TENDER DOCUMENT

CONSTRUCTION OF STAFF BARRACK AT KOTHAMANGALAM DIVISION, KERALA

IFB No: HLL/CMO/HCD/SBK/KTMG/26-27, Dt. 19.11.2026

E-Tendering

HI-CARE DIVISION

HLL Lifecare Limited

(A Government of India Enterprise)

Corporate Head Office, Poojappura. P.O,

Thiruvananthapuram – 695012, Kerala, India

pskerala@lifecarehll.com

Phn: 0471- 2354949, 2775651

CIN: U25193KL1966GOl002621

NOVOMBER 2026

CONTENTS

Sl. No	Part No.	Description	Page No.
1	Part I	INSTRUCTIONS TO THE BIDDERS	8
2	Part II	GENERAL RULES AND DIRECTIONS	24
3	Part III	GENERAL CONDITIONS OF CONTRACT	27
4	Part IV	SPECIFIC CONDITIONS OF CONTRACT	95
5	Part V	FORMS AND DECLARATIONS	147
6	Part VI	LIST OF APPROVED MAKES	161
7	Part VII	SCHEDULE F	219
8	Part VIII	TENTATIVE MILESTONE SCHEDULE	224
9	PART IX	DRAWINGS	225

INDEX

SN	DESCRIPTION	PG NO.
PART I	INSTRUCTIONS TO THE BIDDERS	8
1	GENERAL	8
2	BIDDING DOCUMENTS	12
3	PREPARATION OF BIDS	14
4	SUBMISSION OF BIDS	18
5	BID OPENING AND EVALUATION	21
6	AWARD OF CONTRACT	22
7	FIRST TIER QUALITY CONTROL TESTS	24
8	CORRUPT AND FRAUDULENT PRACTICES	24
9	FORMS AND DECLARATIONS	24
PART II	GENERAL RULES AND DIRECTIONS	26
PART III	GENERAL CONDITIONS OF CONTRACT	29
SECTION 1	DEFINITIONS	29
SECTION 2	CLAUSES OF CONTRACT	33
1	PERFORMANCE GUARANTEE	33
2	COMPENSATION FOR DELAY	34
3	WHEN CONTRACT CAN BE DETERMINED	36
4	CONTRACTOR LIABLE TO PAY COMPENSATION EVEN IF ACTION NOT TAKEN UNDER CLAUSE 3	38
5	TIME AND EXTENSION FOR DELAY	38
6	COMPUTERIZED MEASUREMENT BOOK	40
7	PAYMENT ON INTERMEDIATE CERTIFICATE TO BE REGARDED AS ADVANCES	42
8	COMPLETION CERTIFICATE AND COMPLETION PLANS	43
9	PAYMENT OF FINAL BILL	44
10	MATERIALS TO BE PROVIDED BY THE CONTRACTOR	45
11	WORK TO BE EXECUTED IN ACCORDANCE WITH SPECIFICATIONS, DRAWINGS, ORDERS ETC.	51
12	DEVIATIONS/ VARIATIONS EXTENT AND PRICING	51
13	FORECLOSURE OF CONTRACT DUE TO ABANDONMENT OR REDUCTION IN SCOPE OF WORK	53
14	CARRYING OUT PART WORK AT RISK & COST OF CONTRACTOR	54
15	SUSPENSION OF WORK	55
16	ACTION IN CASE WORK NOT DONE AS PER SPECIFICATIONS	56
17	CONTRACTORS LIABLE FOR DAMAGES, DEFECTS DURING DEFECT LIABILITY PERIOD	57

SN	DESCRIPTION	PG NO.
18	CONTRACTOR TO SUPPLY TOOLS & PLANTS ETC	57
19	LABOUR LAWS TO BE COMPLIED BY THE CONTRACTOR	58
20	MINIMUM WAGES ACT TO BE COMPLIED WITH	65
21	WORK NOT TO BE SUBLET. ACTION IN CASE OF INSOLVENCY	65
22	COMPENSATION	65
23	CHANGES IN FIRM'S CONSTITUTION TO BE INTIMATED	65
24	DEFECT LIABILITY PERIOD	65
25	SETTLEMENT OF DISPUTES & ARBITRATION	66
26	CONTRACTORS TO INDEMNIFY HLL AGAINST PATENT RIGHTS	67
27	ACTION WHERE NO SPECIFICATIONS ARE SPECIFIED	67
28	WITHHOLDING AND LIEN IN RESPECT OF SUM DUE FROM CONTRACTOR	68
29	EMPLOYMENT OF COAL MINING OR CONTROLLED AREA LABOUR NOT PERMISSIBLE	69
30	UNFILTERED WATER SUPPLY	69
31	DEPARTMENTAL WATER SUPPLY, IF AVAILABLE	70
32	ALTERNATE WATER ARRANGEMENTS	70
33	EMPLOYMENT OF TECHNICAL STAFF AND EMPLOYEES	70
34	LEVY/TAXES PAYABLE BY CONTRACTOR	72
35	CONDITIONS FOR REIMBURSEMENT OF LEVY/TAXES IF LEVIED AFTER RECEIPT OF TENDERS	72
36	TERMINATION OF CONTRACT ON DEATH OF CONTRACTOR	73
37	IF RELATIVE WORKING IN OFFICE OF CLIENT/HLL THEN THE CONTRACTOR NOT ALLOWED TO TENDER	73
38	NO GAZETTED ENGINEER TO WORK AS CONTRACTOR WITHIN ONE YEAR OF RETIREMENT	73
39	COMPENSATION DURING WARLIKE SITUATIONS	73
40	APPRENTICES ACT PROVISIONS TO BE COMPLIED WITH	74
41	RELEASE OF SECURITY DEPOSIT AFTER LABOUR CLEARANCE	74
42	INSURANCE	74
43	PRICE	76
44	ESCALATION	76
45	COMPLETION TIME	76
46	PAYMENT TERMS	76
47	LIQUIDATED DAMAGES FOR DELAY	77

SN	DESCRIPTION	PG NO.
48	TERMINATION / CANCELLATION FOR NON-PERFORMANCE	77
49	SPECIAL INSTRUCTIONS	77
SECTION 3	SAFETY CODE	83
SECTION 4	MODEL RULES FOR THE PROTECTION OF HEALTH AND SANITARY ARRANGEMENTS FOR WORKERS EMPLOYED BY CONTRACTORS	90
SECTION 5	CONTRACTOR'S LABOUR REGULATIONS TO BE FOLLOWED IN THIS PROJECT	96
1	SHORT TITLE	96
2	DEFINITIONS	96
3	WORKING HOURS	96
4	DISPLAY OF NOTICE REGARDING WAGES ETC.	97
5	PAYMENT OF WAGES	97
6	FINES AND DEDUCTIONS WHICH MAY BE MADE FROM WAGES	98
7	LABOUR RECORDS	99
8	ATTENDANCE CARD-CUM WAGE SLIP	100
9	EMPLOYMENT CARD	100
10	SERVICE CERTIFICATE	100
11	PRESERVATION OF LABOUR RECORDS	100
12	POWER OF LABOUR OFFICER TO MAKE INVESTIGATIONS OR ENQUIRY	100
13	REPORT OF LABOUR OFFICER	101
14	APPEAL AGAINST THE DECISION OF LABOUR OFFICER	101
15	PROHIBITION REGARDING REPRESENTATION THROUGH LAWYER	101
16	INSPECTION OF BOOKS AND SLIPS	102
17	SUBMISSION OF RETURNS	102
18	AMENDMENTS	102
19	ENTIRETY OF THE AGREEMENT	102
20	CORRESPONDENCE	102
21	SETTLEMENT OF DISPUTES	103
PART IV	SPECIFIC CONDITIONS OF CONTRACT	104
SECTION 1	GENERAL	104
1	SCOPE OF WORK	104
2	DRAWINGS	104
3	DISRUPTION OF PROGRESS	109
4	CONTRACTOR'S GENERAL RESPONSIBILITIES	109
5	WATCH & WARD AND LIGHTING	113
6	CARE OF WORKS	113
7	FORCE MAJEURE	114
8	CONTRACTOR'S SUPERINTENDENCE	114
9	SETTING OUT	116

