responsible agent duly accredited in writing, present for that purpose. Orders given to the Contractor's agent shall be considered to have the same force as if they had been given to the contractor himself.

- (6) If it shall appear to the Engineer-in-charge or his authorized subordinates in-charge of the work or to the officer of Quality Assurance or his subordinate officers or the officers of the organization engaged by the AUTHORITY for Quality Assurance or to the Chief Technical Examiner or his subordinate officers, that any work has been executed with unsound, imperfect, or unskillful workmanship, or with materials or articles provided by him for the execution of the work which are unsound or of a quality inferior to that contracted or 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 charge and cost. In the event of the failing to do so within a period specified by the Engineer-in-Charge in his demand aforesaid, then the contractor shall be liable to pay compensation at the same rate as under clause 8.0 of the contract (for non-completion of the work in time) for this default. 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 to be conveyed in writing in respect of the same will be final and binding on the contractor.
- (7) If it shall appear to the Engineer-in-Charge or his authorized representative in charge of the work, or to the Chief Technical Examiner, or to any other inspecting agency of Government/State Government/Owner where the work is being executed, that any work has been executed with unsound, imperfect, or unskillful workmanship, or with materials of any inferior description, or that any materials or articles provided by him for the execution of the work are unsound or of a quality inferior to that contracted for, or 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. In the event of his failing to do so within a period to be specified by the Engineer-in-Charge in his demand aforesaid, while the contractor's 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 expense in all respects of the contractor.

- (8) All works under or in course of execution or executed in pursuance of the contract, shall at all times be open and accessible to the inspection and supervision of the Engineer-in-charge, his authorized subordinates in charge of the work and all the superior officers, officer of the Quality Assurance Unit of the AUTHORITY or any organization engaged by the AUTHORITY for Quality Assurance and of the Chief Technical Examiner's Office, and the contractor shall, at all times, during the usual working hours and at all other times at which reasonable notice of the visit of such officers has been given to the contractor, either himself be present to receive orders and instructions or have a responsible agent duly accredited in writing, present for that purpose. Orders given to the Contractor's agent shall be considered to have the same force as if they had been given to the contractor himself.
- (9) If it shall appear to the Engineer-in-charge or his authorized subordinates in-charge of the work or to the officer of Quality Assurance or his subordinate officers or the officers of the organization engaged by the AUTHORITY for Quality Assurance or to the Chief Technical Examiner or his subordinate officers, that any work has been executed with unsound, imperfect, or unskilful workmanship, or with materials or articles provided by him for the execution of the work which are unsound or of a quality inferior to that contracted or 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 charge and cost. In the event of the failing to do so within a period specified by the Engineer-in-Charge in his demand aforesaid, then the contractor shall be liable to pay compensation at the same rate as under clause 8.0 of the contract (for non-completion of the work in time) for this default. 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 to be conveyed in writing in respect of the same will be final and binding on the contractor.

- (10) If it shall appear to the Engineer-in-Charge or his authorized representative in charge of the work or to the Chief Technical Examiner or to any other inspecting agency of Government/ State Government/ Owner where the work is being executed, 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 of the work are unsound or of a quality inferior to that contracted for or 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

10.4 DEFECTS LIABILITY PERIOD

The contractor shall be responsible for the rectification of defects in the works for a period twenty four (24) months from the date of taking over of the works by the AUTHORITY whichever is later. Any defects 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 AUTHORITY at the cost and expense of the contractor.

10.5 Eligible Services - Country of Origin and Minimum Local Content

Unless otherwise stipulated in SCC or Contract, country of origin of 'Services' and related 'Goods' under the contract shall have their origin in India or other countries and must conform to the declaration made by the contractor in its bid regarding but not limited to i) restrictions on certain countries with land-borders with India; ii) minimum local content and location of value addition (Make in India Policy); iii) Contractor's status as MSE or Start-up. The term "origin" used in this clause means the place from where the Services (and incidental Goods, including subcontracted components) are arranged and delivered, or incidental goods are mined, grown, produced, or manufactured. For purposes of this Clause, the term 'Services' shall have the meaning as defined in GCC-clause.

10.6 Quantity Tolerance

Unless otherwise stipulated in the contract, the obligation for completing Services shall be considered complete if the Services have been performed to the tolerance of plus or minus 5% of the quantum or the total value of Services ordered in the contract. Only the delivered / measured quantity shall be paid for as per the terms of the contract.

10.7 Contract Period and Option Clause

10.7.1 Contract Period

Unless otherwise stipulated in the contract, the contract Period for which the Service shall be provided shall **be 25 months** from the effective date of the contract, unless completed earlier or terminated as per the contract.

11.1 Option Clause

If stipulated otherwise in the contract, the Procuring Entity shall have the right to exercise the following options, by written notification to the contractor no later than thirty (30) days before Contract end:

- (1) extend the contract Period only once (unless otherwise stipulated in the contract) by four months' period (unless otherwise stipulated in the contract).
- (2) increase the ordered quantum of Services upto the percentage specified therein (or 25% if not specified) at any time, till the completion date of the contract, by giving reasonable notice and providing a reasonable extension in delivery period for increased quantum, even though the quantum ordered initially has been delivered in full before the completion Period.

12.0 Measurement, Variations and Modifications

12.1 The measurement of Inputs and Services

- (1) Measurements shall be recorded based on the contractor's day-to-day records and authenticated by the Contract Manager or his representative as updated per the agreed Works Programme.
- (2) The contractor shall be paid for the Inputs /Services at the rates in the contract and extra inputs/ Services at rates determined under GCC-clause below on the measurements taken by the Contract Manager or his representative. The quantities for items the unit of which in the contract is 100 or 1000 shall be calculated to the nearest whole number, any fraction below half being dropped and a half and above being taken as one; for items, the unit of which in the contract is single (if not an integral quantity), the quantities shall be calculated to two places of decimals. Such measurements shall be taken of the Services in progress from time to time and at such intervals as in the opinion of the Contract Manager shall be proper regarding the progress of Service. The date and time on which 'on account' or 'final' measurements are to be made shall be

communicated to the contractor who shall be present at the site and shall sign the results of the measurements (which shall also be signed by the Contract Manager or his representative) recorded in the official measurements book as an acknowledgement of his acceptance of the accuracy of the measurements.

- (3) If the contractor fails to attend, the service may be measured up in his absence, and such measurements shall, notwithstanding such absence, be binding upon the contractor whether or not he has signed the measurement books.
- (4) It shall be open to the contractor to take specific objection to any recorded measurements or Classification on any ground within seven days of the date of such measurements. Any re-measurement taken by the Contract Manager or his representative in the contractor's presence or absence after due notice has been given to him shall be final and binding on the contractor. No claim whatsoever shall after that be entertained regarding the accuracy and classification of the measurements. If the Contract Manager finds an objection raised by the contractor to be incorrect, the contractor shall be liable to pay the actual expenses incurred in re-measurements.

12.2 Variations and Claims

The work shall be executed on a lump sum basis under EPC mode. Any deviation in the built-up area shall be dealt with on a pro-rata basis. Payment for extra / additional items, if any, shall be made based on market rate analysis derived from the prevailing CPWD DAR.

12.3 ESCALATION

No claim on account of any escalation on whatsoever ground shall be entertained at any stage of works. Price quoted by contractor shall be firm and fixed for entire contract period as well as extended period for completion of the works. No escalation shall be payable on this contract

13.0 COMPENSATION FOR DELAY

If the Contractor fails to maintain the required progress as per the relevant clause(s) of the General Conditions of Contract and Special Conditions of Contract, or fails to complete the work and clear the site on or before the contract or extended date of completion, he shall, without prejudice to any other right or remedy available under law to the Authority on account of such breach, pay as agreed compensation an amount calculated at the rates stipulated below (plus GST extra), as the Engineer-in-Charge (whose decision in writing shall be final and binding) may decide, on the awarded value of the work for every completed day/week (as applicable) that the work remains incomplete.

i) Compensation for delay of work shall be levied @ 0.1% of the awarded value of the contract per day.

Provided always that the total amount of compensation for delay to be paid under this condition shall not exceed 10% of the awarded value of work (exclusive of GST) or of the tendered value of the item or group of items of work (exclusive of GST) for which a separate period of completion is originally given.

The amount of compensation may be adjusted or set-off against any sum payable to the Contractor under this or any other contract with the Authority.

In case the Contractor does not achieve a particular milestone mentioned elsewhere in the tender document, or the re-scheduled milestone(s), the amount shown against that milestone shall be withheld, to be adjusted against the compensation levied at the final grant of Extension of Time (EOT).

Withholding of this amount or failure to achieve a milestone shall be automatic without any notice to the Contractor. However, the withheld amount against the milestone shall be released upon achieving that milestone subsequently.

In case the Contractor fails to achieve a milestone and subsequent milestone(s), the amount mentioned against each such milestone(s) not completed shall be withheld collectively. Furthermore, no interest whatsoever shall be payable on such withheld amount.

14.0 Deployment of Resources

14.1 Site of Service Delivery

- (1) The site for Service delivery shall be the lands, spaces, and other places on, under, in or through which the Services are to be carried out and any other lands or places provided by the Procuring Entity for the contract.
- (2) No land or building or any other asset belonging to or in possession of the Procuring Entity shall be occupied by the contractor without the permission of the Procuring Entity. The contractor shall not use or allow to be used the site for any purposes other than executing or concerning the execution of the services.
- (3) Facilities for Inspection: the contractor shall afford the Contract Manager and his representative every facility for entering in and upon every portion of the site at all hours for inspection or otherwise and shall provide all facilities required for the purpose. The Contract Manager and his representative shall have free access to every part of the site and all places at which materials, tools, and plants are stored or prepared for the Services.

- (4) Existing Roads and Waterways: Existing roads or water courses shall not be blocked, cut through, altered, diverted, or obstructed in any way by the contractor, except with the permission of the Contract Manager.
- (5) Non-Obstruction of Access: During the progress of Services in any street or thoroughfare, the contractor shall make adequate provision for the passage of traffic, for securing safe access to all premises approached from such street or thoroughfare and for any drainage, water supply or means of lighting which may be interrupted by reasons of the execution of the Services and shall react and maintain at his cost barriers, lights and other safeguards as prescribed by the Contract Manager, for the regulation of the traffic, and provide security staff necessary to prevent accidents.
- (6) No Obstruction to Flow of Work and Personnel of Procuring Entity: Contractor shall arrange his work in consultation with the Contract Manager in such a manner to avoid obstruction to the normal flow of work and personnel of the Procuring Entity at the site, preferably utilising non-business hours for such obstructive or hazardous activities.

14.2 Temporary Works at Site

the contractor shall at his own expense erect temporary works, e.g., sheds, yards, and storehouses in such situations, and such numbers as in the opinion of the Procuring Entity is requisite for performing the Services. The contractor shall keep at each such sheds, yards, and store-houses a sufficient quantity of materials/ plant in stock as not to delay the performance of the Services with due expedition. The Procuring Entity and its representative shall have free access to the said sheds/yards/ store houses at any time to inspect the stock of materials or plant so kept in hand, and any materials or plant which the Procuring Entity may object to shall not be brought upon or used in the services but shall be forthwith removed from the sheds/yards/store houses by the contractor.

14.3 Security Arrangements

- (1)The contractor shall secure security arrangements at the site against unauthorised access/ trespass, pilferage, theft, leakage or misuse of property or belongings of his or his staff or Procuring Entity and its Staff by his staff or third parties or trespassers.
- (2)Preservation of Peace
 - a) the contractor shall take requisite precautions and use their best endeavours to prevent any riotous or unlawful behaviour by or amongst their workers and others, employed directly or through the petty contractors or sub-contractors for services, and for the preservation of peace and protection of the inhabitants and security of property in the neighbourhood of the site of services.

- b) If the Procuring Entity stipulates maintenance of a special Police Force at or in the vicinity of the site during the tenure of service Contract, the expenses thereof shall be borne by the contractor and, if paid by the Procuring Entity, shall be recoverable from the contractor.
- (3) Prohibition of Smoking and Intoxicants: the contractor or his staff or any labour employed through sub-contractors or petty contractors shall be prohibited from Smoking in 'No Smoking Zone' and in Public Places and also prohibited from the use of any intoxicating substances including, but not limited to, intoxicating beverages during the service period or on-site or near the site or in any of the facilities, sites, buildings, encampments, or tenements owned, occupied by or within the control of the contractor or any of his employees. The contractor shall exercise influence and authority to the utmost extent to secure strict compliance with this condition.

14.4 Safety Issues

- (1) the contractor shall be responsible for the safety of all activities on the Site.
- (2) The contractor shall be responsible for the safety of all persons employed by him on Site, directly or through petty contractors or Sub-Contractors, and shall report accidents to any of them, however, and wherever occurring on Works, to the contract manager or his representative, and shall make every arrangement to render all possible assistance and to provide prompt and proper medical attention. The compensation for affected Workers or their relatives shall be paid by the contractor in such cases expeditiously as per the Workmen's Compensation Act and other labour codes.
- (3) Safety of Public and Third parties: the contractor shall be responsible for taking all precautions to ensure the safety of the public and third parties, whether on public or Procuring Entity's property and shall post look out, such persons as may, in the opinion of the Contract Manager, be required to comply with regulations appertaining to the service. No explosives shall be used for the Services rendered or on the site by the contractor.

14.5 Clearance of Site on Completion

On completion of the services, the contractor shall clear away and remove all tools /plants and surplus materials, rubbish and temporary works of every kind and leave the whole of the site clean to the satisfaction of the Contract Manager.

- (1) If the contractor provides temporary huts on the Procuring Entity land for labour engaged by him to execute services, the contractor shall arrange for handing over vacant possession of the said land after the service is completed.
- (2) No final payment in settlement of the accounts for the Services shall be paid, held to be due or shall be made to the contractor till, in addition to any other condition necessary for final payment, site clearance shall have been affected by him.