SN	DESCRIPTION	PG NO.
10	QUALITY OF MATERIALS, WORKMANSHIP AND TEST	116
11	ABSENCE OF SPECIFICATIONS	120
12	OBTAINING INFORMATIONS RELATING TO EXECUTION OF WORK	120
13	ACCESS FOR INSPECTION	120
14	EXAMINATION OF WORK BEFORE COVERING UP	120
15	ASSIGNMENT	121
16	CLAIMS	121
17	SECURED ADVANCE	121
18	PHYSICAL AND VIRTUAL COMPLETION OF WORK	123
19	PROVISIONAL ACCEPTANCE AND CERTIFICATE OF COMPLETION	123
20	DEFECT AFTER COMPLETION	124
21	WORKS BY OTHER AGENCIES	125
22	DUES NOT PAID BY THE CONTRACTOR	126
23	URGENT REPAIRS	126
24	BORE HOLES & EXPLORATORY EXCAVATION	126
25	PLANT TEMPORARY WORKS AND MATERIALS	126
26	REPORTS BY CONTRACTOR	127
27	OPERATION AND MAINTENANCE MANUAL	128
28	CO-ORDINATION MEETINGS	131
29	SITE MANAGEMENT	131
30	COMPLIANCE OF STATUTORY OBLIGATIONS AND OBTAINING APPROVALS/COMPLETION CERTIFICATES	133
31	RATES	134
SECTION 2	ADDITIONAL CONDITIONS & SPECIFICATIONS	136
A	GENERAL- RELATING TO CIVIL, ELECTRICAL, PLUMBING & FIRE FIGHTING WORKS, etc.	136
B	RELATING TO CIVIL WORKS	146
C	RELATING TO ELECTRICAL WORKS, ELV & INSTALLATIONS	148
PART V	FORMS AND DECLARATIONS	178
1	PERFORMANCE DECLARATION FORM	178
2	FINANCIAL STATEMENT	179
3	ACCEPTANCE FORM	180
4	SELF DECLARATION NON-BLACKLISTED	181
5	COMPLETION PERIOD	182
6	REQUISITION FORM FOR E-PAYMENT	183
7	NO DEVIATION CERTIFCATE	184
8	BANKERS CERTIFICATE	
9	SOLVENCY CERTIFICATE	
10	STRUCTURE & ORGANTSATION	185

SN	DESCRIPTION	PG NO.
11	DETAILS OF TECHINCAL ADMINISTRATIVE PERSONNEL TO BE EMPLOYED FOR THE WORK	186
12	FORMAT FOR UNDERSTANDING THE PROJECT SITE	187
13	FORMAT OF SITE VISIT	188
14	BID FORM	189
PART VI	LIST OF APPROVED MAKES	190
PART VII	SCHEDULE F	248
PART VIII	TENTATIVE MILESTONE SCHEDULE	252
PART IX	DRAWINGS	253

PART I

INSTRUCTION TO THE BIDDERS (ITB)

1. GENERAL

1.1 Scope of the Bid: -

HLL Lifecare Limited (HLL), a Government of India Enterprise, on being selected as Project Management Consultant (PMC) for the Construction of Staff Barrack at Kothamangalam division, Kerala. As per the Schedule enclosed, invites online bids from the eligible, competent and experienced Suppliers/Contractors who meet the eligibility criteria for the Work detailed in the Notice Inviting Tender (NIT).

Throughout these bidding documents:

a. The terms 'in writing' means communicated in written form and delivered against receipt;

b. except where the context requires otherwise, words indicating the singular also include the plural and words indicating the plural also include the singular; and any reference to masculine gender shall whenever required include feminine gender and vice versa.

c. "day" means calendar day.

d. The terms "bid" and "tender" and their derivatives "Bidder/tenderer, bid/tender, bidding/tendering etc.," are synonymous.

e. "Project Management Consultant (PMC)" shall mean HLL Lifecare Limited (HLL) (Thiruvananthapuram) or its units thereof.

f. "Client/Department" shall mean National Health Mission, Thiruvananthapuram.

g. Project Management Consultant (PMC) will carry out its functions and obligations for the client through Officers/Engineers who have been delegated powers for the same.

h. Engineer-In-Charge'' shall mean the Engineer appointed by the Project Management Consultant to supervise all activities of the project.

i. The "Tender Inviting Authority", "Accepting Authority" and the "Agreement Authority" means the officer who has invited and received bids for the Work and has executed agreement for execution on behalf of the PMC. The Tender Inviting Authority, Accepting Authority and the Agreement Authority shall be one and the same person unless otherwise specified.

j. `Contractor'' shall mean the successful bidder whose tender has been accepted by the Project Management Consultant and to whom the order is placed by the Project Management Consultant and shall include his heirs, legal representatives, successors etc.

k. "Contract Price" means price approved by the Project Management Consultant (PMC) after bidding and stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

1.1.2 The bid invited shall be of item rate contract.

1.1.3 The mode of this tender is e-tender.

1.2. Source of funds

1.2.1. The expenditure on this Work will be met from the Plan/Non plan allocation of State Government/Central Government funds/Funds allocated by National Funding Agencies.

1.3. Eligible Bidders

The bidder should be fulfilling the following preconditions and must also upload / submit documentary evidence in support of fulfillment of these conditions while submitting the bid.

Note: As a Central Public Sector Undertaking (CPSU), M/s. HLL Lifecare Limited adheres to the manuals issued by the Ministry of Finance and the Department of Expenditure, Government of India and has adopted the General Financial Rules (GFR) for its tendering practices. The tendering process shall be governed by the GFR and other applicable central government regulations only. Hence any relaxations related to the central Government shall only be applicable or considered in this tender. The eligible bidder for availing such relaxations/ benefits shall submit documentary evidence in support of the claim.

SN	Eligibility Criteria
1	Bidder should have a valid Certificate of the following:
	a) GST Registration certificate
	b) IT PAN Card
	c) Certificate of incorporation / Memorandum of Article
	d) EPF Registration Certificate (If exempted, a self-declaration on company letterhead must be submitted.)
	e) The bidder should have an office in Kerala and shall provide documentary evidence to support this claim. The bidder's registered office address in Kerala shall be valid at the time of bid submission. Proof of registration/address proof, such as GST registration certificate, PAN card, or other relevant documents, shall be submitted along with the bid documents.
	Note: Copy of valid certificates for the above shall be submitted in proof of the same
2	The applicant should have successfully completed similar works during the last 7 years ending last day of the month previous to the one in which tenders are invited shall be either of the following:
	a) Three similar completed works each costing not less than 40% of the estimated cost put to tender or Rs.400 crore, whichever is less
	OR
	b) Two similar completed works each costing not less than 60% of the estimated cost put to tender or Rs.600 crore, whichever is less
	OR
	c) One similar completed work costing not less than 80% of the estimated cost put to tender or Rs. 800 crore, whichever is less

SN	Eligibility Criteria
	A. similar work here encompasses civil and electrical work necessary for the construction/renovation of buildings.
	The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum; calculated from the date of completion to previous day of last day of submission of tenders
Note	The Duly filled and Signed copy of the Performance Declaration Form as per **item No.1 of Part V** is to be attached Copies of work orders and satisfactory work completion reports issued by the Client/Authority concerned shall be submitted in proof of the same. NOTE: For Govt./Departmental works, Work orders and corresponding completion certificate issued by the Competent Authority (Exe. Engr., Supt. Engr., etc.) shall be submitted. Completion certificates for works issued by private parties shall be supported by TDS certificates.
3	**Turnover**: Average annual financial turnover should be at least 50% of the estimated cost put to tender during the immediate last three consecutive financial year ending 2024-25, the turnover should be of the Bidding Company and not for Group Company or subsidiary company etc. The average turnover must be certified by a Chartered Accountant using UDIN (Unique Document Identification Number) as per **item No.2 Part V.**
	The multiplication factor of 7% per annum simple interest is applicable on the Annual financial turnover figures.
	Audited Balance sheets, Profit & Loss Statements, and IT return statements certified by a Chartered Accountant to be attached.
4	**Profit/loss**: The bidder should not have incurred any loss (profit after tax should be positive) in last three years ending FY 2024-25. This should be duly certified by the Chartered Accountant.
5	The duly signed acceptance forms along with the attested copy of tender document as per **item No.3 of Part- V** to be attached
6	The duly filled and signed declaration form to be submitted as per **item No.4 of part- V**
	The bidder will be disqualified if they have any record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history or financial failures etc. including ongoing works. The bidders who have initiated litigation against HLL shall be considered only after the litigation is completed. This includes works where the bidder was terminated due to non-performance or default.
7	The bidder should submit the duly notarized **Power of Attorney**, issued by the competent authority in favour of the signatory of the bid in the stamp paper of appropriate value as per the Stamp Act.
8	Completion Period Declaration duly filled as per **item No.5 of Part- V** to be attached
9	Duly filled and signed copy of requisition for e-payment form as per **item No.6 Part- V** along with clear and visible scan copy of cancelled cheque. The scanned cheque should clearly show the account number and IFSC code.
10	The duly signed No Deviation Certificate as per **item No.7 of Part- V** to be attached

SN	Eligibility Criteria
11	Credit Limit: Bidder must possess an unutilized sanctioned credit limit of at least 20% of the estimated cost put to tender, certified by his bankers for this work. Banker's certificates (as prescribed in **item No.8 of Part- V**) in the current financial year, should be on letter head of the Bank, addressed to tender inviting authority issued on or after the publication date of the NIT.
12	The bidder should not be insolvent, in receivership, bankrupt or being wound up, not have had their business activities suspended. Accordingly, Bidder shall submit Solvency certificate from Nationalized Scheduled Commercial Bank. The Solvency Certificate shall be addressed to the tender inviting authority and it must be issued after the NIT publication date. The Solvency Certificate shall be from the Banker in original for a sum of at least Rs. 1,05,37,985/- (40% of PAC) in order to fund the project till the time the invoices get paid. (**item No.9 of Part- V**). The certificate should carry the name, designation & power of attorney of the bank official.
13	Structure and Organization form to be attached as per **item no. 10 of Part – V**
14	Details of Technical and Administrative Personnel to be employed for the Work to be attached **as per item no. 11 of Part - V**
15	Letter of understanding the project site on bidder letter Head to be attached **as per item no. 12 of Part - V**
16	The site visit certificate issued by HLL shall be submitted **as per item no. 13 of part-V** failing which, the bid will be summarily rejected.
17	The duly filled and signed copy of Bid Form as per **item no. 14 of Part-V** to be attached.
18	**Part VI** -List of approved make shall be duly signed with seal to be attached

1.4. Pre-Bid Queries:

Pre-bid queries shall be communicated through pskerala@lifecarehll.com or through phone +91 9037003600

1.5 Cost of Bidding

1.5.1. The bidder shall bear all costs associated with the preparation & submission of bids and site visits, and the Project Management Consultant (PMC) will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

1.5.2. The tender document(s), may be downloaded free of cost from the e-Government Procurement (e-GP) website (www.etenders.kerala.gov.in). However, a bid submission fee, as mentioned in the NIT, is required to be submitted along with the online bid.

1.6. Site Visit

1.6.1. The bidder is advised to visit and examine the Site of Works 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. He shall examine the site condition and satisfy himself of the availability of materials at nearby places, difficulties which may arise during execution before submitting the bids. The costs of visiting the Site shall be at the bidder's own expense.

1.6.2. The bidder and any of his personnel or agents will be granted permission by the Project Management Consultant (PMC)/Client to enter upon its premises and lands for

the purpose of such visit, but only upon the express condition that the bidder, his personnel or agents will release and indemnify the PMC/Client 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.

1.7. Getting information from web portal

1.7.1. All prospective bidders are expected to see all information regarding submission of bid for the Work published in the e tender website during the period from the date of publication of NIT for the Work and up to the last date and time for submission of bid. Non observance of information published in the website shall not be entertained as a reason for any claim or dispute regarding a tender at any stage.

1.7.2. All bids shall be submitted online on the e-GP website only in the relevant envelope(s)/ cover(s), as per the type of tender. No manual submission of bids shall be entertained for the tenders published through e-GP system under any circumstances.

1.7.3. The e-GP system shall not allow submission of bids online after the stipulated date & time. The bidder is advised to submit the bids well before the stipulated date & time to avoid any kind of network issues, traffic congestion, etc. In this regard, the department shall not be responsible for any kind of such issues faced by bidder.

2. Bidding Documents

2.1. Content of Bidding Documents

2.1.1. The bidding documents shall consist of the following unless otherwise specified

a. Notice Inviting Tender (NIT)
b. Instructions to Bidders
c. General and special Conditions of Contract
d. Technical Specifications
e. Form of Bid and other documents specified in tender document.
f. Bill of Quantities

2.1.2. The Bidder is required to login to the e-procurement portal and download the listed documents from the website as mentioned in NIT. He shall save it in his system and undertake the necessary preparatory work off-line and upload the completed bid at his convenience before the closing date and time of submission.

2.1.3. The bidder is expected to examine carefully all instructions, Conditions of Contract, Forms, Terms, Technical Specifications, Bill of Quantities, Annexure and Drawings in the Bid Document. Failure to comply with the requirements of Bid Document shall be at the Bidder's own risk.

2.2. Clarification of Bidding Documents

2.2.1 A prospective bidder requiring any clarification of the bidding documents shall contact the office of the Tender Inviting Authority on any working day between 10 AM and 5 PM.

2.2.2 In case the clarification sought necessitates modification of the bid documents, being unavoidable, the Tender Inviting Authority may effect the required modification and publish them in the website through corrigendum in pursuance to clause 2.3 of this bid document.

2.3. Amendment to bidding documents

2.3.1 Before the deadline for submission of bids, the Tender Inviting Authority may modify the bidding document by issuing addenda.

2.3.2 Any addendum thus issued shall be a part of the bidding documents which will be published in the e-tender website. The Tender Inviting Authority will not be responsible for the prospective bidders not viewing the website in time.

2.3.3 If the addendum thus published does involves major changes in the scope of work, the Tender Inviting Authority may at his own discretion, extend the deadline for submission of bids for period to enable prospective bidders to take reasonable time for bid preparation taking into account the addendum published.

3. Preparation of Bids

3.1. Language of the Bid

3.1.1. All documents relating to the bid shall be in the English language.

3.2. Documents Comprising the Bid

3.2.1. The online bid submitted by the bidder shall comprise the following:

i. The First Stage (Pre-Qualification or Technical Cover based on 2 cover tender system):

Pre-Qualification or Technical proposal shall contain the scanned copies of the following documents which every bidder has to upload:

1. Copy of Valid GST registration, EPF Registration Certificate, IT PAN Card as per Clause 1.3. Sl No.1 of ITB
2. Work orders and the corresponding completion certificates in proof of experience as per Clause 1.3. Sl No. 2 of ITB
3. The Duly filled and Signed copy of financial statement as per Part V to be attached
4. Acceptance Form as per Part V of Forms and Declarations
5. Non- Black Listed Form Declaration as per the format in Part V
6. Power of Attorney, in case an authorized representative has signed the tender
7. Completion period as per the format in Part V
8. Requisition Form for e-Payment as per the format in Part V
9. No Deviation Certificate as per the format in Part V
10. Details of Technical and Administrative Personnel to be employed for the Work, as per Part-V to be attached.
11. Structure & Organization- as per Part-V to be attached

12. Details of Technical and Administrative Personnel to be employed for the Work, attested by a Chartered Accountant as per Part-V to be attached.

13. Letter of understanding the project site on bidder letter Head as per Part-V to be attached.

14. Part VI - List of approved make shall be duly signed with seal to be attached

ii. The Second Stage (*Financial Cover or as per tender cover system*):

The Bidder shall complete the Price bid as per format given for download along with this tender.

Note: The blank price bid should be downloaded and saved on bidder's computer without changing file-name otherwise price bid will not get uploaded. The bidder should fill in the details in the same file and upload the same back to the website.

Fixed price: Prices quoted by the Bidder shall be fixed during the bidder's performance of the contract and not subject to variation on any account. A bid submitted with an adjustable/ variable price quotation will be treated as non – responsive and rejected.

3.2.2. The relevant CPWD / MoRTH specifications and BIS / IS codes and the relevant sections of the National Building Code, CPWD Manual, CPWD Quality Control Manual and the CPWD Quality Control Laboratory Manual shall be considered as part of this bid documents though individual copies are not attached along with the bid documents.

3.2.3. Bidders shall not make any addition, deletion or correction in any of the bid documents. If tampering of documents is noticed during tender evaluation, the bid will be rejected and the bidder will be blacklisted.

3.3. Bid Prices

3.3.1. The Bidder shall bid for the whole work as described in the Bill of Quantities.

3.3.2. For item rate tenders, the bidder shall fill in rates in figures and should not leave any cell blank. The line item total in words and the total amount shall be calculated by the system and shall be visible to the Bidder.

3.3.3. The rates quoted by the Bidder shall include cost of all materials and conveyance, Laboure charges, hire charges of plant and machinery, overheads and all incidental charges for execution of the contract. The rate quoted shall also include all statutory taxes as on the date of submission of the tender and such taxes shall be paid by the contractor.

3.3.4. The quoted rates shall also include expenses towards all Quality Control tests (first tier) prescribed in the CPWD Quality Control Manual to be done at Government approved institutions.

3.3.5. GST or any other tax applicable shall be payable by the Contractor in respect of this contract and PMC/Client will not entertain any claim whatsoever in respect of the same.

3.3.6. All taxes, royalty, octroi and other levies payable by the contractor under the contract, or for any other cause as of the date 28 days prior to the deadline for submission of bids shall be included in the rates, prices and total of bid price. The bid prices shall also cater for any change in tax pattern during the tenure of work.

3.3.7. No material will be issued by the department for executing the building works under this contract.

3.3.8. The rates and prices quoted by the bidder shall remain firm during the entire period of contract. In the case of Works for which time of completion originally fixed exceeds 18 months, rates and prices quoted by the bidder are subject to price adjustment during the performance of the contract in accordance with the provisions of Clause 4.2 of the General Conditions of Contract.

3.4. Currencies of Bid and Payment

3.4.1. The currency of bid and payment shall be quoted by the bidder entirely in Indian Rupees. All payments shall be made in Indian Rupees only.

3.5. Bid Validity

3.5.1. Bids shall remain valid for the period of 120 days from the date of opening of the bid as specified in the NIT. A bid valid for a shorter period shall be rejected by the PMC as non-responsive.