- (3) In the event of failure on the part of the contractor to comply with this provision within 7 days after receiving notice for clearance of Procuring Entity's site and lands, the Contract Manager shall cause them to be removed through public sales of such materials and property or in such a way as deemed fit and convenient and cost as increased by supervision and other incidental charges shall be recovered from the contractor. If the contractor's labour refuses to vacate and has to be ejected following due process by the Procuring Entity, necessary expenses incurred by the Procuring Entity in connection shall be borne by the contractor. The Procuring Entity shall not be held liable for any loss or damage to the contractor's property as may be on the site and due to such removal.

15.0 Key and Non-key Personnel

15.1 Key Personnel

- (1) The titles, job descriptions, minimum qualifications, and estimated periods of the contractor's Key Personnel engagement in carrying out the Services are described
- (2) Substitution of key personnel shall only be allowed in compelling or unavoidable situations, and the substitute shall be of equivalent or higher credentials.

15.2 Non-key Personnel

- (1) the contractor must ensure deployment of non-key Personnel as per the Personnel Deployment Plan and approved Works Programme as updated. If the Contract Manager believes that the contractor is not employing sufficient staff and workers as is specified or otherwise for the proper execution of the Services, he shall issue a notice to the contractor for remedial measures. The contractor shall forthwith on receiving intimation to this effect deploy the additional number of staff and labour as specified by the Contract Manager immediately, and failure on the part of the contractor to comply with such instructions shall entitle the Procuring Entity to penalize the contractor for the shortfall in performance or terminate the contract as per the contract and avail all the remedies thereunder. Such action shall be in addition to deduction from Contractor's payment cost of shortfall personnel.
- (2) The contractor shall also deploy efficient and competent supervisory staff to give the necessary directions to his workers and to see that they provide their services desirably and adequately and shall employ only such supervisors, workers & labour in or about the execution of any of these Services as are careful and skilled in the various trades. Daily attendance records of such supervisors and labour shall be maintained.

- (3) Procuring Entity reserves its right to ask for additional manpower, and the contractor shall be contractually bound to provide such manpower at one week's advance notice – which shall be paid extra at rates quoted.
- (4) Police Verification of Labour employed by Contractor: the contractor must submit Police Verification certificates in a format prescribed by the Police Department (or as directed by the Contract Manager) for all contractual staff hired for delivery of Services for Procuring Entity.
- (5) Restrictions on the Employment of Retired Staff or Officers or Managers of Procuring Entity Services within One Year of their Retirement: the contractor shall not, himself be a retired Government Manager of Gazetted rank, or engage any employee or associate who is a retired Government Manager of Gazetted rank, if such persons have not completed one year from the date of retirement, in connection with this Contract in any manner whatsoever without obtaining prior permission of the relevant authority. If the contractor is found to have contravened this provision, it shall constitute a breach of contract and Procuring Entity shall be entitled to terminate the contract and avail any or all the remedies thereunder.
- (6) The contractor shall, when he is not personally present on the site of the workplace, shall keep a responsible agent during working hours who shall, on receiving reasonable notice, present himself to the Contract Manager and orders given by the Contract Manager or his representative to the agent shall be deemed to have the same force as if they had been given to the contractor. Before absencing herself, the contractor shall furnish the name and address of his agent for this clause and failure on the contractor's part to comply with this provision at any time shall entitle the Procuring Entity to terminate the contract and avail any or all the remedies thereunder.

15.3 Removal of Personnel on Orders of Contract manager

- (1) If the Procuring Entity finds that any of the key or non key Personnel have
 - (i) committed misconduct or have been charged with having committed a criminal act, or
 - (ii) have reasonable cause to be dissatisfied with the performance of any of the Personnel, then the contractor shall, at the Procuring Entity's written request specifying the grounds thereof, provide as a replacement a person with qualifications and experience acceptable to the Procuring Entity, subject to sub-clause below.
- (2) The contractor shall have no claim for additional costs arising out of or incidental to any removal and/or replacement of Personnel.

15.4 Key and Non-key Equipment, Tools and Plants

- (1) The details of Key Equipment required to be deployed are described in Format 1.1.2.
- (2) Except as the Procuring Entity may otherwise agree, no changes shall be made in the deployment of Key Equipment. If it becomes necessary to

replace any of the Key Equipment for any reason beyond the contractor's reasonable control, the contractor shall provide Equipment of equivalent or better performance as a replacement.

- (3) The contractor must ensure deployment of non-key Equipment as per the Equipment Deployment Plan in Format 1.1.2 and approved Works Programme as updated. In the event of the Contract Manager believing that the contractor is not employing on the Services sufficient Equipment/Tools/ Plant as is specified or otherwise for the proper execution of the Services within the prescribed procedure and time, the contractor shall forthwith on receiving intimation to this effect deploy the additional equipment/ tools/ plants as specified by the Contract Manager immediately and failure on the part of the contractor to comply with such instructions shall entitle the Procuring Entity to penalize the contractor under shortfall in performance or terminate the contract as a breach of contract. Such action shall be in addition to a deduction from Contractor's payment cost of shortfall Equipment as per Equipment Deployment Plan in Format 1.1.2.
- (4) the Contract Manager or his representative shall be entitled to order within the time stipulated in the order:
 - ✓ The removal of any equipment/ tools/ plants which in their opinion are not as per the performance standards.
 - ✓ The substitution of proper and suitable equipment/ tools/ plants

16.0 Materials Deployment

- (1)Deployment of adequate inventory and supply chain of materials specified and provided in the contract or necessary for the delivery of Services or Personnel and Equipment deployed shall be of specified specification and quality and if not specified as per the best of market and business practices. The materials may be subjected to tests employing such machines, instruments and appliances as the Procuring Officer may direct and wholly at the contractor's expense.
- (2)Except as the Procuring Entity may otherwise agree, no changes shall be made in such materials' deployment, inventory, or supply chain. If for any reason beyond the contractor's reasonable control, it becomes necessary to do so, the contractor shall provide a replacement by materials of equivalent or better quality.
- (3)The contractor must ensure the deployment of materials as per the Materials Deployment Plan in Format 1.1.3 and the approved Works Programme as updated. In the event of the Contract Manager believing that the contractor is not employing on the Services sufficient materials/ inventory as is specified or otherwise for the proper execution of the Services within the prescribed procedure and time, the contractor shall forthwith on receiving intimation to this effect deploy additional materials/ inventory as specified by the Contract

Manager immediately and failure on the part of the contractor to comply with such instructions shall entitle the Procuring Entity to penalize the contractor under shortfall in performance or terminate the contract as a breach of contract. Such action shall be in addition to deduction from Contractor's payment cost of shortfall materials as per Materials Deployment Plan in Format 1.1.3

16.1 Property in Equipment and Materials brought to Site.

The materials and plant brought by the contractor upon the site or on the land occupied by the contractor in connection with the Services and intended to be used for the execution shall not be removed from the site without the approval of the Procuring Entity. However, materials/ equipment which the Contract Manager rejects under GCC-clause during the progress of the Services, or which after the grant of the certificate of completion, are declared as not needed or those that remain unused, can be removed from the site or the said land by the Contractor. This clause shall not in any way diminish the liability of the contractor nor shall the Procuring Entity be in any way answerable for any loss or damage which may happen to or in respect of any such materials or plant either by the same being lost, stolen, damaged, or destroyed by fire, tempest or otherwise.

17.0 Delivery of Services and delays

17.1 Works Programme

- (1) Before commencement of the Services, the contractor shall submit for approval of the Contract Manager a Works Programme showing the Methods; schedule of delivery of services, the deployment plans for Personnel; Equipment and Materials for the execution of the services. The programme of delivery of Services amended as necessary by discussions with the Contract Manager shall be treated as the agreed Works programme for this Contract. The Services shall be carried out and monitored as per the approved Program as updated.
- (2) Unless otherwise stipulated in the contract or agreed between the parties, the Works Programme shall be based on round-the-clock (24X7) operations without violating statutory regulations.

17.2 Compliance to Contract Manager's Instructions

- (1) the Contract Manager shall direct the order in which the several components of the Services shall be provided, and the contractor shall execute without delay all orders given by the Contract Manager from time to time. Still, the contractor shall not be relieved thereby from responsibility for the due performance of the Services in all respects.

- (2) Any instructions or approval given by the Contract Manager's representative to Contractor in connection with the Services shall bind the contractor as though the Contract Manager had given it provided as follows
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- Failure of the Contract Manager's representative to disapprove any work/ Services or materials shall not prejudice the power of the Contract Manager after that to disapprove such Services or material and order the rectification thereof.
 - If the contractor is dissatisfied because of any decision of the Contract Manager's representative, he shall be entitled to refer the matter to the Head of Procurement through the Contract Manager, who shall there upon confirm or vary such decision.
- (3) Compliance with Contractor's Request for Details: the Contract Manager shall furnish with reasonable promptness, after receipt of the contractor's request, additional instructions regarding procedures, specifications or otherwise, necessary for the proper performance of the Services or any part thereof. All such procedures, specifications and instructions shall be consistent with the contract Documents and reasonably inferable from them.

18.0 Commencement of Services

- (1) Effective Date of Contract: Contractor shall commence the Services and shall proceed with due expedition and without delay, from the effective date of Contract (all dates of delivery shall be counted from such a date), which shall be the date mentioned as the effective date in the contract, or if not so mentioned:
- ✓ days from (unless specified otherwise in that order) the date of an order to this effect from the Contract Manager, or if no such order is issued,
 - ✓ days from the date Contract has been signed by the Procuring Entity

18.1 Time for Delivery of services and Extensions Thereof

The time and uninterrupted delivery of Services shall be deemed to be the essence of the contract. Subject to any requirement in the contract as to the completion of any portions or portions of the Services before completion of the whole; the contractor shall fully and finally complete the whole of the services comprised in the contract as per the Delivery and Completion Schedule stipulated in Format 1.1: Description of Services. If at any time during the currency of the contract, the contractor encounters conditions hindering the timely performance of services, the contractor shall promptly inform the Procuring Entity in writing about the same and its likely duration. He must make a request to the Procuring Entity for an extension of the delivery schedule. On receiving the contractor's communication, the Procuring Entity shall examine the situation and, at its discretion, may agree to extend the

completion schedule, with or without liquidated damages and with and without denial clause by issuing an amendment to the contract in terms of the following clauses.

18.2 Extension Due to Modification

The Contract Manager might grant a reasonable extension of the completion date if any modifications ordered materially increase the time for delivery of the services. The contractor shall be responsible for requesting such extension of the date as soon as the cause thereof shall arise and, in any case, not less than one month before the expiry of the date fixed for completion of the services.

18.3 Extension for Delay Not Due to Contractor

- (1) If in the opinion of the contractor, the progress of Services has any time been delayed due to following reasons, then within 15 days of such happening causing delay, he shall give notice thereof in writing to the Contract Manager, but shall nevertheless do due diligence to bring down or make good the delays and to proceed with the services:
 - ✓ any act or neglect of other contractor employed by the Procuring Entity or in executing the work/service not forming part of the contract but on which Contractor's performance necessarily depends or
 - ✓ proceeding taken or threatened by or dispute with external third parties arising otherwise than from the contractor's own default etc. or
 - ✓ any act or neglect of Procuring Entity's employees or
 - ✓ delay authorized by the Contract Manager pending arbitration or
 - ✓ the contractor not having received in due time necessary instructions from the Procuring Entity for which he shall have especially applied in writing to the Contract Manager or his authorized representative.
 - ✓ hand over possession of the site or the necessary facilities/ documents/ data or instructions by the Procuring Entity to the contractor or
 - ✓ give the necessary notice to commence the services, or
 - ✓ any other delay caused by the Procuring Entity due to any other cause whatsoever.
- (2) the contractor may also indicate the period for which the Services is likely to be delayed and ask for a necessary extension of time. On receipt of such request from the contractor, the Contract Manager shall consider the same and grant such extension of time as in his opinion is reasonable regarding the nature and period of delay and the type and quantum of work affected thereby. No other compensation shall be payable for works so carried forward to the extended period. The same rates, terms, and conditions as the original Contract shall apply during the extended period.

18.4 Extension of Time for Delay Due to Contractor

- (1) If the contractor fails to deliver the Services within the fixed/ extended period for reasons other than those stipulated in GCC-clause above, the Procuring Entity may, if satisfied that the service delivery can still be completed within a reasonable time, extend the period further.
- (2) On such extension, the Procuring Entity shall be entitled without prejudice to any other right and remedy available on that behalf to recover from the contractor as agreed damages and not by way of penalty Liquidated Damages as per GCC-clause below.
- (3) Provided further, that if the Procuring Entity is not satisfied that the service can be completed by the contractor or in the event of failure on the part of the contractor to complete the service within the extension of time allowed further as aforesaid, the Procuring Entity shall be entitled without prejudice to any other right or remedy available in that behalf, treat the delay as a breach of contract and avail any or all the remedies thereunder, whether or not actual damage is caused by such default.
- (4) Inordinate Delays: Delays due to the contractor of more than one-fourth (25%) of the total completion period shall be treated as inordinate delays. Detailed delay analysis and justification is to be submitted by bidder.

19.0 Damages and Deductions Thereof

19.1 Right of the Procuring Entity to recover Damages.

Procuring Entity shall be entitled to, and it shall be lawful for him to recover damages for the shortfall in performance and Liquidated damages as detailed in this clause from all payments due or any Performance Security or any retention money. This clause does not limit Procuring Entity from imposing more than one damages under the contract, and such damages shall be applied concurrently.

19.2 Damages for Shortfall in Performance

The Procuring Entity shall, without prejudice to other rights and remedies under the contract, recover as damages for the shortfall in performance, but not as a penalty, 0.5% percent of the defective Services, If the contractor fails to perform the Services as per Performance Standards and Quality, without having to prove actual loss incurred.

20.0 Denial Clause:

- (1) No increases in price on account of any statutory increase in or fresh Imposition of any taxes/ duty/ cess/ levy) leviable in respect of the Services and incidental goods/ works stipulated in the said Contract which takes place after the original delivery date shall be admissible on such of the said Services, as are delivered after the said date; and
- (2) Notwithstanding any stipulation in the contract for an increase in price on any other ground, including the price variation clause, no such increase after the

original delivery date shall be admissible on such Services delivered after the said date.