3.5.2. In exceptional circumstances, prior to expiry of the original bid validity period, the Tendering Authority may request the bidders to extend the period of validity for a specified additional period. The request and the responses thereto shall be made in writing or by e mail. A bidder may refuse the request without forfeiting its bid security. A bidder agreeing to the request will not be required or permitted to modify its bid, but will be required to extend the validity of its bid security for the period of the extension and in compliance with Clause 3.6 in all respects.

3.6. Bid Security

3.6.1. The Bidder shall furnish, as part of his Bid, a Bid Security for an amount as detailed in the Notice Inviting Tender (NIT). For e-tenders, Bidders shall remit the Bid Security using the online payment options of e-Procurement system only.

Bidders are advised to visit the "Downloads" section of e-Procurement website www.etenders.kerala.gov.in for State Bank of India or by using NEFT facility. Bidders opting for NEFT facility of online payment are advised to exercise this option at least 24 hours before the last date of bid submission to ensure that payment towards Bid Security is credited and a confirmation is reflected in the e-Procurement system. The online NEFT remittance form provided by e-Procurement system for making a NEFT transaction is not a payment confirmation. PMC/NIC/SBI/KSITM/Client shall not be responsible for any kind of delay in payment status confirmation.

3.6.2. Any Bid not accompanied by an acceptable Bid Security shall be rejected by the PMC as non-responsive.

3.6.3. The Bid Security of the unsuccessful Bidder shall become refundable as promptly as possible after opening of Price Bid and finalization of the tender.

3.6.4. The Bid Security of the successful Bidder will be discharged when the Bidder has furnished the required Performance Guarantee, its verification and signed the Agreement.

3.6.5. The Bid Security may be forfeited:

1) if the Bidder withdraws the Bid after Bid opening during the period of Bid validity including extended period of validity; or
2) if any modification is affected to the tender documents or
3) in the case of a successful Bidder, if the Bidder fails within the specified time limit to:

    a) sign the Agreement; or
    b) Furnish the required Performance Guarantee or
    c) If the bidder fails to convince the PMC about the reasonability of his bid prices in the case of an unbalanced bid.

In such cases the work shall be rearranged at the risk and cost of the selected bidder.

3.6.6. The Bid Security deposited with the PMC will not carry any interest.

3.6.7. Failure of the successful Bidder to accept the notification of award or submission of security deposit within the timeframe shall constitute sufficient grounds for the annulment of the award and forfeiture of the EMD, in which even the purchaser/owner may make the award to the next lowest evaluated bidder or call for new bids.

3.6.8. Forfeiture of Security Deposit:

If the successful bidder / Contractor fails to supply the ordered material at the rate finalized or execute the work and / or supplies only part quantity / partially execute the work or fails to comply with the terms and conditions of the purchase order / work order the security deposit furnished will be forfeited / Bank Guarantee encased.

3.7. Bid submission fee

3.7.1. For e-tenders, the mode of remittance of Bid submission fee (Tender Fee) shall be the same as detailed for remitting Bid Security. For e-tenders, Bidders shall remit the Tender fee using the online payment options of e-Procurement system only. Bidders are advised to visit the "Downloads" section of e-Procurement website www.etenders.kerala.gov.in for State Bank of India or by using NEFT facility. Bidders opting for NEFT facility of online payment are advised to exercise this option at least 24 hours before the last date of bid submission to ensure that payment towards Bid Submission Fee is credited and a confirmation is reflected in the e-Procurement system. The online NEFT remittance form provided by e-Procurement system for making a NEFT transaction is not a payment confirmation. PMC/NIC/SBT/KSITM/Client department shall not be responsible for any kind of delay in payment status confirmation.

3.7.2. Any bid not accompanied by the Tender Fee as notified shall be rejected by the PMC as nonresponsive.

3.7.3. Tender Fee remitted will not be refunded.

3.8. Alterations and additions

3.8.1. The bid shall contain no alterations or additions, except those to comply with instructions issued by PMC, or as necessary to correct errors made by the bidder, in which case such corrections shall be initialed by the person or persons signing the bid.

3.8.2. The bidder shall not attach any conditions of his own to the Bid. The Bid price must be based on the tender documents. The bidder is not required to present alternative construction options and he shall use without exception the Bills of Quantities as provided, with the amendments as notified in tender notices, if any, for the calculation of his tender price. Any bidder who fails to comply with this clause will be disqualified.

4. Submission of Bids

4.1. All documents of the Bid as required shall be typed or written in indelible ink and shall be signed by the bidder or person duly authorized to sign on behalf of the Bidder.

4.2. In the event of the tender being submitted by a partnership firm, it must be signed by the lead partner holding a valid power-of attorney authorizing him to do so, such power of attorney to be produced with the tender, and it must disclose that the firm is duly registered under the Indian Partnership Act, 1952.

4.3. The Bidder shall submit their bid online only through the e-GP web site of Kerala (www.etenders.kerala.gov.in) as per the procedure laid down for e-submission as detailed in the web site. For e tenders, the bidders shall download the tender documents including the Bill of Quantity (BoQ) file from the e tendering portal http://www.etenders.kerala.gov.in. The Bidder shall fill up the documents and submit the same online using their Digital Signature Certificate. On successful submission of bids, a system generated receipt can be downloaded by the bidder for future reference. Copies of all certificates and documents shall be uploaded while submitting the tender online. The following scanned copies of documents are to be submitted online as required by the e-tender portal.

4.3.1. Copy of remittance towards bid submission fee and Bid Security.

4.3.2. Self-attested Copy of GST registration certificate and experience certificate as per clause 1.3. Sl No.1.a and 1.3. Sl No. 3 of ITB

4.3.3. Duly filled and signed copy of Acceptance Form as per item no-1 of Part-V of this bid document.

4.3.4. Duly filled and signed copy of Declaration Form as per item no-2 of Part-V of this bid document.

4.3.5. Duly filled and signed copy of Completion Period Declaration as per item no-3 of Part V of this bid document.

4.3.6. Duly filled and signed copy of Affidavit as per item no-4 of Part-V of this bid document.

4.3.7. Duly filled and signed copy of requisition for e-payment form as per item no-5 of Part-V of this bid document.

4.3.8. Any other relevant information with testimonials.

4.3.9. The 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.

4.3.10. In addition to the above, the bidder shall upload a complete set of bid document with NIT and sections from 1 to III using his digital signature as a token of acceptance of all bid conditions and the absence of complete set of bid document in the submitted bid shall be treated as non-responsive and will be rejected by the PMC.

4.3.11. Price bid: This shall contain only the duly filled BoQ-file in MS-Excel format and shall be uploaded using the digital signature of the bidder in the e-tender portal.

4.4. After the submission of bid online in the e-tenders portal, the hard copies of the following are to be submitted to the Tender Inviting Authority on written demand by the tender inviting authority.

4.4.1. Copy of remittance towards bid submission fee and Bid Security.

4.4.2. Copy of confirmation of bid submission in the e-tender portal.

4.4.3. Self-attested Copy of the bidder's valid registration certificate in Kerala PWD, CPWD or other approved agencies as per clause 1.3. Sl No. 1c of ITB.

4.4.4. Work orders and the corresponding completion certificates in proof of experience as per Clause 1.3. Sl No. 2 of ITB

4.4.5. The Duly filled and Signed copy of financial statement as per Part V to be attached

4.4.6. Acceptance Form as per Part V of Forms and Declarations

4.4.7. Non- Black Listed Form Declaration as per the format in Part V

4.4.8. Power of Attorney, in case an authorized representative has signed the tender

4.4.9. Completion period as per the format in Part V

4.4.10. Requisition Form for e-Payment as per the format in Part V

4.4.11. No Deviation Certificate as per the format in Part V

4.4.12. Details of Technical and Administrative Personnel to be employed for the Work, attested by a Chartered Accountant as per Part-V to be attached.

4.4.13. Letter of understanding the project site on bidder letter Head as per Part-V to be attached.

4.4.14. Letter of understanding the project site on bidder letter Head as per Part-V to be attached.

4.4.15. Part VI - List of approved make shall be duly signed with seal to be attached

4.4.16. Any other relevant information with testimonials.

4.4.17. Price bid: This shall contain only the duly filled BoQ-file in MS-Excel format.

4.5. The bid shall only be submitted through online. The Tender Inviting Authority shall open the price bid in the presence of bidders or their authorized representatives preferably on the last day of bid submission after the prescribed time for bid submission.

4.6. The Tender Inviting Authority shall not be responsible for any failure, malfunction or breakdown of the electronic system while downloading or uploading the documents by the Bidder during the e-procurement process.

4.7. Deadline for Submission of the Bids

4.7.1. Bid shall be received only online on or before the date and time as notified in NIT.

4.7.2. The Tender Inviting Authority, in exceptional circumstances and at its own discretion, may extend the last date for submission of bids, in which case all rights and obligations of the PMC and the bidders previously subject to the original date will then be subject to the new date of submission.