- (3) Nevertheless, the Procuring Entity shall be entitled to the benefit of any decrease in price on account of reduction in or remission of any Tax or duty or any other ground as stipulated in the price variation clause, which takes place after the expiry of the original delivery date.

21.0 Suspension of Services

21.1 Suspension Ordered by Contract Manager

the contractor shall, on the order of the Contract Manager, suspend the progress of the Services or any part thereof for such time or times and in such manner as the Contract Manager may consider necessary, and shall during such suspension, adequately protect and secure the site and assets so far as is necessary in the opinion of the Contract Manager. If such suspension is -

- 1) Provided for in the contract, or
- 2) Necessary for the proper execution of the Services or because of extraneous conditions or by some default on the part of the contractor and or
- 3) Necessary for the safety of the Services or any part thereof

a. Extension of Time and Compensation

the contractor shall not be entitled to the extra costs, if any, incurred by him during the period of suspension of the service, but in the event of any suspension ordered by the Contract Manager for reasons other than aforementioned and when each such period of suspension exceeds 14 days, the Contract Manager shall extend the time of service for completion of the Services as he may consider proper, having regard to the period or periods of such suspensions and such compensations as the Contract Manager may consider reasonable in respect of expenses incurred by the contractor during the periods of such suspension.

b. Suspension Lasting More Than 3 Months

If the Contract Manager suspends the Services or any part thereof for more than three months at a time, the contractor may serve a written notice on the Contract Manager requesting permission to proceed with the suspended part(s) of service. If such permission is not granted within 15 days from the receipt thereof, the contractor by further written notice may, treat the suspended part(s) of the service as deleted from the Contract. If the whole of the services has been suspended, he may treat it as a breach of the contract by the Procuring Entity and avail any or all remedies provided in this regard in the contract.

22.0 Force Majeure

- (1) On the occurrence of any unforeseen event, beyond the control of either Party, directly interfering with the delivery of Services arising during the currency of the contract, such as war, hostilities, acts of the public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restrictions, strikes, lockouts, or acts of God, the affected Party shall, within a week from the commencement thereof, notify the same in writing to the other Party with reasonable evidence thereof. Unless otherwise directed by the Procuring Entity in writing, the contractor shall continue to perform its obligations under the contract as far as reasonably practicable and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event. If the force majeure condition(s) mentioned above be in force for 90 days or more at any time, either party shall have the option to terminate the contract on expiry of 90 days of commencement of such force majeure by giving 14 days' notice to the other party in writing. In case of such termination, no damages shall be claimed by either party against the other, save and except those which had occurred under any other clause of this Contract before such termination.
- (2) Notwithstanding the remedial provisions contained in GCC-clause, none of the Party shall seek any such remedies or damages for the delay and/ or failure of the other Party in fulfilling its obligations under the contract if it is the result of an event of Force Majeure.

23.0 Taxes and Duties

- (1) the contractor shall be entirely responsible for all taxes, duties, fees, levies etc., incurred until delivery of the Services to the Procuring Entity. Further instruction, if any, shall be as provided in the SCC.
- (2) If applicable under relevant tax laws and rules, the Procuring Entity shall deduct from all payments and deposit required taxes to respective authorities on account of GST Reverse Charge Mechanism; Tax Deducted at Source (TDS), and Tax Collected at Source (TCS) relating to Income Tax, labour cess, royalty etc.

24.1 Terms and Mode of Payment

- (1) Unless otherwise stipulated, the usual payment term is 100% on delivery and acceptance of Services at 'the Site' by the Procuring Entity and the contractor's production of all required documents.
- (2) The payments shall be made in the manner as per Procuring Entity's payment procedures. Unless otherwise stipulated in the contract, payments above INR 5,000 (or any other threshold specified) to Contractors shall be made through EFT only. The contractor shall give his consent in a mandate form for receipt of payment through NEFT. In case of non-payment through EFT, or where the EFT facility is not available, payment may be released through cheque.
- (3) In Domestic Contracts, payments shall only be made in Indian Rupees. In Global Tenders, payment to foreign bidders shall be made in the currency/

currencies authorized in the contract. However, agency commission and local value addition shall be paid only in Indian Rupees.

- (4) the contractor shall send its claim for payment in writing as per GST compliant Invoice and documents, when contractually due, along with relevant documents etc., as stipulated in Contract and a manner as also specified therein.
- (5) While claiming payment, the contractor is also to certify in the bill that the payment being claimed is strictly in terms of the contract and all the obligations on the part of the contractor for claiming that payment has been fulfilled as required under the contract.

24.2 Withholding and lien in respect of sums claimed:

- (1) Whenever any claim or claims for payment of a sum of money arises against the contractor, out of or under the contract, the Procuring Entity shall be entitled, and it shall be lawful on his part, to withhold and also have a lien to retain such sum or sums, in whole or in part pending finalisation or adjudication of any such claim from -
 - ✓ any security or retention money, if any, deposited by the contractor.
 - ✓ any sum(s) payable till now or hereafter to the contractor under the same Contract or any other contract with the Procuring Entity if the security is insufficient or if no security has been taken from the contractor.
- (2) Where the contractor is a partnership firm or a limited company, the Procuring Entity shall be entitled, and it shall be lawful on his part, 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, as the case may be, whether in his capacity or otherwise.
- (3) It is an agreed term of the contract that the sum(s) of money so withheld or retained under the lien referred above shall be kept withheld or retained till the claim arising out of or under the contract is determined under clause GCC
- (4) The contractor shall have no claim for interest or damages whatsoever on any account in respect of such withholding or retention under the lien referred to supra and duly notified as such to the contractor.
- (5) 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 Procuring Entity or Government against any claim of the Procuring Entity or Government in respect of payment of a sum of money arising out of or under any other contract made by the contractor with the Procuring Entity or Government.

24.3 Payments to Contractor

- (1) Time-Based (Inputs admeasurement): Unless instructed in writing by the Procuring entity, payments shall not be made for any extra inputs deployed

over and above the Input Deployment Plans (Personnel, equipment, materials etc.) mentioned in the contract. Nevertheless, if such inputs are deployed less than those stipulated, deductions shall be made based on the rates indicated for the inputs (Personnel, equipment, materials etc.) in the contract.

- (2) Unit-Rate (Output admeasurements): Unless otherwise stipulated, payments shall be made every month for the volume of Services rendered during the period.
- (3) Lumpsum: Unless otherwise stipulated, payments shall be made only on completion of Services.
- (4) Percentage (of Value of Transactions): The payment for the total price of Services calculated at the percentage of the actual value of Activities rendered shall be made either every month or on completion of milestones or on completion of entire Services whichever is stipulated in the contract.

24.4 "On-Account" Payments

the contractor shall be entitled to be paid every month (unless otherwise stipulated in the contract) by way of "On-Account" payment, only for such Services, as in the opinion of the Contract Manager, the contractor has executed in terms of the contract during the month. All payments due against the Contract Manager or his representative's certificates of measurements shall be subject to any deductions, which may be made under the contract, always provided that the Contract Manager may by any certificate make any correction or modification in any previous certificate, which he may have issued. The Contract Manager may withhold any certificate if the Services or any part thereof are not being carried out as per the contractual performance standards.

24.5 On Account Payments Not Prejudicial to Final Settlement

"On-Account" payments made to the contractor shall be without any prejudice to the final settlement of the accounts (except where measurements are noted explicitly in the Measurement Book as "Final Measurements" and the contractor has signed it such). They shall in no respect be considered or used as evidence of any facts stated in or to be inferred from such accounts nor of any particular quantity of service having been executed nor of the manner of its execution being satisfactory.

25 Mobilization advance

Mobilization advance up to a maximum of **10%** of the contract price shall be paid to the Contractor, if requested by him, on submission of an irrevocable Bank Guarantee valid for the contract period of an amount 1.1 times the mobilization advance.

The mobilization advance shall be interest-bearing @ 8% per annum, and the interest shall be calculated from the date of payment to the date of recovery (both days inclusive, based on 365 days in a year) on the outstanding amount of advance.

Recovery of such mobilization advance, including interest, shall be made by deduction from the Contractor's bills commencing after the first ten percent (10%) of the gross value of work is executed and paid, on a pro-rata percentage basis to the gross value of the work billed beyond 10%, in such a manner that the entire advance is recovered by the time eighty percent (80%) of the gross value of the contract is executed and paid, together with interest due on the entire outstanding amount up to the date of recovery of the installment.

In case, for any reason whatsoever, the outstanding mobilization advance including accrued interest at any stage of the project exceeds the amount of Bank Guarantee available for the purpose, the Contractor shall submit an additional Bank Guarantee of 10% of the outstanding mobilization advance, valid for the full contract period, to cater to the additional interest liability.

In case the work cannot be commenced for a considerable period, Authority shall have the right to seek refund of the Mobilization Advance along with accrued interest. In the event of failure on the part of the Contractor to return the Mobilization Advance and accrued interest, AUTHORITY reserves the right to forfeit the Bank Guarantee submitted by the Contractor for the purpose, as well as other dues payable to the Contractor, and adjust the same towards the principal amount and accrued interest.

The Bank Guarantee submitted by the Contractor against mobilization advance shall initially be made for the full amount as mentioned above and shall remain valid for the entire contract period, to be renewed from time to time to cover the balance amount and likely period of completion of recovery, together with interest. However, the Contractor may submit part Bank Guarantees against the mobilization advance in as many numbers as the proposed number of recovery installments, each equivalent to the amount of the respective installment.

This advance shall be paid in three installments as follows:

- i) First Installment of fifty percent (50%) of total mobilization advance shall be paid after the agreement is signed and upon submission of performance guarantee for the full amount as specified.
- ii) Second Installment of twenty-five percent (25%) of total mobilization advance will be paid after the setting up of site office and site laboratory, complete mobilization of plant and machinery, scaffolding, and shuttering materials, etc.
- iii) Third Installment (Balance) of twenty-five percent (25%) of total mobilization advance shall be paid on completion of 10% of work in terms of cost and after the contractor has fully mobilized the work at site.

26 SECURED ADVANCE AGAINST NON-PERISHABLE MATERIALS

Interest-free secured advance up to a maximum of 75% (seventy-five percent) of the cost/market value of the materials or 75% (seventy-five percent) of the cost of materials as derived from the tendered item rate of the Contractor, whichever is less, required for incorporation in the permanent works and brought to site and duly certified by the Site Engineer shall be paid to the Contractor for all non-perishable items. The advance will be paid only on submission of Indemnity Bond in the prescribed pro-forma.

The Contractor shall construct suitable go-down 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 and ward establishment for the purpose at his cost and risk.

Such secured advance shall also be payable on other items of perishable nature, fragile and combustible, with the approval of the Engineer-in-Charge, provided the Contractor provides a comprehensive insurance cover for the full cost of such materials. The decision of the Engineer-in-Charge shall be final and binding on the Contractor in this matter. No secured advance shall, however, be paid on high-risk materials such as ordinary glass, sand, petrol, diesel, etc.

27.1 Recovery of Secured Advance

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

The amount of advance against each material shall be recovered within three months from the date of payment. In case recovery could not be made within the above period due to any reason, interest as applicable to mobilization advance shall be charged on the outstanding advance amount, which shall be recovered/deducted on a monthly basis.

27 Preconditions for Passing the Bills

- (1) the Contract Manager shall ensure and cross-check with all relevant records before passing the bills of the contractor. Upon verification of the records by Procuring Entity, payments can be released to the contractor.
- (2) The contractor shall ensure that Minimum gross wages, including ESI, EPF etc., is paid as per the actuals by the contractor to all workers, and portions to be deposited with the relevant authorities has also been deposited by him. If the contractor fails to pay the gross minimum wages, the same shall be informed to the Regional Labour Commissioner.

- (3) the Contract Manager shall ensure that the contractor submits all the relevant records related to statutory obligations and agreement conditions for claiming monthly bills.
- (4) Procuring Entity shall upload the details of the contractor online on the Employees' Provident Fund Organisation (EPFO) portal. Every month, Procuring Entity may, if required, cross-verify the contractor's monthly statements regarding EPF and other contributions from the EPFO's records online. The contractor must provide documentary evidence to show coverage of all his workers or labour under the schemes mentioned in GCC-clause annually.

28 Completion Certificate and Final payment

28.1 Completion Certificate

Upon a written intimation from the contractor, the Contract Manager shall issue a certificate of completion duly indicating the date of completion after satisfying himself of the following. The Contract Manager may also issue such a certificate indicating the date of completion concerning any part of the service (before the completion of the whole of service), which has been completed to the satisfaction of the Contract Manager:

- (1) that the whole of the Services to be done under the provisions of the contracts have been completed or when any such certificate is given in respect of part of a service, such part shall be considered completed.
- (2) that they have been inspected by him since their completion and found to be in good and substantial order,
- (3) that such completed services have satisfactorily passed any final test or tests that may be prescribed,
- (4) that all properties, works and things, removed, disturbed, or damaged in consequence of the Services have been adequately replaced and
- (5) that the contractor has returned in good condition, all assets loaned or hired from the Procuring Entity and has given a satisfactory account of payments made to or retained by the Procuring Entity for such loaned/hired assets,
- (6) that the contractor has made good and satisfied in conformity with the contract all expenses and demands:
 - a) incurred by or made upon by the Procuring Entity.
 - b) for or in respect of damages or losses from or in consequence of the services.

28.2 Approval Only by Completion Certificate:

No certificate other than completion certificate referred to in sub-clause above shall be deemed to constitute approval of any service or other matter in respect of which it is issued or shall be taken as an admission of the due performance of the contract or any part thereof or of the accuracy of any claim or demand made

by the contractor or of additional varied Services having been ordered by the Contract Manager nor shall any other certificate conclude or prejudice any of the powers of the Contract Manager.

28.3 Cessation of Procuring Entity's Liability

After the issue of Completion Certificate, the Procuring Entity shall not be liable to the contractor for any matter arising out of or in connection with the contract for the delivery of the Services, unless the contractor shall have claimed in writing in respect thereof before the issue of the Completion Certificate for service in Contract.

28.4 Unfulfilled Obligations

Notwithstanding the issue of Completion Certificate for service, the contractor and the Procuring Entity shall remain liable for the fulfilment of any obligation incurred under the provision of the contract before the issue of the Completion Certificate for service, which remains unperformed at the time such certificate is issued. The contract shall be deemed to remain in force till the nature and extent of any such obligations are determined.

28.5 Final Payment

Final bill will be accepted only after submission of as built drawing and joint verification of all Quantities, Measurement and Test report at site with Authority/PMC/Contractor Engineers including any penalty as imposed by approving authority on deviation of approved design and drawing.

The contractor shall submit a Final bill on the Contract Manager's certificate of completion regarding the services. The Final payment shall be made as per the following calculations to the contractor after receiving a clear "No Claim Certificate" signed from him:

- (1) the total quantity of service executed by the contractor upto the completion date based on the Contract Manager or his representative's certified measurements.
- (2) priced at the rates in the Price Schedule in the contract and for extra works on rates determined under GCC-clause of these Conditions.
- (3) necessary adjustment for any payments already made or retained
- (4) any deduction which may be made under the contract,
- (5) a complete account of all claims Contractor may have on the Procuring Entity, and the Contract Manager gave a certificate in writing that such claims are correct,

29 No Claim Certificate and Release of Contract Securities

The contractor shall submit a 'No-claim certificate' to the Procuring Entity in such form as shall be required by the Procuring Entity after the Services are finally admeasured and before the final payment/ performance securities are released. The Procuring Entity shall release the contractual securities without any interest

if no outstanding obligation, asset, or payments are due from the contractor. The contractor shall not be entitled to make any claim whatsoever against the Procuring Entity under or arising out of this Contract, nor shall the Procuring Entity entertain or consider any such claim, if made by the contractor, after he shall have signed a "No Claim" Certificate in favour of the Procuring Entity. The Contractor shall be debarred from disputing the correctness of the items covered by the "No Claim" Certificate or demanding a clearance to arbitration in respect thereof.

30 Post Payment Audit

Notwithstanding the issue of Completion Certificate and release of final Payment, the Procuring Entity reserves the right to carry out within 180 days (unless otherwise stipulated in the contract) of such completion/ final payment, a post-payment audit and/ or technical examination of the Services and the final bill including all supporting vouchers, abstracts etc. If any over-payment to the contractor is discovered due to such examination, the Procuring Entity shall claim such amount from the contractor.

31 Signature on Receipts for Amounts

Every receipt for money, which may become payable, or for any security which may become transferable to the contractors, under the contract, shall if signed in the partnership name by any one of the partners of a Contractor's firm, be a suitable and sufficient discharge to the Procuring Entity in respect of the sums of money or security purported to be acknowledged thereby. In the event of death of any contractor, partners during the pendency of the contract, every receipt by anyone of the surviving constituents shall be suitable and sufficient discharge as aforesaid. Nothing in this Clause shall be deemed to prejudice or effect any claim that the Procuring Entity may hereafter have against the legal representative regarding any breach of any contract conditions by any contractor partner/member so dying. Nothing in this clause shall be deemed to prejudice or effect the respective rights or obligations of the contractor partners/ members and the legal representatives of any deceased Contractor partners/ members.

32 Defects Liability Period

- (1) the contractor warrants that the Services have been delivered as per description, scope/ quantum, performance standards and quality outlined in the contract. This Defect Liability shall be in effect for a period of 24 months from the issue of completion certificate by the procuring entity
- (2) The contract shall be deemed alive during this period, even if final payment and/ or Performance Guarantee has been released.
- (3) During the Defects Liability Period, upon discovering any deficiencies in outputs/ outcomes attributable to a shortfall in scope/ quantum, performance standards and quality of the performed Services, the Procuring Entity shall give written notice to the contractor.

- (4) Upon receiving such notice, the contractor shall, within 21 days (or within any other period, if stipulated in the contract), expeditiously remedy or reperform the Services or parts thereof, free of cost, at the site.
- (5) If the contractor, having been notified, fails to rectify/ replace the defect(s) within 21 days (or within any other period, if stipulated in the contract), it shall amount to breach of Contract, and the Procuring Entity shall proceed to take such remedial action(s) as deemed fit by it as detailed.

33 Payment Against Time-Barred Claims

All claims against the Procuring Entity shall be legally time-barred after three years calculated from the date when the payment falls due unless the payment claim has been under correspondence. The Procuring Entity is entitled to, and it shall be lawful for it to reject such claims.

34 Commissions and Fees

The Service Provider shall disclose any commissions or fees that may have been paid or are to be paid to agents, representatives, or commission agents concerning the selection process or execution and performance of this Contract. The information disclosed must include the name and address of the agent, representative, or commission agent, the amount and currency, and the purpose of the commission or fee in a format similar to Form 1.3 of the Tender Document.

35 Resolution of Disputes

35.1 Disputes and Excepted Matters

All disputes and differences between the parties hereto, as to the construction or operation of this Contract, or the respective rights and liabilities of the parties on any matter in question; or any other account whatsoever, but excluding the Excepted Matters (detailed below); arising out of or in connection with the contract, within thirty (30) days from aggrieved Party notifying the other Party of such matters; whether before or after the completion/ termination of the contract, that cannot be resolved amicably between the Contract Manager and the contractor, shall be hereinafter called the "Dispute". The aggrieved party shall give a 'Notice of Dispute' indicating the Dispute and claims citing relevant Contractual clause to the designated authority requesting for invoking the following dispute resolution mechanism. The Dispute shall be resolved without recourse to courts through dispute resolution mechanisms detailed subsequently, in the sequence as mentioned below, and the next mechanism shall not be invoked unless the earlier mechanism has been invoked or has failed to resolve it within the deadline mentioned therein.

- 1) Adjudication
- 2) Conciliation
- 3) Arbitration

35.2 Excepted Matters

Matters for which provision has been made in any Clause of the contract shall be deemed as 'excepted matters' (matters not disputable/ arbitrable), and decisions of the Procuring Entity, thereon shall be final and binding on the contractor. The 'excepted matters' shall stand expressly excluded from the purview of the sub-clauses below, including Arbitration. However, where the Procuring Entity has raised the dispute, this sub-clause shall not apply. Unless otherwise stipulated in the contract, excepted matters shall include but not limited to:

- (1) any controversies or claims brought by a third party for bodily injury, death, property damage or any indirect or consequential loss arising out of or in any way related to the performance of this Contract ("Third Party Claim"), including, but not limited to, a Party's right to seek contribution or indemnity from the other Party in respect of a Third-Party Claim.
- (2) Issues related to the pre-award tender process or conditions
- (3) Issues related to ambiguity in Contract terms shall not be taken up after a Contract has been signed. All such issues should be highlighted before the signing of the contract by the contractor.
- (4) Provisions incorporated in the contract, which are beyond the purview of The Procurement Entity or are in pursuance of policies of Government, including but not limited to
 - ✓ Provisions of restrictions regarding local content and Purchase Preference to Local suppliers in terms of Make in India policy of the Government
 - ✓ Provisions regarding restrictions on Entities from Countries having land borders with India in terms of the Government's policies in this regard Purchase preference policies regarding MSEs and Start-ups

35.3 Adjudication

After exhausting efforts to resolve the Dispute with the Contract Manager executing the contract on behalf of the Procuring Entity, the contractor shall give a 'Notice of Adjudication' specifying the matters which are in question, or subject of the dispute or difference indicating the relevant contractual clause, as also the amount of claim item-wise to Head of Procurement or any other authority mentioned in the contract (hereinafter called the "Adjudicator") for invoking resolution of the dispute through Adjudication. During his adjudication, the Adjudicator shall give adequate opportunity to the contractor to present his case. Within 60 days after receiving the representation, the Adjudicator shall make and notify decisions in writing on all matters referred to him. The parties shall not initiate, during the adjudication proceedings, any conciliation or arbitral or judicial proceedings in respect of a dispute that is the subject matter of the adjudication proceedings. If not satisfied by the decision in adjudication, or if the adjudicator fails to notify his decision within the abovementioned time-

frame, the contractor may proceed to invoke the process of Conciliation as follows.

35.4 Conciliation of disputes

- (1) Any party may invoke Conciliation by submitting “Notice of Conciliation” to the Head of the Procuring Organisation. Since conciliation is a voluntary process, within 30 days of receipt of “Notice of Conciliation”, the Head of the Procuring Organisation shall notify a sole Conciliator if the other party is agreeable to enter Conciliation. If the other party is not agreeable to Conciliation, the aggrieved party may invoke Arbitration.
- (2) The Conciliator shall proactively assist the parties to reach an amicable settlement independently and impartially within the terms of Contract, within 60 days from the date of appointment of Conciliator.
- (3) If the parties reach an agreement on a dispute settlement, they shall draw up a written settlement agreement duly signed by the parties and conciliator. When the parties sign the settlement agreement, it shall be final and binding on the parties. The dispute shall be treated as resolved on the date of such agreement.
- (4) The parties shall not initiate, during the conciliation proceedings, any arbitral or judicial proceedings in respect of a dispute that is the subject matter of the conciliation proceedings.
- (5) Termination of Conciliation: Disputes shall remain alive if the conciliation is terminated as follows:
 - ✓ By written declaration of the conciliator, after consultation with the parties, to the effect that further efforts at conciliation are no longer justified, on the date of such declaration; or
 - ✓ By a written declaration of any party to the conciliator to the effect that the conciliation proceedings are terminated, on the date of such declaration; or
 - ✓ If the parties fail to reach an agreement on a settlement of the dispute, within 60 days of the appointment of Conciliator
- (6) On termination of Conciliation, if the dispute is still alive, the aggrieved party shall be free to invoke Arbitration.

36 Arbitration Agreement

36.1 This Agreement

- (1) This Arbitration Agreement (hereinafter referred to as this “Agreement”) relating to this Contract (hereinafter called the “Main Agreement” for this agreement) is made under the provisions of The Arbitration and Conciliation Act, 1996 as amended from time to time and the rules thereunder (hereinafter called The Arbitration Act). This Agreement shall continue to survive termination, completion, or closure of the Main Agreement for 120 days after that.

- (2) Subject to aforesaid provisions, relevant clauses of the contract shall apply to the appointment of arbitrators and arbitration proceedings under this Agreement.
- (3) The Micro, Small and Medium Enterprises Development (MSMED) Act, 2006 provides parties to a dispute (where one of the parties is a Micro or Small Enterprise) to be referred to Micro and Small Enterprises Facilitation Council if the dispute is regarding any amount due under Section 17 of the MSMED Act, 2006. If a Micro or Small Enterprise, being a party to dispute, refers to the provisions in MSMED Act 2006, these provisions shall prevail over this Agreement.

36.2 Notice for Arbitration

- (1) Authority to Appoint Arbitrator(s): For this Arbitration Agreement 'The Appointing Authority', to appoint the arbitrator shall be Head of the Procuring Organisation named in the contract and includes if there be no such authority, the officer who is for the time being discharging the functions of that authority, whether in addition to other functions or otherwise.
- (2) In the event of any dispute as per GCC-clause above, if the Adjudicator fails to decide within 60 days or the Conciliation is terminated then, parties to the contract, after 60 days but within 120 days of 'Notice of Dispute' shall request the Appointing Authority through a "Notice for Arbitration" in writing requesting that the dispute or difference be referred to arbitration.
- (3) The "Notice for arbitration" shall specify the matters in question or subject of the dispute or difference indicating the relevant contractual clause, as well as the amount of claim item-wise.

36.3 Reference to Arbitration

After appointing Arbitrator(s), the Appointing Authority shall refer the Dispute to them. Only such dispute or difference shall be referred to arbitration regarding which the demand has been made, together with counter-claims or set off. Other matters shall be beyond the jurisdiction of Arbitrator(s)

36.4 Appointment of Arbitrator

- (1) **Qualification of Arbitrators:**
 - ✓ In the case of retired officers of The Procuring organisation, he shall have retired in the rank of Senior administrative grade (or equivalent) and shall have retired at least 1 years prior and must not be over 70 years of age on the date of Notice for arbitration.
 - ✓ He/ they shall not have had an opportunity to deal with the matters to which the contract relates or who, in the course of his/ their duties as officers of the Procuring Organisation, expressed views on any or all of the matters under dispute or differences. A certification to this effect (as per Format 1.1.4) shall be taken from Arbitrators. The proceedings of the Arbitral tribunal or the award made by such Tribunal shall, however, not be invalid

merely for the reason that one or more arbitrators had in the course of his service, an opportunity to deal with the matters to which the contract relates or who in the course of his/ their duties expressed views on all or any of the matters under dispute.

- ✓ An Arbitrator may be appointed notwithstanding the total no. of arbitration cases in which he has been appointed in the past.
- ✓ Not be other than the person appointed by The Appointing Authority and that if for any reason that is not possible, the matter shall not be referred to arbitration at all.

(2) Replacement of Arbitrators

If one or more of the arbitrators appointed as above refuses to act as arbitrator, withdraws from his office as arbitrator, or in the event of the arbitrator dying, neglecting/ unable or unwilling or refusing to act for any reason, or his award being set aside by the court for any reason, or in the opinion of The Appointing Authority fails to act without undue delay, the Appointing Authority shall appoint new arbitrator/ arbitrators to act in his/ their place in the same manner in which the earlier arbitrator/ arbitrators had been appointed. Such a re-constituted Tribunal may, at its discretion, proceed with the reference from the stage at which it was left by the previous arbitrator (s).