4.7.3. The Bidder will not be able to submit his bid after expiry of the date and time of submission of bid (server time).

4.8. Modification, Resubmission and Withdrawal of Bids

4.8.1. Resubmission or modification of bid by the bidders for any number of times before the date and time of submission is allowed. Resubmission of bid shall require uploading of all documents including price bid afresh.

4.8.2. If the bidder fails to submit his modified bids within the pre-defined time of receipt, the system shall consider only the last bid submitted.

4.8.3. The Bidder can withdraw his/her bid before the closing date and time of submission of receipt of the bid. The system shall not allow any withdrawal after the date and time of submission.

5. Bid Opening and Evaluation

5.1. Bid Opening

5.1.1. Bids shall be opened on the specified date & time, by the tender inviting authority or his authorized representative in the presence of bidders or their designated representatives who choose to attend.

5.1.2. Opening of bids shall be carried out in the same order as it is occurring in invitation of bids or as in order of receipt of bids in the portal. The bidders & guest users can view the summary of opening of bids from any system. Bidders are not required to be present during the bid opening at the opening location if they so desire.

5.1.3. In the event of the specified date of bid opening being declared a holiday for the PMC, the bids will be opened at the same time on the next working day.

5.2.Confidentiality

5.2.1. Information relating to the examination, clarification, evaluation, and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process until the award has been announced in favors of the successful bidder.

5.2.2. Any effort by a Bidder to influence the PMC during processing of bids, evaluation, bid comparison or award decisions shall be treated as Corrupt & Fraudulent Practices, mentioned under Clause 9 of ITB and may result in the rejection of the Bidders' bid.

5.3.Clarification of Bids

5.3.1. To assist in the examination, evaluation, and comparison of bids, the Tender Inviting Authority may ask the bidder for required clarification on the information submitted with the bid. The request for clarification and the response shall be through e-platform, writing ,by e-mail, but no change in the price or substance of the Bid shall be sought, offered, or permitted.

5.3.2. Subject to clause 5.3.1, no Bidder shall contact the Tender Inviting Authority on any matter relating to the submitted bid from the time of the bid opening to the time the contract is awarded. If the Bidder wishes to bring additional information to the notice of the Tender Inviting Authority, he shall do so in writing.

5.4.Examination of Bids, and Determination of Responsiveness

5.4.1. During the bid opening, the Tender Inviting Authority will determine for each Bid whether it meets the required eligibility as specified in the NIT; is accompanied by the required bid security, bid submission fee and the required documents and certificates.

5.4.2. A substantially responsive bid is one which conforms to all the terms, conditions, and requirements of the bidding documents, without material deviation or reservation. A material deviation or reservation is one:

a. which affects in any substantial way the scope, quality, or performance of the Works;
b. which limits in any substantial way, inconsistent with the bidding documents, the PMC's rights or the Bidder's obligations under the Contract; or
c. whose rectification would affect unfairly the competitive position of other Bidders presenting substantially responsive Bids.

5.4.3. If a Bid is not substantially responsive, it may be rejected by the Tender Inviting Authority, and may not subsequently be made responsive by correction or withdrawal of the nonconforming material deviation or reservation.

5.4.4. Non submission of legible or required documents or evidences may render the bid non-responsive.

5.4.5. Bidder can witness the principal activities and view the documents/summary reports for that particular work by logging on to the portal with his DSC from anywhere.

5.5. Negotiation on Bids

5.5.1. The Tender Inviting Authority reserves the right to negotiate with the lowest evaluated responsive bidder.

6. Award of Contract

6.1. Subject to Clause 5, the Agreement Authority will award the Contract to the Bidder whose bid has been determined to be substantially responsive and who has offered the lowest evaluated bid price.

6.2. In the eventuality of failure on the part of the lowest successful bidder to produce the original documents, or submit the performance security, or enter into agreement with the Agreement Authority within the specified time limit, subjected to clause 3.6.6 of this section, the Bidder shall be debarred in future from participating in Bids maximum for period of 02 years and will be recommended for blacklisting by the competent authority. In such cases, the work shall be re-tendered.

6.3. If the grand total quoted amount by a bidder is less than 75% (seventy-five percent) of the total estimated cost put to tender, then such bids will be processed based on the directions contained in Government order GO (P) No-124/2016/Fin dated 29-8-2016 or any subsequent modifications thereof. If two or more bidders quote the same lowest amount, the Tender Inviting Authority shall finalize the tender through a transparent draw of lots. The Tender Inviting Authority along with his subordinate officers and the contractors who have quoted the lowest and equal amounts in their bids (or contractor's authorized representatives) shall be present during the draw of lots.

6.4. The rates for the various items quoted by the Bidder shall be rounded to two decimal places. The decimal places in excess of two will be discarded during evaluation.

6.5. Project Management Consultant (PMC)'s Right to accept any Bid and to reject any or all Bids

6.5.1. Notwithstanding Clause 6.1 to 6.4, the Tender Inviting Authority reserves the right to accept or reject any Bid and to cancel the Bidding process and reject all Bids at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the Tender Inviting Authority's action.

6.6. Notification of Award and Signing of Agreement

6.6.1. The Bidder, whose Bid has been accepted, shall be notified of award by the Agreement Authority prior to expiration of the Bid validity period by facsimile or e-mail confirmed by letter sent through post. This letter (hereinafter and in the Conditions of Contract called the "Letter of Acceptance") will state the sum that the Project Management Consultant (PMC)/Client Department will pay the Bidder in consideration of the execution, completion and remedying defects, if any of the Works by the Contractor as prescribed by the Contract.

6.6.2. The notification of award will constitute the formation of the Contract, subject only to the furnishing of a Performance Guarantee in accordance with the provisions of Clause 7 of GCC, within 14(fourteen) days of issue of letter of acceptance.

6.6.3. If the successful bidder fails to furnish the required Performance Guarantee as detailed in clause 7 of GCC and enter into contract, within the above stipulated time, further ten days' time will be allowed at the request of the bidder, for which the successful bidder has to remit a fine equal to 1% of the Contract Price as per his quote amount subject to a minimum of Rs.1000 and maximum of Rs. 25,000. This fine shall be remitted in the form of demand draft drawn from a nationalized bank in favor of HLL Lifecare Limited payable at Chennai. If not submitted the work order will be cancelled.

6.6.4. Upon the furnishing by the successful Bidder of the Performance Guarantee, the Agreement Authority will promptly notify the other Bidders that their Bids have been unsuccessful and refund the Bid Security.

6.6.5. Solicitor's fee, if any, to be paid to the Law Officers of Government for scrutinizing or drawing up of agreements - will be paid and the same recovered from the successful bidder. Further, the registration fees for executing the agreement as applicable shall be borne by the contractor.

7. First tier Quality Control Tests

7.1. Primary responsibility of maintaining quality of all items of work as per specifications and standards prescribed in the CPWD Quality Control Manual vests with the Contractor. The Contractor shall carry out all First tier Quality Control tests prescribed by the PWD Quality Control Manual at his own expense and submit it along with the bills submitted for payment. If the estimated cost exceeds Rs. 2 Crores, the Contractor shall establish field laboratory at the site at his own expense.

8. Corrupt or Fraudulent Practices

8.1. It is required that the bidders observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, it is defined, for the purposes of this provision, the terms set forth below as follows:

8.1.1. "Corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution; and

8.1.2. "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the PMC/Client Department and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial noncompetitive levels and to deprive the Government of the benefits of free and open competition.

8.1.3. "Collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;

8.1.4. "Coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party.

8.2 The PMC will reject a bid, and/or award if it determines that the Bidder recommended for award has engaged in any of the corrupt or practices in competing for the contract in question and will declare the firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract, if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing the contract.

9 Forms and declarations

9.1. Various forms and formats for declarations to be submitted by the Bidder for Bid submission are included in the Part-V- FORMS AND DECLARATIONS. Bidders are requested to fill in the required forms and declarations and submit the same with their bids both online and in hard copy on demand of tender inviting authority.

PART - II

GENERAL RULES AND DIRECTIONS

1. All work proposed for execution by contractor will be notified in a form of invitation to tender and signed by the officer inviting tender or by publication in Newspapers as the case may be. This form will state the work to be carried out, as well as the date for submitting and opening tenders and the time allowed for carrying out the work, also the amount of earnest money to be deposited with the tender, and the amount of the security deposit and Performance guarantee to be deposited by the successful tenderer and the percentage, if any, to be deducted from bills. Copies of the specifications, designs and drawings and any other documents required in connection with the work signed for the purpose of identification by the officer inviting tender shall also be open for inspection by the contractor at the office of officer inviting tender during office hours.

2. In the event of the tender being submitted by a firm, it must be digitally signed separately by each partner thereof or in the event of the absence of any partner, it must be signed on his behalf by a person holding a power-of attorney authorizing him to do so, such power of attorney to be produced with the tender, and it must disclose that the firm is duly registered under the Indian Partnership Act, 1952.