(3) Appointment of Arbitrator:

- ✓ In cases where the total value of all claims in question added together does not exceed Rs 50,00,000/- (Rupees Fifty Lakh only), the Arbitral Tribunal shall consist of sole Arbitrator. For this purpose, The Appointing Authority shall send to the contractor, within 60 days from the day of receipt of a written and valid notice for arbitration, a panel of at least four (4) names of retired officers, duly indicating their retirement dates.
- ✓ The contractor shall be asked to nominate at least two names out of the panel for appointment as his nominee within 30 days from the dispatch date of the request by The Appointing Authority. The Appointing Authority shall appoint at least one out of them as the sole arbitrator within 30 days from the receipt of the names of the contractor's nominees.
- ✓ In cases where the total value of all claims in question added together exceeds Rs 50,00,000/- (Rupees Fifty Lakh only), the Arbitral Tribunal shall consist of three (3) retired Officers of the Procuring Organisation. For this purpose, The Appointing Authority shall send a panel of at least four (4) names of such Officer(s) empanelled to work as Arbitrators duly indicating their retirement date to the contractor within 60 days from the day when a written and The Appointing Authority receives valid demand for arbitration.
- ✓ The contractor shall be asked to nominate at least 2 names out of the panel for appointment as his nominee within 30 days from the dispatch date of the request by The Appointing Authority. The Appointing Authority shall appoint at least one out of them as the contractor's nominee. It shall also simultaneously appoint the balance number of arbitrators either from the panel or outside the panel, duly indicating the 'Presiding Arbitrator' from amongst the 3 arbitrators

so appointed, within 30 days from the receipt of the names of Contractor's nominees.

- ✓ If the contractor does not suggest his nominees for the arbitral tribunal within the prescribed timeframe, The Appointing Authority shall proceed for appointment of the arbitral tribunal within 30 days of the expiry of such time provided to the Contractor.

36.5 Failure to appoint Arbitrators.

If The Appointing Authority fails to appoint an arbitrator within 60 (sixty) days, then subject to the survival of this Arbitration Agreement, in international commercial arbitration, the Supreme Court of India shall designate the arbitral institution for the appointment of arbitrators. In case of national arbitrations, the High Court shall designate arbitral institutions. The Arbitration Council of India must have graded these arbitration institutions. These arbitral institutions must complete the selection process within thirty days of accepting the request for the arbitrator's appointment.

36.6 The Arbitral Procedure

- (1) Effective Date of Entering Reference: The arbitral tribunal shall be deemed to have entered the reference on the date on which the arbitrator(s) have received notice of their appointment. All subsequent time limits shall be counted from such date.
- (2) Seat and Venue of Arbitration: The seat of arbitration shall be the place from which the Letter of Award or the contract is issued. The venue of arbitration shall be the same as the seat of arbitration. However, in terms of section 20 of The Arbitration Act, the arbitrator, at his discretion, may determine a venue other than the seat of the arbitration without in any way affecting the legal jurisdictional issues linked to the seat of the arbitration.
- (3) If the Adjudication and/ or Conciliation mechanisms had not been exhausted before such reference to Arbitration, the Arbitrator should ask the aggrieved party to approach designated authority for such mechanisms before the Arbitration proceedings are started.
- (4) The claimant shall submit to the Arbitrator(s) with copies to the respondent his claims stating the facts supporting the claims along with all the relevant documents and the relief or remedy sought against each claim within 30 days from the date of appointment of the Arbitral Tribunal unless otherwise extension has been granted by Arbitral Tribunal.
- (5) On receipt of such claims, the respondent shall submit its defence statement and counterclaim(s), if any, within 60 days of receipt of the copy of claims, unless otherwise extension has been granted by Arbitral Tribunal.
- (6) No new claim shall be added during proceedings by either party. However, a party may amend or supplement the original claim or defence thereof during arbitration proceedings subject to acceptance by the Tribunal having due regard to the delay in making it.

- (7) Statement of claims, counterclaims and defence shall be completed within six months from the effective reference date.
- (8) Oral arguments to be held on a day-to-day basis: Oral arguments as far as possible shall be heard by the arbitral tribunal on a day-to-day basis, and no adjournments shall be granted without sufficient cause. The arbitrator (s) may impose an exemplary cost on the party seeking adjournment without sufficient cause.
- (9) Award within 12 (twelve) months: The arbitral tribunal is statutorily bound to deliver an award within 12 (twelve) months from the date when the arbitral tribunal enters reference. The award can be delayed by a maximum of six months only under exceptional circumstances where all parties consent to such extension of time. The court's approval shall be required for further extension if the award is not made out within such an extended period. During the period of an application for extension of time is awaiting before the court, the arbitrator's proceedings shall continue until the disposal of the application.
- (10) Fast Track Procedure: The parties to arbitration may choose to opt for a fast-track procedure either before or after the commencement of the arbitration. The award in fast-track arbitration is to be made out within six months, and the arbitral tribunal shall be entitled to additional fees. The salient features of the fast-track arbitration are:
 - ✓ The dispute is to be decided based on written pleadings only.
 - ✓ Arbitral Tribunal shall have the power to call for clarifications in addition to the written pleadings where it deems necessary.
 - ✓ An oral hearing may be held only if all the parties request or the arbitral tribunal considers it necessary.
 - ✓ The parties are free to decide the fees of the arbitrator(s) for fast-track procedure.
- (11) Powers of Arbitral Tribunal to grant Interim Relief: The parties to arbitration may approach the arbitral tribunal for seeking interim relief on the grounds available under section 9 of the act. The tribunal has the powers of a court while making interim awards in the proceedings before it.
- (12) Confidentiality: As provided in Section 42A of The Arbitration Act, all the details and particulars of the arbitration proceedings shall be kept confidential except in certain situations, like if the disclosure is necessary for the implementation or execution of the arbitral award.
- (13) Obligation During Pendency of Arbitration: Performance of the contract shall, unless otherwise directed by the Procuring Entity, continue during the arbitration proceedings, and no payment due or payable by the Procuring Entity shall be withheld on account of such proceedings, provided; however, it shall be open for Arbitral Tribunal to consider and decide whether or not the performance of the contract or payment therein should continue during arbitration proceedings.

37.7 The Arbitral Award

- (1) In the case of the Tribunal, comprising of three members, any ruling on award shall be made by a majority of members of the Tribunal. In the absence of such a majority, the views of the Presiding Arbitrator shall prevail.
- (2) The arbitral award shall state item-wise the sum and reasons upon which it is based. The analysis and reasons shall be detailed enough so that the award can be inferred from it.
- (3) It is further a term of this arbitration agreement that where the arbitral award is for the payment of money, no interest shall be payable on whole or any part of the money for any period till the date on which the award is made in terms of Section 31 (7) (a) of The Arbitration Act.
- (4) The award of the arbitrator shall be final and binding on the parties to this Contract.
- (5) A party may apply for corrections of any computational errors, typographical or clerical errors, or any other error of similar nature occurring in the award or interpretation of a specific point of the award to the Tribunal within 60 days of receipt of the award.
- (6) A party may apply to the Tribunal within 60 days of receiving the award to make an additional award as to claims presented in the arbitral proceedings but omitted from the arbitral award.

37.8 Savings

The Arbitral Tribunal shall decide any matter related to Arbitration not covered under this Arbitration Agreement as per the provisions of The Arbitration Act.

37.9 Cost of Arbitration and fees of the Arbitrator(s)

- (1) The concerned parties shall bear the cost of arbitration in terms of section 31 (A) of The Arbitration Act. The cost shall inter-alia include fees of the Arbitrator. Further, the fees payable to the Arbitrator shall be governed by instructions issued on the subject by the Procuring Entity and/ or the Government from time to time, in line with the Arbitration and Conciliation Act, irrespective of the fact whether the Arbitrator is appointed by the Procuring Entity or the Government under this clause or by any court of law unless directed explicitly by Hon'ble court otherwise on the matter. A sole arbitrator shall be entitled to a 25% extra fee over such a prescribed fee.
- (2) The arbitrator shall be entitled to a 50 percent extra fee if the award is made within 6 months in terms of provisions contained in section 29(A) (2) of The Arbitration Act.
- (3) Besides the above, Arbitrator shall also be entitled to this extra fee in cases where Fast Track Procedure in terms of section 29 (B) of The Arbitration Act is followed.

38 Termination due to Breach, Default, and Insolvency

38.1 Defaults and Breach of Contract

In case the contractor undergoes insolvency or receivership; neglects or defaults, or expresses inability or disinclination to honour his obligations relating to the performance of the contract or ethical standards or any other obligation that substantively affects the Procuring Entity's rights and benefits under the contract, it shall be treated as a breach of Contract. Such defaults could include inter-alia:

- (1) Default in Performance and Obligations: if the contractor fails to deliver any or all of the Services or fails to perform any other contractual obligations (including Code of Integrity or obligation to maintain eligibility and Qualifications based on which contract was awarded) within the period stipulated in the contract or within any extension thereof granted by the Procuring Entity.
- (2) Insolvency: If the contractor being an individual or if a firm, any partner thereof, shall at any time, be adjudged insolvent or shall have a receiving order or order for the administration of his estate made against him or shall take any proceeding for composition under any Insolvency Act for the time being in force or make any conveyance or assignment of his effects or enter into any assignment or composition with his creditors or suspend payment or if the firm be dissolved under the Partnership Act, or
- (3) Liquidation: if the contractor is a company being wound up voluntarily, or by order of a Court or a Receiver, Liquidator or Manager on behalf of the Debenture-holders is appointed, or circumstances shall have arisen which entitle the Court or Debenture- holders to appoint a Receiver, Liquidator or Manager

38.2 Notice for Default:

As soon as a breach of contract is noticed, a show-cause 'Notice of Default' shall be issued to the contractor, giving two weeks' notice, reserving the right to invoke contractual remedies. After such a show-cause notice, all payments to the contractor would be temporarily withheld to safeguard needed recoveries that may become due on invoking contractual remedies.

38.3 Terminations for Default

- (1) Notice for Termination for Default: In the event of unsatisfactory resolution of 'Notice of Default' within two weeks of its issue as per sub-clause above, the Procuring Entity, if so decided, shall by written Notice of Termination for Default sent to the contractor, terminate the contract in whole or in part, without compensation to the contractor.
- (2) Such termination shall not prejudice or affect the rights and remedies, including under sub-clause below, which have accrued and/ or shall accrue to the Procuring Entity after that.

- (3) Unless otherwise instructed by the Procuring Entity, the contractor shall continue to perform the contract to the extent not terminated.
- (4) All Defect Liability obligations, if any, shall continue to survive despite the termination.

38.4 Contractual Remedies for Breaches/ Defaults or Termination for Default

If there is an unsatisfactory resolution within this period, the Procuring Entity shall take one; or more of the following contractual remedies.

- 1) Temporary withhold payments due to the contractor till recoveries due to invocation of other contractual remedies are complete.
- 2) Call back any loaned property or advances of payment, if any, with a levy of interest at the prevailing rate (MIBID - Mumbai Interbank Bid Rate).
- 3) Recover liquidated damages and invoke denial clause for delays.
- 4) Encash and/ or Forfeit performance or other contractual securities.
- 5) Prefer claims against insurances, if any.
- 6) Terminate Contract for default, fully or partially including its right for Risk-and-Cost Procurement as per following sub-clause.
- 7) **Risk and Cost Procurement:** In addition to termination for default, the Procuring Entity shall be entitled, and it shall be lawful on his part, to procure Services similar to those terminated, with such terms and conditions and in such manner as it deems fit at the "Risk and Cost" of the contractor. Such Risk and Cost Procurement must be contracted within six months from the breach of Contract. The contractor shall be liable for any loss which the Procuring Entity may sustain on that account provided the procurement, or, if there is an agreement to procure, such agreement is made. The contractor shall not be entitled to any gain on such procurement, and the manner and method of such procurement shall be in the entire discretion of the Procuring Entity. It shall not be necessary for the Procuring Entity to notify the contractor of such procurement. It shall, however, be at the discretion of the Procuring Entity to collect or not the security deposit from the firm/ firms on whom the contract is placed at the risk and cost of the defaulted firm.
Note: Regarding the Services that are not readily available in the market and where procurement difficulties are experienced, the period for making risk procurement shall be nine months instead of six months provided above.
- 8) Initiate proceedings in a court of law for the transgression of a law, tort, and loss, not addressable by the above means.

38.5 Limitation of Liability

Except in cases of criminal negligence or willful misconduct, the aggregate liability of the contractor to the Procuring Entity, whether under the contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective

equipment, or to any obligation of the contractor to indemnify the Procuring Entity concerning IPR infringement.

39 Termination for Default/ Convenience of Procuring Entity and Frustration

39.1 Notice for Determination of Contract

- 1) The Procuring Entity reserves the right to terminate the contract, in whole or in part for its (the Procuring Entity's) convenience or frustration of Contract as per sub-clause below, by serving written 'Notice for Determination of Contract' on the contractor at any time during the currency of the contract. The notice shall specify that the termination is for the convenience of the Procuring Entity or the frustration of the contract. The notice shall also indicate inter-alia, the extent to which the contractor's performance under the contract is terminated, and the date with effect from which such termination shall become effective.
- 2) Such termination shall not prejudice or affect the rights and remedies accrued and/ or shall accrue after that to the Parties.
- 3) Unless otherwise instructed by the Procuring Entity, the contractor shall continue to perform the contract to the extent not terminated.
- 4) All Defect Liability obligations, if any, shall continue to survive despite the termination.
- 5) The Services and incidental goods/ works that can be delivered or performed within thirty days after the contractor's receipt of the notice of termination shall be accepted by the Procuring Entity as per the contract terms. For the remaining Services and incidental goods/ works, the Procuring Entity may decide:
 - a) To get any portion of the balance completed and delivered at the contract terms, conditions, and prices; and/ or
 - b) To cancel the remaining portion of the Services and incidental goods/ works and compensate the contractor by paying an agreed amount for the cost incurred by the contractor, if any, towards the remaining portion of the Services and incidental goods/ works.

39.2 Frustration of Contract

- (1) Notice of Frustration Event: Upon a supervening cause occurring after the effective date of the contract, including a change in law, beyond the control of either party whether as a result of the Force Majeure clause or within the scope of section 56 of the Indian Contract Act, 1872, that makes it impossible to perform the contract within a reasonable timeframe, the affected party shall give a 'Notice of Frustration Event' to the other party giving justification. The parties shall use reasonable efforts to agree to amend the contract, as may be necessary to complete its performance. However, if the parties cannot reach a mutual agreement within 60 days of the initial notice, the Procuring Entity shall issue a 'Notice for Determining the contract' and terminate the contract due to its frustration as in the sub-clause above.

- (2) However, the following shall not be considered as such a supervening cause
 - a) Lack of commercial feasibility or viability or profitability or availability of funds
 - b) if caused by either party's breach of its obligations under this Contract or failure to act in good faith or use commercially reasonable due diligence to prevent such an event.

39.3 Closure of Contract

The contract shall stand closed upon

- 1) successful performance of all obligations by both parties, including completion of Defect Liability obligations and final payment.
- 2) termination and settlements after that, if any, as per GCC clause above.

40 Make in India Order

Orders issued by the Government of India regarding eligibility to participate and for purchase preference to "Local Suppliers" to encourage 'Make in India' and promote manufacturing and production of goods and services in India shall apply to this procurement,

41 TERMINATION OF CONTRACT ON DEATH OF 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 to terminate the contract without any compensation to the Contractor.

42 SUSPENSION OF WORKS

(a) The Contractor shall, upon receipt of a written order from the Engineer-in-Charge, 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:

- i) On account of any default on the part of the Contractor, or
- ii) For proper execution of the works or part thereof for reasons other than the default of the Contractor, or
- iii) For safety of the works or part thereof.

The Contractor shall, during such suspension, properly protect and secure the works to the extent necessary and carry out all instructions given in that behalf by the Engineer-in-Charge.

(b) If the suspension is ordered for reasons mentioned under (ii) and (iii) in sub-para (a) above:

- i) The Contractor shall be entitled to an extension of time equal to the period of every such suspension plus 25% of the suspension period, for completion of the work. No adjustment in the contract price shall be allowed for reasons of such suspension.

ii) In the event of the Contractor treating such suspension as an abandonment of the contract by the Authority, he shall have no claim for payment or compensation on account of any profit or advantage which he might have derived from the execution of the work in full.

43 ROYALTY ON MATERIALS

43.1

The Contractor shall deposit royalty and obtain the necessary permits for the supply of bajri, stone, kankar, sand, and other materials, etc., from the local authorities. The quoted rates shall be inclusive of royalty.

43.2

The Contractor shall be deemed to have inspected the site and its surroundings and to have acquainted itself with: the nature of the ground, accessibility of the site, the full extent and nature of all operations necessary for proper execution of the contract, availability of space for storage of materials, constructional plant, and temporary works, restrictions on movement or plying of heavy vehicles in the area, supply and use of labour, materials, plant, and equipment, and laws, rules, and regulations imposed by local authorities, if any.

43.3

The rates and prices quoted in the Bill of Quantities shall be for completed and finished items of work, complete in all respects. They shall be deemed to include: all constructional plant, labour, supervision, materials, and transport; all temporary works, erection, and maintenance; Contractor's profit, establishment, and overheads; preparation of designs and drawings related to casting yards, shop drawings, fabrication drawings (if required), staging formwork, stacking yards, etc.; and all general risks, taxes, royalty, duties, cess, octroi, and other levies, insurance liabilities, and obligations set out or implied in the tender documents and contract.

43.4

If any temporary or permanent structure is encountered, or if the safety of any structure in the vicinity is endangered due to execution of the project, the Contractor shall take all necessary protective measures as directed by the Engineer-in-Charge.

If any damage occurs to such temporary or permanent structures due to execution of the project, the Contractor shall make good the same by any means as directed by the Engineer-in-Charge.

The Contractor is required to inspect the site from this point of view. The cost incurred in this regard shall be deemed to be included in the quoted rates of the BOQ items, and no extra payment shall be admissible on this account.

44 Disposal of excavated Rocks/Earth

The Contractor shall be deemed to have taken into account the quantum of earth/soft/hard rocks in excavation involved and that the excavated soft/hard rocks to be disposed off by him shall become his property free of cost.

It will be the responsibility of the Contractor to get the permission for yard for dumping the excavated soft/hard rocks from local authority if required. If any royalty/fee is payable to local authority, such royalty/fee shall also be borne by the Contractor. Disposal shall be carried out strictly as per the regulations of local authority. The cost of storage, transportation (to & from site), handling etc. shall be borne by the Contractor.

The Contractor shall also be deemed to have taken into account the credit to be given to Authority in his quoted price for such hard/soft rocks which the Contractor obtains from the site free of cost.

45 Protection of Environment:

The Contractor shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation. The contractor shall be required to follow all the rules/norms of the National Green Tribunal applicable to this work.

The contractor shall indemnify Authority/its officials against any claims or obligations arising out of any damage to adjacent property, structure or to building work done by him.

During continuance of the contract, the Contractor and his sub-contractors shall abide at all times by all existing enactments on environmental protection and rules made thereunder, regulations, notifications and bye-laws of the State or Central Government, or local authorities and any other law, bye-law, regulations that may be passed or notification that may be issued in this respect in future by the State or Central Government or the local authority.

46 Personal Protective Equipment's (PPEs):

a. The contractor shall provide required PPEs to workmen to protect against safety and/or health hazards. Primarily PPEs are required for the following protection:

- i. Head Protection (Safety helmets)
- ii. Foot Protection (Safety footwear, Gumboot, etc.)
- iii. Body Protection (High visibility clothing — waistcoat/jacket, Apron, etc.)
- iv. Personal fall protection (Full body harness, Rope-grap fall arrester, etc.)
- v. Eye protection (Goggles, Welder's glasses, etc.)
- vi. Hand protection (Gloves, finger coats, etc.)
- vii. Respiratory Protection (Nose mask, SCBAs, etc.)
- viii. Hearing protection (Ear plugs, Ear muffs, etc.)

The PPEs and safety appliances provided by the contractor shall be of the standard as prescribed by the Bureau of Indian Standards (BIS). If materials conforming to BIS standards are not available, the contractor shall procure PPE and safety appliances, as approved by the Engineer-in-charge.

b. All construction workers should be provided with high visibility jackets with reflective tapes conforming to the requirement specified under BS EN 471:1994. The visibility of workmen at all times shall be increased so as to protect them from speeding vehicular traffic.

The contractor shall provide safety helmet, safety shoe and high visibility clothing for all employees including workmen, traffic marshal and other employees who are engaged for any work under this contract as per the following requirement: –

S.No.	All employees of the contractor including workmen	Traffic marshals
i	Hard hat with company logo	Hard hat with company logo
ii	Safety boots	Safety boots
iii	Hi-visibility waistcoat covering upper body and meeting the following requirements as per BS EN 471:1994 (a–g)	Hi-visibility jacket upper body and meeting the following requirements as per BS EN 471:1994 (a–g)
a	Background in fluorescent orange-red in colour	Background in fluorescent orange-red in colour
b	Two vertical green strips of 5 cm wide on front side covering the torso for a length at least 50 cm	Jackets with full-length sleeves with two bands of retro reflective material, which shall be placed at the same height on the garment or those of the torso. The upper band shall encircle the upper part of the sleeves between the elbow and the shoulder; the bottom of the lower band shall not be less than 5 cm from the bottom of the sleeve.
c	Two diagonal strips of 5 cm wide on back in an 'X' pattern covering at least 50 cm	Two vertical green strips of 5 cm wide on front side covering the torso at least 50 cm
d	Horizontal strips not less than 5 cm wide running around the bottom of the vertical strip in front and 'X' pattern at back	Two diagonal strips of 5 cm wide on front side covering the torso at least 50 cm
e	The bottom strip shall be at a distance of 5 cm from the bottom of the vest.	Horizontal straight not less than 5 cm wide running around the bottom of the vertical strip in front and 'X' pattern at back.
f	Strips must be retro reflective and fluorescent	The bottom strip shall be at a distance of 5 cm from the bottom of the vest.

g	Waistcoat shall have a side adjustable fit and a side and front tear-away feature on vests made of nylon.	Strips must be retro reflective and fluorescent.
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In addition to the above, any other PPE required for any specific jobs like welding and cutting, working at height, tunnelling etc. shall also be provided to all workmen and also ensure that all workmen use the PPEs properly while on the job. The contractor shall not pay any cash amount in lieu of PPE to the workers/sub-contractors and expect them to buy and use during work.

The contractor shall at all times maintain a minimum of 10% spare PPEs and safety appliances and properly record and show to the Engineer-in-Charge during inspections. It is always the duty of the contractor to provide required PPEs for all visitors & Authority staff. Towards this, the required quantity of PPEs shall be kept always at the security post.

Notwithstanding the above, the contractor shall at their expense arrange for the safety provision as per all relevant Indian Standard Safety Codes & Local bye-laws. The contractor shall provide all facilities in connection therewith and shall also issue the identity card to his labourer.

Safety Helmet Colour Code	Person to Use
White	Authority/PMC
Grey	All designers, Architects, Consultants etc.
Violet	Main contractors (Engineers / Supervisors)
Blue	All sub-contractors (Engineers / Supervisors)
Red	Electricians (both Contractor & Sub-contractor)
Green	Safety Professionals (both Contractor & Sub-contractor)
Orange	Security Guards / Traffic marshals
Yellow	All workmen
White sticker (with "VISITOR")	Visitors

47 Unforeseeable Difficulties:

Except as otherwise specifically stated elsewhere in the Contract:

- i. The Contractor shall be deemed to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the Works;
- ii. By signing the Contract, the Contractor accepts total responsibility for having foreseen all difficulties and costs of successfully completing the Works; and
- iii. The Contract Price shall not be adjusted to take account of any unforeseen difficulties or costs.

Authority shall not provide any material either on chargeable or on free issue basis to the contractor for execution of the project.

48 Site Office and Facilities

1. **Establishment of Site Office:** The Contractor shall, within **15 (fifteen) days** from the date of award of work or as directed by the Engineer-in-Charge, establish and maintain a fully functional Site Office at or near the construction site at his own cost. The site office shall serve as the principal coordination and communication point between the Contractor and the Employer/Engineer-in-Charge.
2. **Office Space and Facilities for Employer/Engineer-in-Charge/PMC:** The Contractor shall also provide, at his own cost, suitable furnished office accommodation, along with necessary facilities, for use by the Employer/Engineer-in-Charge and his staff at the site. The office shall include but not be limited to:
 - Adequate covered area with furniture (tables, chairs, storage cabinets, etc.)
 - Drinking water facility and clean sanitation arrangements.
 - Electric power supply with lighting and AC.
 - Internet connectivity and telephone facility.
 - Office stationery and printing/scanning facility.
3. **Maintenance and Operation:** The Contractor shall maintain the office and its services in good condition throughout the contract period. All expenses related to maintenance, repair, water, electricity, cleaning, and security shall be borne by the Contractor.
4. **Accessibility:** The Site Office shall be accessible to the Employer/Engineer-in-Charge and their authorized representatives at all times during the execution of the works.
5. **Dismantling and Removal:** Upon completion of the works and after obtaining written permission from the Engineer-in-Charge, the Contractor shall dismantle and remove the site office and restore the area to its original condition at his own cost.

**SECTION 8 – SPECIAL CONDITIONS OF
CONTRACT(SCC)**

The following Special Conditions of Contract (SCC) shall supplement the General Conditions of Contract (GCC). Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.

Ref. GCC	Subject	Data
1	Employer's name and address	Development Commissioner, SEEPZ- SEZ, Mumbai Postal Address: SEEPZ SEZ, MIDC Central Road, Andheri East, Mumbai 400096. E-Mail: dcseepz-mah@nic.in Landline: 022-28294728/29
2	Time for Completion	25 Months from date of Work Order issued
3	Defects Liability Period	2 years from the date of completion.
4	Performance Security/Guarantee	The performance security will be in the form of an unconditional bank guarantee of 5 % of the awarded of contract amount(s) Additional performance security will be same percentage of contract value if quoted below 5% of the estimated cost. If quoted below 6.5% then additional PG will be 6.5 % of contract value.
5	Facilities, Utilities to be provided by Procuring Entity	The site shall be handed over by the SEEPZ SEZ Authority without any hindrance for accessibility. Co-ordination and support for the statutory compliances shall be provided by the SEEPZ SEZ Authority. Financial Inputs for the components not factored in i.e. statutory fees shall be paid by the SEEPZ SEZ Authority. The concept plan provided in this RFP are indicative for preliminary designs and architectural planning.
6	Delay damages for the Works	<u>0.5</u> % of the contract price per week, in the currencies and proportions in which the Contract Price is payable.
7	Maximum amount of delay damages	10 % of the Contract Price.
8	Percentage of Retention	5 %
9	Limit of Retention Money	5 % of the Accepted Contract Amount.
10	Date by which the Dispute Board shall be appointed	28 days after the Commencement
11	Place of Arbitration	Mumbai
12	Integrity pact	Bidder to sign & submit as given in appendix 4

13	Contractors All Risk Insurance Policy	Bidder should comply to all risk insurance during execution of work
14	BG for Waterproofing Works valid up to 10 years of Guarantee period.	₹ 7,00,000/-
15	Soil Investigation	Soil investigation report shall be shared for reference as a corrigendum to the tender document once available. However, the bidder/contractor shall independently carry out soil investigation at its own cost and risk for the purpose of structural design of the building. Any data provided by the department shall be indicative only, and no claim shall be entertained on account of variation in soil parameters

SECTION 9 - CONTRACT FORMS

Appendix-01

PERFORMANCE BANK GUARANTEE

(To be executed on Non-Judicial Stamp Paper of appropriate value as per applicable law)

Bank Guarantee No.: _____ Date: _____

To,
Development Commissioner
SEEPZ SEZ Authority
MIDC Central Road,
Andheri East, Mumbai – 400096

Subject: Performance Bank Guarantee for the work

“ _____ ”

WHEREAS M/s _____ (hereinafter referred to as “*the Contractor*”) has entered into a Contract dated _____ with the Development Commissioner SEEPZ SEZ Authority MIDC Central Road, Andheri East, Mumbai – 400096 for the work “ _____ ” (hereinafter referred to as “*the Contract*”).

AND WHEREAS the Contract requires the Contractor to furnish a Performance Bank Guarantee for the faithful performance and due fulfillment of all the terms, conditions, and obligations under the Contract.