3. Receipts for payment made on account of work, when executed by a firm, must also be signed by all the partners, except where contractors are described in their tender as a firm, in which case the receipts must be signed in the name of the firm by one of the partners, or by some other person having due authority to give effectual receipts for the firm.

4. Tenders, which propose any alteration in the work specified in the said form of invitation to tender, or in the time allowed for carrying out the work, or which contain any other conditions of any sort, including conditional rebates, will be summarily rejected.

   The rate(s) must be quoted in decimal coinage. Amounts must be quoted in full rupees by ignoring fifty paisa and considering more than fifty paisa as rupee one.

5. The officer inviting tender or his duly authorized assistant will open tenders in the presence of any intending contractors who may be present at the time, and will enter the amounts of the several tenders in a comparative statement in a suitable form. In the event of a tender being rejected, the earnest money shall there upon be returned to the contractor remitting the same, without any interest after issuing the work order to the successful bidder.

6. The officer inviting tender shall have the right of rejecting all or any of the tenders and will not be bound to accept the lowest or any other tender.

7. In the case of Item Rate Tenders, only rates quoted shall be considered. Any tender containing percentage below/above the rates quoted is liable to be rejected. Rates quoted by the contractor in item rate tender in figures and words shall be accurately filled in so that there is no discrepancy in the ratesin figures and words. However, if a discrepancy is found, the rates which correspond with the amount worked out by the contractor shall unless otherwise proved be taken as correct. If the amount of an item is not worked out by the contractor or it does not correspond with the rates written either in figures or in words, then the rates quoted by the contractor in words shall be taken as correct. Where the rates quoted by the contractor in figures and in words tally, but the amount is not worked out correctly, the rates quoted by the contractor will unless otherwise proved be taken as correct and not the amount. In event no rate has been quoted for an item(s), leaving space both in figure(s), word(s), and amount blank, it

will be presumed that the contractor has included the cost of this/these item(s) in other items and rate for such item(s) will be considered as zero and work will be required to be executed accordingly.

However, if a tenderer quotes nil rates against each item in item rate tender, the tender shall be treated as invalid and will not be considered as lowest tenderer and earnest money deposited shall be forfeited.

8. In the case of any tender where unit rate of any item/items appear unrealistic, such tender will be considered as unbalanced and in case the tenderer is unable to provide satisfactory explanation, such a tender is liable to be disqualified and rejected.

9. All rates shall be quoted on the tender form.

(i) The Contractor whose tender is accepted will be required to furnish performance guarantee of 5% (Five Percent) of the tendered amount within the period specified in Schedule F. This guarantee shall be in the form of Demand draft (in case guarantee amount is less than Rs.1,00,000/-) or Guarantee Bonds of any Scheduled Bank accordance with the prescribed form.

(ii) The contractor whose tender is accepted will also be required to furnish by way of Security Deposit for the fulfillment of his contract, an amount equal to 2.5% of the tendered value of the work. The Security deposit will be collected by deductions from the running bills of the contractor at the rates mentioned above. The Security amount will also be accepted in cash or in the shape of Government Securities. Fixed Deposit Receipt of a Scheduled Bank or State Bank of India will also be accepted for this purpose provided confirmatory advice is enclosed.

10. On acceptance of the tender, the name of the accredited representative(s) of the contractor who would be responsible for taking instructions from the Engineer-in-Charge shall be communicated in writing to the Engineer-in-Charge.

11. GST or any other applicable in respect of inputs procured by the contractor for this contract shall be payable by the Contactor and the Client will not entertain any claim whatsoever in respect of the same. However, component of GST at the time of supply of service (as provided in CGST act 2017) provided by the contract shall be varied if different from that applicable on the last date of receipt of tender including extensions if any.

12. The contractor shall give a list of both Executive/Non Executive employees of client related to him.

13. The tender for the work shall not be witnessed by a contractor or contractors who himself/ themselves has/ have tendered or who may and has/have tendered for the same work. Failure to observe this condition would render, tenders of the contractors tendering, as well as witnessing the tender, liable to summary rejection.

14. The tender for composite work includes, in addition to building work, all other works such as sanitary and water supply installations drainage installation, electrical work, horticulture work, roads and paths etc. The tenderer must associate himself with agencies of appropriate class which are eligible to tender for sanitary and water supply drainage, electrical and horticulture works in the composite tender.

15. The contractor shall submit list of works which are in hand (progress) in the following form:-

Name of Work	Name and Particulars given. Where work is being executed	Value of Work	Position of works in Progress	Remarks

Part III

GENERAL CONDITIONS OF CONTRACT

SECTION 1 - DEFINITIONS

I. The Contract means the documents forming the tender and acceptance thereof and the formal agreement executed between the competent authority as indicated in Schedule 'F' on behalf of the Client and the Contractor, together with the documents referred to therein including these conditions, the specifications, designs, drawings and instructions issued from time to time by the Engineer-in-charge of the Consultant appointed by the Client and all these documents taken together, shall be deemed to form one contract and shall be complementary to one another.

II. In the contract the following expressions shall, unless the context otherwise requires, have the meanings, thereby respectively assigned to them: -

i) The expressions **works** or **work** shall, unless there be something either in the subject or context repugnant to such work, be construed and taken to mean the works by or by virtue of the contract contracted to be executed whether temporary or permanent, and whether original, altered, substituted or additional.

ii) The Site shall mean the land, places on, into or or where work is to be executed under the contract or any adjacent land, path or street or where work is to be executed under the contract or any adjacent land, path or street which may be temporally allotted or used for the purpose of carrying out the contract.

iii) The Contractor shall mean the individual, firm or company, whether incorporated or not, undertaking the works and shall include the legal personal representative of such individual or the persons composing such firm or company, or the successors of such firm or company and the permitted assignees of such individual, firm or company.

iv) Accepting Authority shall mean the authority mentioned in Schedule 'F'.

v) Department/ Client means shall include their legal representatives, nominee, employees and Officials.

vi) Specifications means the specifications followed by the HLL in the area where the work is to be executed.

vii) The Engineer-in-charge means the Engineer Officer of HLL as mentioned in Schedule 'F' hereunder, authorized by competent authority of HLL, who shall supervise and be in charge of the work.

viii) Excepted risk(s) are risks due to riots (other than those on account of the contractor's employees), war (whether declared or not) invasion, act of foreign enemies, hostilities, civil war, rebellion revolution, insurrection, military or usurped power, any act of Government, damage from aircraft, acts of God, such as earthquake, lightening and unprecedented floods, and other causes over which the contractor has no control and accepted as such by the Accepting Authority or causes solely due to use or occupation by Government of the part of the works in respect of which a certificate of completion has been issued or a cause solely due to Government's faulty design of work.

(a) Market rate shall be the rate as decided by Engineer-in-charge on the basis of the cost of materials and labour at the site where the work is to be executed plus the percentage mentioned in Schedule 'F' to cover, all overheads and profits.

Provided that no extra overheads and profits shall be payable on the part(s) of work assigned to other agency(s) by the contractor as per terms of contract. Schedule(s) referred to in these conditions shall mean the relevant schedule(s) annexed to the tender documents or the standard Schedule of Rates of the

government mentioned in Schedule 'F' hereunder, with the amendments thereto issued upto the date of receipt of the tender.

(b) Schedule(s) referred to in these conditions shall mean the relevant schedule(s) annexed to the tender papers or the standard Schedule of Rates of the Government mentioned in Schedule 'F' hereunder, with the amendments thereto issued upto the date of receipt of the tender.

ix) "Tendered Value"/ "Contract Price" means the value of the entire work as stipulated in the letter of award.

x) Date of commencement of work: The date of commencement of work shall be the date of issuance of work order or the first date of handing over of the site, whichever is later, in accordance with the phasing if any as indicated in the tender document.

xi) GST shall mean Goods and Service Tax – Central, State and Inter State.

xii) Payment authority means……..

Scope and performance

III. Where the context so requires, words imparting the singular only also include the plural or vice versa. Any reference to masculine gender shall whenever required include feminine gender and vice versa

IV. Heading and Marginal notes to these General Conditions of Contract shall not be deemed to form part thereof or be taken into consideration in the interpretation or work thereof or of the contract.

V. The contractor shall be furnished, free of cost one certified copy of the contract documents except standard specifications, Schedule of rates and such other printed and published documents, together with all drawings as may be forming part of the tender papers. None of these documents shall be used for any purpose other than that of this contract.

Works to be carried out

VI. The work to be carried out under the contract shall, except as otherwise provided in these conditions, include all labour, materials, tools, plants, equipment and transport which may be required in preparation of and for and in the full and entire execution and completion of the works. The description given in the Schedule of Quantities shall, unless otherwise stated, be held to include wastage of materials, cartage and carriage, carrying and return of empties, hoisting, setting, fitting and fixing in position and all other labour necessary in and for the full entire execution and completion of the work as aforesaid in accordance with good practice and recognized principles.