NOW, THEREFORE, we, _____ (**Name and Address of the Bank**), having our registered office at _____, and a branch at _____, do hereby **unconditionally and irrevocably guarantee and undertake** to pay to the Development Commissioner SEEPZ SEZ Authority, on demand, any amount up to and not exceeding a sum of ₹ _____ (**Rupees _____ only**) as may be claimed by the Development Commissioner SEEPZ SEZ Authority on behalf of the President of India for any loss or damage caused to or likely to be caused to or suffered by the Government by reason of any breach by the said Contractor of any of the terms or conditions contained in the said Contract or by reason of the Contractor’s failure to perform the said Contract.

We further agree that:

1. The decision of the **SEEPZ SEZ Authority**, as to whether the Contractor has committed any breach of the Contract or failed to perform, shall be final and binding on us.
2. We undertake to pay the amount due and payable under this Guarantee without any demur, protest, or delay, merely on a written demand from the Development Commissioner SEEPZ SEZ Authority, stating that the amount claimed is due by way of loss or damage caused by the Contractor’s default.

3. The payment shall be made to the Development Commissioner SEEPZ SEZ Authority without reference to the Contractor and without questioning the legal relationship between the Contractor and the Government.
4. This Guarantee shall remain valid and enforceable until the date of completion of the Project or **up to _____ (date)**, whichever is later, unless extended by the Employer.
5. We further agree that the Government shall have the fullest liberty, without our consent and without affecting this Guarantee, to vary any of the terms and conditions of the Contract or to extend the time for performance by the Contractor, and we shall not be released from our liability under this Guarantee by any such variation or extension.
6. Our liability under this Guarantee shall be absolute and shall not be affected by any change in the constitution of the Bank or the Contractor or by any other reason whatsoever.
7. This Guarantee shall remain in full force and effect until it is released by the Engineer-in-Charge in writing.

Notwithstanding anything contained herein:

- Our liability under this Guarantee shall not exceed ₹ _____ **(Rupees only)**;
- This Guarantee shall remain valid up to _____ **(date)**; and
- We shall be liable to pay the guaranteed amount or any part thereof under this Guarantee only if a written demand is received by us on or before _____ **(date of expiry + claim period, usually 90 days)**.

Dated this _____ day of _____, 20

For and on behalf of
(Name of the Bank)
(Authorized Signatory with Seal)

Name: _____
Designation: _____
Address: _____
Contact No.: _____
Email ID: _____

(Bank Seal & Signature of Authorized Officer)

Appendix-02

INTEGRITY PACT

(To be executed on Non-Judicial Stamp Paper of appropriate value as per applicable law)

Between

Development Commissioner
SEEPZ SEZ Authority
MIDC Central Road,
Andheri East, Mumbai – 400096
(hereinafter referred to as “The Principal”)

And

M/s _____
having its registered office at _____,
(hereinafter referred to as “The Bidder/Contractor”)

Preamble

The Principal intends to award, under laid down organizational procedures, a contract for the work “_____”.
The Principal values full compliance with all relevant laws of the land, rules, regulations, economic use of resources, and of fairness and transparency in its relations with its Bidder(s) and/or Contractor(s).

In order to achieve these goals, the Principal and the Bidder/Contractor enter into this Integrity Pact, which will be a part and parcel of the tender/contract.

Section 1 – Commitments of the Principal

1. The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:
 - a. No official of the Principal, personally or through family members, will demand or accept any gratification, gift, or advantage from the Bidder/Contractor, either directly or indirectly.
 - b. The Principal will, during the tender process, treat all Bidders with equity and reason. The Principal will, in particular, not extend any undue favor to any Bidder or Contractor.
 - c. The Principal shall ensure that all its officials observe the same transparency and fairness during the evaluation of tenders and execution of the contract.

2. If the Principal obtains information on the conduct of any of its officials which is in contravention of the above principles, the Principal shall take appropriate disciplinary action and initiate legal proceedings as per law.

Section 2 – Commitments of the Bidder/Contractor

The Bidder/Contractor commits itself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during participation in the tender process and during contract execution:

1. The Bidder/Contractor will not offer, directly or through intermediaries, any bribe, gift, or consideration to any official of the Principal in connection with the tender or contract.
2. The Bidder/Contractor will not enter into any understanding with other Bidders to restrict competition.
3. The Bidder/Contractor will not commit any offence under the Prevention of Corruption Act, 1988, or any amendment thereof.
4. The Bidder/Contractor shall disclose the name and address of its agents, representatives, and intermediaries, if any, involved in the tender process or execution of the contract.
5. The Bidder/Contractor will not misrepresent facts or furnish false documents or indulge in illegal practices to win the contract.

Section 3 – Disqualification from Tender Process and Exclusion from Future Contracts

1. If the Bidder/Contractor, before award or during execution of the contract, has committed a violation of this Integrity Pact, the Principal may disqualify the Bidder/Contractor from the tender process or terminate the contract.
2. The Principal may also exclude the Bidder/Contractor from future tenders for a period to be determined by the Principal.
3. If the Bidder/Contractor has violated any provisions of this Pact, it may lead to forfeiture of the Earnest Money Deposit (EMD), Security Deposit, or Performance Guarantee, as the case may be.

Section 4 – Independent External Monitor (IEM)

1. The Principal has appointed Independent External Monitor(s) (IEMs), as per the guidelines of the Central Vigilance Commission, to oversee implementation of the Integrity Pact.
2. The contact details of the IEM(s) shall be published in the NIT / Tender Document.
3. The IEM(s) may examine any complaint regarding violation of the provisions of this Pact and submit their recommendations to the Principal.
4. All correspondence with the IEM shall be made in confidence.

Section 5 – Fall Clause

The Bidder/Contractor undertakes that it has not given and will not give any benefit, monetary or otherwise, to any person or company to secure this contract. If any such violation is found, the Bidder/Contractor will refund to the Principal all payments made along with interest.

Section 6 – Law and Place of Jurisdiction

This Pact is subject to Indian law. The place of performance and jurisdiction shall be the location of the office of the Principal.

Section 7 – Other Provisions

1. This Pact comes into force on the date of submission of the tender and remains valid till the completion of the contract.
2. If the Bidder/Contractor is a partnership or consortium, all partners shall sign the Pact jointly and severally.
3. Any violation of the Integrity Pact shall invite action as per the terms of this document.

IN WITNESS WHEREOF, the parties have signed and executed this Integrity Pact on this _____ day of _____, **20**.

**For and on behalf of
Development Commissioner**

(Authorized Signatory)
Name: _____
Designation: _____
Department / Office: _____
Date: _____
(Seal)

For and on behalf of

M/s _____
(Authorized Signatory)
Name: _____
Designation: _____
Address: _____
Date: _____
(Seal)

Witnesses:

_____ (Name, Address, Signature)

_____ (Name, Address, Signature)

Appendix-03

PERFORMA OF BANK GUARANTEE

FOR INTEREST BEARING MOBILIZATION ADVANCE

(To be executed on Judicial Stamp Paper of appropriate value as per Stamp Act of respective State)

To:
Development Commissioner
SEEPZ SEZ Authority
MIDC Central Road,
Andheri East, Mumbai – 400096

In consideration of the **Development Commissioner, SEEPZ SEZ Authority**, having its office at **SEEPZ SEZ, MIDC Central Road, Andheri (East), Mumbai – 400096** (hereinafter called "*SEEPZ SEZ Authority*", which expression shall unless repugnant to the subject or context include its successors and assigns), having agreed under the terms and conditions of **Contract No. _____ dated _____** made between **M/s _____** (hereinafter called "*the Contractor*" or "*the Supplier*") having its Registered Head Office at _____, which expression shall unless repugnant to the subject or context include its successors and assigns, and SEEPZ SEZ Authority in connection with (**name of work**) (hereinafter called "*the said Contract*") to make, at the request of the Contractor, a **Mobilization Advance** of ₹ _____ (Rupees _____ only) carrying interest @ _____% per annum for utilizing it for the purpose of the Contract on his furnishing a guarantee acceptable to SEEPZ SEZ Authority,

We, the _____ Bank (hereinafter called "*the Bank*", which expression shall unless repugnant to the subject or context include its successors and assigns), having our registered office at _____ and branch office at _____, hereby unconditionally and irrevocably undertake and guarantee payment to SEEPZ SEZ Authority forthwith, on the same day on demand in writing and without protest or demur, the said advance along with interest as provided according to the terms and conditions of the Contract, up to an aggregate limit of ₹ _____ (Rupees _____ only), inclusive of interest @ _____% per annum.

The Bank hereby agrees with SEEPZ SEZ Authority that:

1. **This Guarantee** shall be a continuing guarantee and shall remain valid and irrevocable for all claims of SEEPZ SEZ Authority and liabilities of the Contractor till the date of expiry of this Bank Guarantee, i.e. _____.

The **claim period** of the Bank Guarantee shall be for a period of **12 (twelve) months after the date of expiry** of the Bank Guarantee.

2. **SEEPZ** SEZ Authority shall be the sole judge of and as to whether the amount claimed has fallen due to SEEPZ SEZ Authority under the said Contract or whether the 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 SEEPZ SEZ Authority on account of the said advance together with interest not being recovered in full. The decision of SEEPZ SEZ Authority in that regard shall be **final and binding** on us.
3. **This Guarantee shall remain in full force and effect** till SEEPZ SEZ Authority certifies that the said advance with interest has been fully recovered from the Contractor and accordingly discharges this Guarantee. SEEPZ SEZ Authority shall have no claim under this Guarantee unless a notice of claim has been served on the Bank within **12 months after the expiry** of the said Bank Guarantee, in which case the same shall be enforceable against the Bank.
4. This Guarantee shall **not be affected by liquidation, winding up, dissolution, change of constitution, or insolvency** of the Contractor, but shall in all respects be binding and operative until payment of all moneys payable to SEEPZ SEZ Authority in terms hereof, or till the expiry of the Bank Guarantee including claim period, whichever is earlier.
5. This Bank Guarantee shall **not be terminable** for any change in the constitution of the Guarantor Bank or for any other reason whatsoever. The liability of the Guarantor Bank hereunder shall not be impaired or discharged by any **extension of time, variation, or alteration** made with or without the knowledge or consent of SEEPZ SEZ Authority, by or between the Contractor and SEEPZ SEZ Authority.
6. The Bank hereby **waives all rights inconsistent with the terms** of this Guarantee. The obligations of the Bank shall not be affected or suspended by any dispute or disputes raised by the Contractor (whether pending before any Arbitrator, Tribunal, or Court) or any denial of liability by the Contractor, or any act preventing payment by the Bank to SEEPZ SEZ Authority under this Guarantee.
7. SEEPZ SEZ Authority shall have the **fullest liberty** without affecting in any way the liability of the Bank under this Guarantee to vary any of the terms and conditions of the said Contract or advance, or to extend the time of performance by the Contractor, or to postpone from time to time the exercise of any powers by it against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions governing the Contract or the securities available to SEEPZ. The Bank shall not be released from its liability by any such act, forbearance, or indulgence on the part of SEEPZ SEZ Authority.
8. It shall **not be necessary for** SEEPZ SEZ Authority to proceed against the Contractor before proceeding against the Bank, and this Guarantee shall be **enforceable directly against the Bank**, notwithstanding any security SEEPZ SEZ Authority may have obtained or may obtain from the Contractor, whether the same is outstanding or unrealized.

Notwithstanding anything contained hereinbefore, our liability under this Guarantee is **restricted** to ₹ _____ **(Rupees)**

_____ **only).**
This Guarantee will **expire on** _____. Any claim under this Guarantee must be
received by us within 12 months after the date of expiry.

Dated this _____ **day of** _____, **20**
Place: _____

Witnesses:

1. _____
2. _____

For and on behalf of the Bank

(Signature with Name and Seal)

Designation: _____

Address: _____

Contact No.: _____

PERFORMA OF BANK GUARANTEE

(In lieu of Guarantee for Water-Proofing Works)
(Judicial Stamp Paper of appropriate value as per Stamp Act of respective State)

To:
Development Commissioner
SEEPZ SEZ Authority
MIDC Central Road,
Andheri East, Mumbai – 400096

In consideration of the Development Commissioner **SEEPZ SEZ Authority**, having its office at, *SEEPZ SEZ, MIDC Central Road, Andheri East, Mumbai – 400096* (hereinafter called “SEEPZ SEZ Authority”, which expression shall, unless repugnant to the subject or context, include its successors and assigns), having awarded to **M/s.....** (hereinafter called “*the Supplier/Contractor*”, which expression shall, unless repugnant to the subject or context, include its successors and assigns), a Contract in terms inter-alia of SEEPZ SEZ Authority’s letter No..... dated..... and the Contract/Purchase Conditions of SEEPZ SEZ Authority, and upon the condition of the Supplier/Contractor furnishing security for the performance of the Supplier’s obligations and/or discharge of the Contractor’s/Supplier’s liability for removal of defects in water-proofing treatment under the said Contract, up to a sum of **Rs..... (Rupees..... only)**.

We, the **Bank** (hereinafter called “*The Bank*”, which expression shall, unless repugnant to the subject or context, include its successors and assigns), having our registered office at and branch office at, hereby undertake and guarantee payment to **SEEPZ SEZ Authority** forthwith on the same day, on demand in writing and without protest or demur, of any and all moneys payable by the Supplier/Contractor to SEEPZ SEZ Authority 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 SEEPZ SEZ Authority to the Bank with reference to this guarantee, up to an aggregate limit of **Rs..... (Rupees..... only)**, and the Bank hereby agrees with SEEPZ SEZ Authority that:

1.

This Guarantee shall be a continuing guarantee and shall remain valid and irrevocable for all claims of SEEPZ SEZ Authority and liabilities of the Supplier/Contractor till the date of expiry of BG i.e. The claim period of the Bank Guarantee shall be for a period of 12 months after the date of expiry of BG.

2.