Sufficiency of tender

VII. The contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the rates and price quoted in the Schedule of Quantities, which rates and price shall, except as otherwise provided, cover all his obligations under the contract and all matters and things necessary for the proper completion and maintenance of the works.

Discrepancies and Adjustment of errors

VIII. The several documents forming the contract are to be taken as mutually explanatory of one another, detailed drawings being followed in preference to small scale drawings and figured dimensions in preference to scale and specific conditions in preference to general conditions.

8.1. In the case of discrepancy between the Schedule of Quantities, the Specifications and/ or the Drawings, the following order of preference shall be observed –

i) Description of Schedule of Quantities

ii) Tender drawings

iii) Special Conditions of Contract

iv) GCC, NIT, ITB

v) CPWD Specifications including up-to-date correction slips

vi) Technical Specification

vii) Indian Standard Specifications of B.I.S.

viii) NBC

8.1 If there are varying or conflicting provisions made in any one document forming Part of the contract, Tender Accepting Authority shall be the deciding authority withregard to the intention of the document and his decision shall be final and binding on the Contractor.

8.2 Any error in description, quantity or rate in schedule of quantities or any omission therefrom shall not vitiate the contract or release the contractor from the execution of the whole or any part of the works comprised therein according to drawings and specifications or from any of his obligation under the contract.

Signing of Contract

IX. The successful bidder/contractor, on acceptance of his tender by the Accepting Authority, shall, within 15 days from the stipulated date of start of the work, sign the contract consisting of: -

i) The notice inviting tender, all the documents including drawings, amendments, corrigendum etc, if any, forming the tender as issued at the time of invitation of tender and acceptance thereof together with any correspondence leading thereto.

ii) Standard Form as mentioned in Schedule 'F' consisting of:

(a) Various standard clauses with corrections upto the date stipulated in Schedule 'F' along with annexure thereto.

(b) CPWD Safety Code.

(c) Model Rules for the protection of health, sanitary arrangements for workers employed by CPWD or its contractors

(d) CPWD Contractor's Labour Regulations, to be followed by the Contractor for this Project.

(e) List of Acts and omissions for which fines can be imposed.

(f) No payment for the work done will be made

(g) Unless contract is signed by the contractor & PBG is submitted by the Contractor.

(h) Till the copy of registration with EPFO and ESI is submitted by the contractor.

SECTION 2 - CLAUSES OF CONTRACT

CLAUSE 1: PERFORMANCE GUARANTEE

(i) The contractor shall submit an irrevocable Performance Guarantee of 5% (Five percent) of the tendered value in addition to other deposits mentioned elsewhere in the contract for his proper performance of the contract agreement, (not withstanding and/or without prejudice to any other provisions in the contract) within period specified in Schedule 'F' from the date of issue of letter of acceptance. This period can be further extended by the Engineer-in-Charge up to a maximum period as specified in schedule 'F' on written request of the contractor stating the reason for delays in procuring the Performance Guarantee, to the satisfaction of the Engineer-in-Charge. This guarantee shall be in the form of Guarantee Bonds of any Scheduled Bank or the State Bank of India in accordance with the form annexed hereto.

(ii) The Performance Guarantee shall be initially valid up to the successful completion of **Defect Liability Period of 60 months**. In case the time for completion of work gets enlarged, the contractor shall get the validity of Performance Guarantee extended to cover such enlarged time for completion of work. After completion of Defect liability Period, the performance guarantee shall be returned to the contractor, without any interest.

(iii) The Engineer-in-Charge shall not make a claim under the performance guarantee except for amounts to which the Client is entitled under the contract (not withstanding

and/or without prejudice to any other provisions in the contract agreement) in the event of:

a) Failure by the contractor to extend the validity of the Performance Guarantee as described herein above, in which event the Engineer-in-Charge may claim the full amount of the Performance Guarantee.

b) Failure by the contractor to pay the Client any amount due, either as agreed by the contractor or determined under any of the Clauses/Conditions of the agreement, within 30 days of the service of notice to this effect by Engineer-in-Charge.

(iv) In the event of the Contract being determined or rescinded under provision of any of the Clause/Condition of the agreement, the performance guarantee shall stand forfeited in full and shall be absolutely at the disposal of the Client.

(v) On substantial Completion of any work which has been completed to such an extent that the intended purpose of the work is met and ready to use, then a provisional Completion certificate shall be recorded by the Engineer-in-Charge.

The provisional certificate shall have appended with a list of outstanding balance item of work that need to be completed in accordance with the provisions of the contract.

This provisional completion certificate shall be recorded by the concerned Engineer-in- charge. After recording of the provisional Completion Certificate for the work by the competent authority, the 80% of performance guarantee shall be returned to the contractor, without any interest.

CLAUSE 1 A: RECOVERY OF SECURITY DEPOSIT

The person/persons whose tender(s) may be accepted (hereinafter called the contractor) shall permit Government/Client at the time of making any payment to him for work done under the contract to deduct a sum at the rate of 2.5% of the gross amount of each running and final bill till the sum deducted will amount to security deposit of 2.5% of the tendered value of thework. Such deductions will be made and held by HLL/Client by way of Security Deposit unless he/they has/have deposited the amount of Security at the rate mentioned above in cashor in the form of Government Securities or fixed deposit receipts. In case a fixed depositreceipt of any Bank is furnished by the contractor to the Client as part of the security deposit and the Bank is unable to make payment against the said fixed deposit receipt, the loss caused thereby shall fall on the contractor and the contractor shall forthwith on demand furnish additional security to the Client to make good the deficit.

All compensations or the other sums of money payable by the contractor under the terms of this contract may be deducted from, or paid by the sale of a sufficient part of his security deposit or from the interest arising therefrom, or from any sums which may be due to or may become due to the contractor by Client on any account whatsoever and in the event of his Security Deposit being reduced by reason of any such deductions or sale as aforesaid, the contractor shall within 10 days make good in cash or fixed deposit receipt tendered by the State Bank of India or by Scheduled Banks or Government Securities (if deposited for more than 12 months) endorsed in favour of the Engineer-in-Charge, any sum or sums which may have been deducted from, or raised by sale of his security deposit or any part thereof. The security deposit shall be collected from the running bills of the contractor at the rates mentioned above.

The security deposit as deducted above can be released against bank guarantee issued by a scheduled bank, on its accumulations to a minimum of Rs. 5 lakh subject to the condition that amount of such bank guarantee, except last one, shall not be less than Rs. 5 lakh. Provided

further that the validity of bank guarantee including the one given against the earnest money shall be in conformity with provisions contained in clause 17 which shall be extended from time to time depending upon extension of contract granted under provisions of Clause 2 and Clause 5.

Note-1: Government papers tendered as security will be taken at 5% (five per cent) below its market price or at its face value, whichever is less. The market price of Government paper would be ascertained by the Engineer-in-Charge at the time of collection of interest and the amount of interest to the extent of deficiency in value of the Government paper will be withheld if necessary.

Note-2: Government Securities will include all forms of Securities mentioned in Rule No. 274 of the G.F. Rules except fidelity bond. This will be subject to the observance of the condition mentioned under the rule against each form of security.

Note-3: Note 1 & 2 above shall be applicable for both clause 1 and 1A

CLAUSE 2: COMPENSATION FOR DELAY

If the contractor fails to maintain the required progress in terms of clause 5 or to complete the work and clear the site on or before the contract or justified extended date of completion asper clause 5, (excluding any extension under Clause 5.5) as well as any extension granted under clauses 12 and 15 he shall, without prejudice to any other right or remedy available under the law to the Government/ Client on account of such breach, pay as agreed compensation the amount calculated at the rates stipulated below as the authority specified in schedule 'F' (whose decision in writing shall be final and binding) may decide on the amountof tendered value of the work for every completed day/month (as determined) that the progress remains below that specified in Clause 5 or that the work remains incomplete.

This will also apply to items or group of items for which a separate period of completion has been specified.

(i) Compensation for delay of work with maximum rate @ 1.0 % of accepted tendered value per month of delay to be computed on per day basis based on quantum of damage suffered due to stated delay on the part of contractor.

Provided always that the total amount of compensation for delay to be paid under this Condition shall not exceed 10% of the accepted Tendered Value of work or of the accepted Tendered Value of the item or group of items of work for which a separate period of completion is originally given.

In case no compensation has been decided by the authority in Schedule 'F' during the progress of work, this shall be no waiver of right to levy compensation by the said authority if the work remains incomplete on final justified extended date of completion. If the Engineer in Charge decides to give further extension of time allowing performance of work beyond the justified extended date, the contractor shall be liable to pay compensation for such extended period. If any variation in amount of contract takes place during such extended period beyond justified extended date and the contractor becomes entitled to additional time under clause 12, the net period for such variation shall be accounted for while deciding the period for levy of compensation. However, during such further extended period beyond the justified extended period, if any delay occurs by events under sub clause 5.2, the contractor shall be liable to pay compensation for such delay.