This Guarantee shall be in addition to any other Guarantee or Security whatsoever that SEEPZ SEZ Authority now or at any time may have in relation to the Supplier's obligations/liabilities under and/or in connection with the said supply/contract, and SEEPZ SEZ Authority shall have full authority to take recourse to or enforce this Security in preference to any other Guarantee or Security which it may have or obtain, and no forbearance on the part of SEEPZ SEZ Authority in enforcing or requiring enforcement of any other Security shall release the Bank from its liability hereunder.

3.

SEEPZ SEZ Authority 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 contract, or to grant time and/or indulgence to the Supplier/Contractor, or to increase or otherwise vary the prices or total contract value, or to release or forbear from enforcement of all or any of the conditions under the said contract, and no such dealings or indulgence shall release the Bank from its full liability to SEEPZ SEZ Authority hereunder.

4.

This Guarantee shall not be affected by the liquidation, winding up, dissolution, change of constitution, or insolvency of the Supplier/Contractor, but shall remain binding and operative until payment of all moneys payable to SEEPZ SEZ Authority or till expiry of the Bank Guarantee including the claim period, whichever is earlier.

5.

The Bank Guarantee shall not be terminable for any change in the constitution of the Guarantor Bank or for any reason whatsoever, and the liability of the Guarantor Bank hereunder shall not be impaired or discharged by any extension of time, variations, or alterations made with or without the knowledge or consent of SEEPZ SEZ Authority, by or between the Supplier/Contractor and the Bank.

6.

The Bank hereby waives all rights inconsistent with the terms of this Guarantee, and the obligations of the Bank shall not be affected by any dispute raised by the Supplier/Contractor (whether pending before any Arbitrator, Tribunal, or Court) or any denial of liability by the Supplier/Contractor.

7.

The amount stated in any notice of demand addressed by SEEPZ SEZ Authority to the Guarantor as liable to be paid shall be conclusive between the Bank and SEEPZ SEZ Authority, subject to a maximum of **Rs..... (Rupees..... only)**.

8.

Unless a demand or claim under this Guarantee is made on the Guarantor in writing within 12 months after the date of expiry of the Guarantee, i.e. up to, the Guarantor shall be discharged from all liabilities thereunder.

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 **12 months after the date of expiry.**

For and on behalf of the Bank

Place:

Date:

WITNESS:

1. _____
 2. _____
-

Appendix-05

PERFORMA OF INDENTURE FOR SECURED ADVANCE OR CREDIT

(To be executed on a Judicial Stamp Paper of appropriate value as per Stamp Act of respective State)

THIS INDENTURE made this day of _____,
BETWEEN
M/s. _____ (hereinafter called "*the Contractor*", which expression shall, where the context so admits or implies, be deemed to include his heirs, executors, administrators and assigns) of the one part,

AND

Development Commissioner SEEPZ SEZ Authority, having its office at *SEEPZ SEZ, MIDC Central Road, Andheri East, Mumbai – 400096* (hereinafter called "*the Engineer*", which expression shall, where the context so admits or implies, be deemed to include its successors and assigns) 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 that he may be given credit for materials brought by him to the site of work subject to the said agreement for use in the construction of the works.

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, the receipt of which 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 and declares as follows:

1.

All sums given as advance or credit by the Engineer to the Contractor as aforesaid shall be employed by the Contractor solely in or toward the execution of the said works and for no other purpose whatsoever.

2.

The materials for which the advance or credit is given are offered to and accepted by the Engineer as security and are absolutely the Contractor's own property and free from encumbrances of any kind. The Contractor shall not make any application for, or receive further advance or credit on, the security of materials which are not absolutely his own property and free from encumbrances, and the Contractor shall indemnify the Engineer against any claims to any material in respect of which advance or credit has been made to him as aforesaid.

3.

The said materials and all other materials on the security of which any further advance 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 and the terms of the said agreement.

4.

The Contractor shall, at his own cost, make all necessary and adequate arrangements for the proper safe custody and protection of the said materials against all risks, and until used in the construction as aforesaid, the materials shall remain at the site of the said works in the Contractor's custody and responsibility, and shall at all times be open to inspection by the Engineer. In the event of the materials or any part thereof being stolen, destroyed, or damaged, or becoming deteriorated beyond reasonable wear and use, the Contractor shall replace or make good the same as required by the Engineer.

5.

The said materials shall not, on any account, be removed from the site of work except with the written permission of the Engineer.

6.

The advance shall be repayable in full when or before the Contractor receives payment from the Engineer 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 each occasion of such payment the Engineer shall be at liberty to recover from the Contractor's bill the value of the said materials then actually used in construction, in respect of which recovery has not previously been made. The value for this purpose shall be determined in respect of each description of materials at the rates at which the amounts of the advance were originally calculated.

7.

If the Contractor shall at any time make default in the performance or observance of any of the terms and provisions of the said agreement or of this indenture, the total amount of advance or advances that may still be owing to the Engineer shall immediately become repayable by the Contractor, together with interest thereon at

12% per annum from the respective dates of such advances until payment, and with all costs, damages, and expenses incurred by the Engineer in or for recovery thereof.

8.

The Contractor hereby charges all the said materials with repayment to the Engineer of all sums advanced or credited as aforesaid, and all costs, charges, damages, and expenses payable under these presents. Provided always that, notwithstanding anything in the said agreement, if the covenant for repayment hereinbefore contained becomes enforceable and the money owing is not paid, the Engineer may adopt any of the following courses as he may deem fit:

(A) Seize and utilize the said materials or any part thereof in completion of the said works in accordance with the provisions of the said agreement, debiting the Contractor with the actual cost of completion and the amount due in respect of advances, and crediting the Contractor with the value of work done as if he had carried it out. If the balance is against the Contractor, he shall pay the same to the Engineer on demand.

(B) Remove and sell by public auction the seized materials or any part thereof, and out of the proceeds of such sale, repay the amounts due to the Engineer under these presents, and pay over the surplus (if any) to the Contractor.

(C) Deduct all or any part of the moneys owing from any sums due to the Contractor under the said agreement.

9.

Except in the event of such default on the part of the Contractor as aforesaid, interest on the said advance shall not be payable.

10.

In the event of any conflict between the provisions of this indenture and the said agreement, the provisions of this indenture shall prevail. Any dispute or difference arising over the construction or effect of this indenture, not expressly provided for, shall be subject to the jurisdiction of **Mumbai Courts only**.

IN WITNESS WHEREOF, the said Engineer and the said Contractor have hereunto set their respective hands and seals on the day and year first above written.

Signed, Sealed, and Delivered by:

For the Contractor

For SEEPZ SEZ Authority (The Engineer)

(Signature & Seal)

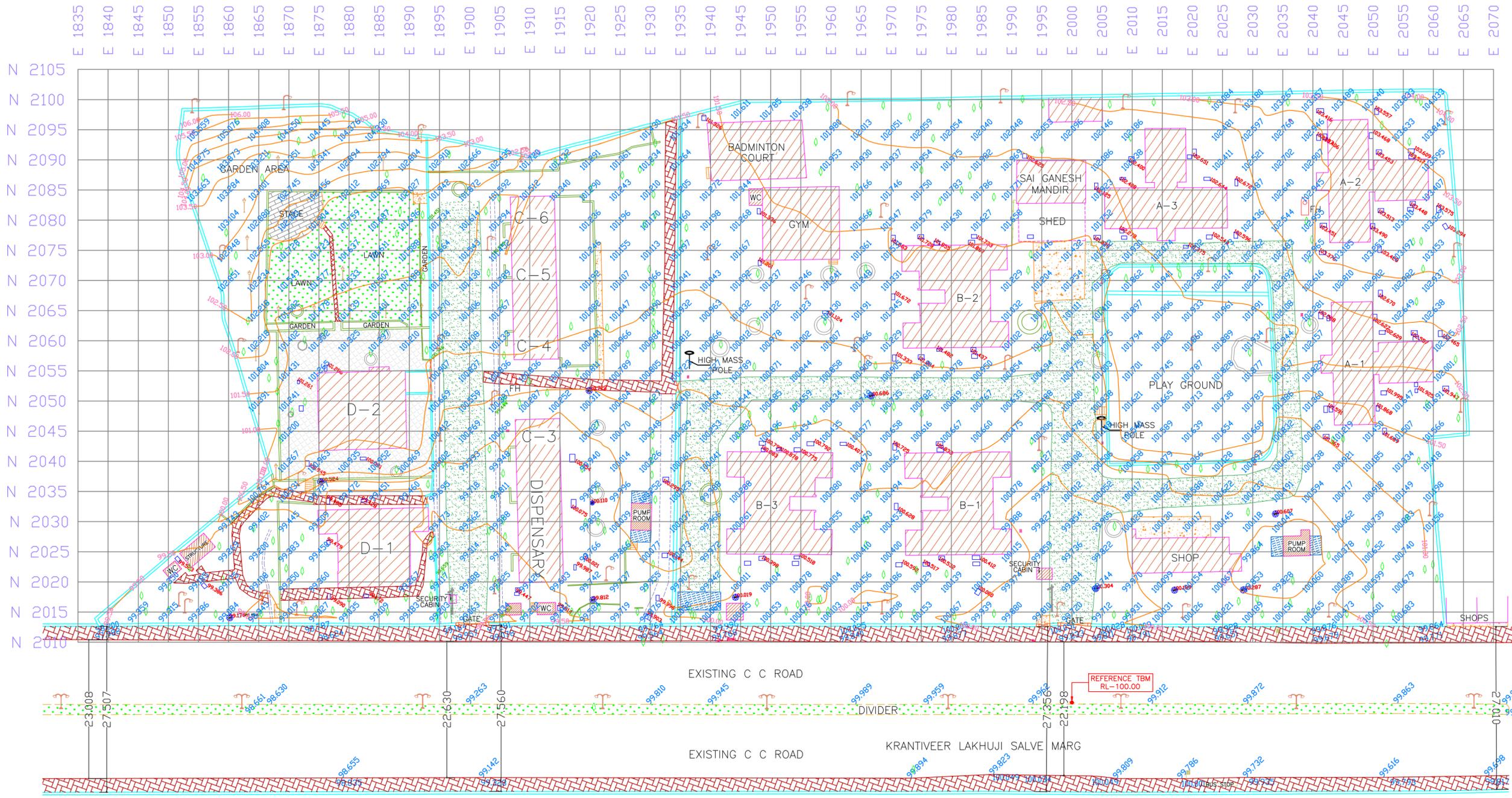
(Signature & Official Seal)

CHECK LIST

S. No.	Details of Enclosure	Yes/No	Page No
1	Proof of Payment for EMD.		
2	Solvency certificate (Form- 1)		
3	Power of Attorney		
4	Must be Indian Registered Company		
5	Copy GST registration		
	Copy PAN registration		
	Copy ESIC registration		
	Copy EPFO registration		
6	Letter of Transmittal on bidder letter Head (Form-2)		
7	Name, Address, details of the Organization. (Form-3)		
8	Non Conviction, non-judicial stamp paper of minimum ₹ 100. (Form-4A)		
9	Pending Litigation and Arbitration (Form-4B)		
10	Letter of understanding the project site on bidder letter Head (Form-5)		
11	Consent Letter to execute the Integrity Pact (Form-6)		
12	Average Annual Financial Turnover (Form- 7)		
13	Similar Work Experience (Form- 8)		
14	Construction method statement, Mobilization schedule, construction schedule/ work plan, Quality assurance programme. (Form – 09)		
15	Equipment & Machinery required (Form – 10)		
16	Key Personnel (Form 11&12)		
17	Signed RFP		

Note: Refer Section 2 - Evaluation and Qualification criteria for details & Section 3-Bidding Form.

SIGNATURE OF BIDDER(S)



NOTES

- 1) ALL DIMENSIONS ARE IN METERS.
- 2) ALL LEVELS ARE IN METRE AND RECORDED WITH RESPECT TO THE ASSUMED TBM RL.100.00M ON ROAD AS SHOWN.
- 3) ALL CONTOURS ARE DRAWN AT 0.5 M. INTERVAL
- 4) GRID IS 5.00 M X 5.00 M

LEGENDS:

INTERNAL WALL	—	CONTOURS	—	0.000
STEP/OTLA	—	BED/INVERT LEVEL	—	0.000
EXISTING SWD	—	SPOT LEVEL	—	0.000
STRUCTURE	—	ELECTRIC BOX	—	
WATER TANK	—	CHAMBER/MANHOLE	—	
EXISTING WALL	—	TREE	—	
ASPHALT ROAD	—	STREET LIGHT	—	
DIVIDER	—	DIMENSION	—	+5.00-
PATHWAY	—	FENCING	—	

TITLE:

TOTAL STATION SURVEY PLAN FOR STAFF QUARTERS SEEPZ ANDHERI EAST



CLIENT:

WAPCOS LIMITED.
 Project Office.3rd Floor Room No.36,BFC Building
 Seepz-Sez,Andheri East Mumbai-400096

SURVEYED AGENCY:

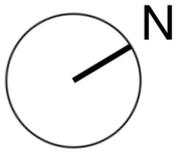
KK SURVEYORS
 ALL TYPES OF LAND SURVEY
 E-mail:kksurveyors18@gmail.com
 MOB:8080212114,8080522525

SCALE	PAPER SIZE	SURVEY DATE	REV. NO.	DRAWN BY	JOB NO.	DWG NO.
1:500	A-2	20.06.2025	R0	V.K	KKS/102/07	KKS/25-26/08

SITE LAYOUT



CODE	QUARTER TYPE
	EXISTING
	TYPE 1 & 2

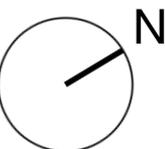


SITE LAYOUT - PHASE 1

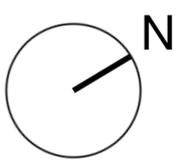


PHASE -1

CODE	QUARTER TYPE
	EXISTING
	TYPE 1 & 2



STILT FLOOR PLAN



BUILDING 1 - TYPICAL 1ST TO 11TH FLOOR PLAN - TYPE 1 & 2 QUARTERS



BUILDING 1 - TYPICAL REFUGE FLOOR PLAN (7TH FLOOR) - TYPE 1 & 2 QUARTERS



BUILDING SECTION