Provided that compensation during the progress of work before the justified extended date of completion for delay under this clause shall be for non-achievement of sectional completion orpart handing over of work on stipulated/justified extended date for such part work or if delay affects any other works/services. This is without prejudice to right of action by the Engineer inCharge under clause 3 for delay in performance and claim of compensation under that clause.

In case action under clause 2 has not been finalized and the work has been determined under clause 3, the right of action under this clause shall remain post determination of contract but levy of compensation shall be for days the progress is behind the schedule on date of determination, as assessed by the authority in Schedule F, after due consideration of justified extension. The compensation for delay, if not decided before the determination of contract, shall be decided after of determination of contract.

The amount of compensation may be adjusted or set-off against any sum payable to the Contractor under this or any other contract with HLL. In case, the contractor does not achieve a particular milestone mentioned in schedule F, or the re-scheduled milestone(s) in terms of Clause 5.4, the amount shown against that milestone shall be withheld, to be adjusted against the compensation levied as above. With-holding of this amount on failure to achieve a milestone, shall be automatic without any notice to the contractor. However, if the contractor catches up with the progress of work on the subsequent milestone(s), the withheld amount shall be released. In case the contractor fails to make up for the delay in subsequent milestone(s), amount mentioned against each milestone missed subsequently also shall be withheld. However, no interest, whatsoever, shall be payable on such withheld amount.

CLAUSE 3 WHEN CONTRACT CAN BE DETERMINED

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

(i) If the contractor having been given by the Engineer-in-Charge a notice in writing to rectify, reconstruct or replace any defective work or that the work is being performed in an inefficient or otherwise improper or unworkman like manner shall omit to comply with the requirement of such notice for a period of seven days thereafter.

(ii) If the contractor has, without reasonable cause, suspended the progress of the work or has failed to proceed with the work with due diligence and continues to do so after a notice in writing of seven days from the Engineer-in-Charge.

(iii) If the contractor fails to complete the work or section of work with individual date of completion on or before the stipulated or justified extended date, on or before such date of completion; and the Engineer in Charge without any prejudice to any other right or remedy under any other provision in the contract has given further reasonable time in a notice given in writing in that behalf as either mutually agreed or in absence of such mutual agreement by his own assessment making such time essence of contract and in the opinion of Engineer-in-Charge the contractor will be unable to complete the same or does not complete the same within the period specified.

(iv) If the contractor persistently neglects to carry out his obligations under the contract and/or commits default in complying with any of the terms and conditions of the contract and does not remedy it or take effective steps to remedy it within 7 days after a notice in writing is given to him in that behalf by the Engineer-in-Charge.

(v) If the contractor shall offer or give or agree to give to any person in Government service or to any other person on his behalf any gift or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of this or any other contract for Client.

(vi) If the contractor shall enter into a contract with Client in connection with which commission has been paid or agreed to be paid by him or to his knowledge, unless the particulars of any such commission and the terms of payment thereof have been

previously disclosed in writing to the Engineer-in-Charge.

(vii) If the contractor shall obtain a contract with HLL/Client as a result of wrong tendering or other non-bonafide methods of competitive tendering or commits breach of DEpact.

(viii) If the contractor being an individual, or if a firm, any partner thereof shall at any time be adjudged insolvent or have a receiving order or order for administration of his estate made against him or shall take any proceedings for liquidation or composition (other than a voluntary liquidation for the purpose of amalgamation or reconstruction) under any Insolvency Act for the time being in force or make any conveyance or assignment of his effects or composition or arrangement for the benefit of his creditors or purport so to do, or if any application be made under any Insolvency Act for the time being in force for the sequestration of his estate or if a trust deed be executed by him for benefit of his creditors.

(ix) If the contractor being a company shall pass a resolution or the court shall make an order that the company shall be wound up or if a receiver or a manager on behalf of a creditor shall be appointed or if circumstances shall arise which entitle the court or the creditor to appoint a receiver or a manager or which entitle the court to make a winding up order.

(x) If the contractor shall suffer an execution being levied on his goods and allow it to be continued for a period of 21 days.

(xi) If the contractor assigns, (excluding part(s) of work assigned to other agency(s) by the contractor as per terms of contract), transfers, sublets (engagement of labour on a piece-work basis or of labour with materials not to be incorporated in the work, shall not be deemed to be subletting) or otherwise parts with or attempts to assign, transfer, sublet or otherwise parts with the entire works or any portion thereof without the prior written approval of the Engineer -in-Charge.

(xii) When the contractor has made himself liable for action under any of the cases aforesaid, the Engineer-in-Charge shall have powers:

(xiii) To determine the contract as aforesaid so far as performance of work by the Contractor is concerned (of which determination notice in writing to the contractor under the hand of the Engineer-in-Charge shall be conclusive evidence). Upon such determination, the Security Deposit already recovered, security deposit payable and Performance Guarantee under the contract shall be liable to be forfeited and shall be absolutely at the disposal of HLL.

(xiv) After giving notice to the contractor to measure up the work of the contractor and to take such whole, or the balance or part thereof, as shall be un-executed out of his hands and to give it to another contractor to complete the work. The contractor, whose contract is determined as above, shall not be allowed to participate in the tendering process for the balance work including any new items needed to complete the work.

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

CLAUSE 3A

In case, the work cannot be started due to reasons not within the control of the contractor within 1/8th of the stipulated time for completion of work or one month whichever is more,

either party may close the contract by giving notice to the other party stating the reasons. In such eventuality, the Performance Guarantee of the contractor shall be refunded.

(i) If the Tendered value of work is up to Rs. 1 Crore : 15 days.

(ii) If the Tendered value of work is more than Rs. 1 Crore and upto Rs.10 Crore: 21 days

(iii) If the Tendered value of work exceeds Rs. 10 Crore : 30 days

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

CLAUSE 4 CONTRACTOR LIABLE TO PAY COMPENSATION EVEN IF ACTION NOTTAKENUNDER CLAUSE 3

In any case in which any of the powers conferred upon the Engineer-in-Charge by Clause-3 thereof, shall have become exercisable and the same are not exercised, the non-exercise thereof shall not constitute a waiver of any of the conditions hereof and such powers shall notwithstanding be exercisable in the event of any future case of default by the contractor and the liability of the contractor for compensation shall remain unaffected. In the event of the Engineer-in-Charge putting in force all or any of the power vested in him under the preceding clause he may, if he so desires after giving a notice in writing to the contractor, take possessionof (or at the sole discretion of the Engineer-in-Charge which shall be final and binding on the contractor) use as on hire (the amount of the hire money being also in the final determination of the Engineer-in-Charge) all or any tools, plant, materials and stores, in or upon the works, orthe site thereof belonging to the contractor, or procured by the contractor and intended to be used for the execution of the work/or any part thereof, paying or allowing for the same in account at the contract rates, or, in the case of these not being applicable, at current market rates to be certified by the Engineer-in-Charge, whose certificate thereof shall be final, and binding on the contractor, clerk of the works, foreman or other authorized agent to remove such tools, plant, materials, or stores from the premises (within a time to be specified in such notice) in the event of the contractor failing to comply with any such requisition, the Engineer-in-Charge may remove them at the contractor's expense or sell them by auction or private sale on account of the contractor and his risk in all respects and the certificate of the Engineer-in- Charge as to the expenses of any such removal and the amount of the proceeds and expenses of any such sale shall be final and conclusive against the contractor.

CLAUSE 5 TIME AND EXTENSION FOR DELAY

The time allowed for execution of the Works as specified in the Schedule 'F' or the extended time in accordance with these conditions shall be the essence of the Contract. The execution of the works shall commence from such time period as mentioned in schedule 'F' or from thedate of handing over of the site, notified by the Engineer- in-charge, whichever is later. However, the handing over of site by the Engineer in Charge, in full or in part (if so provided incontract), shall be completed within two months from issue of acceptance letter. If the Contractor commits default in commencing the execution of the work as aforesaid, the performance guarantee shall be forfeited by the Engineer in Charge and shall be absolutely at the disposal of the HLL without prejudice to any other right or remedy available in law.

5.1 As soon as possible but within fifteen days of award of work :

(i) The Contractor shall submit a Time and Progress Chart for each mile stone. The Engineer-in-Charge may within 15 (fifteen) working days thereafter, if required modify, and communicate the program approved to the contractor failing which the program submitted by the contractor shall be deemed to be approved by the Engineer-in-Charge. The work programme shall include all details of balance drawings and decisions required to complete the contract with specific dates by which these details are required by contractor without causing any delay in execution of the work. The Chart shall be prepared in direct relation to the time stated in the Contract documents

for completion of items of the works. It shall indicate the forecast of the dates of commencement and completion of various trades of sections of the work and may be amended as necessary by agreement between the Engineer in-Charge and the Contractor within the limitations of time imposed in the Contract documents.

(ii) In case of non-submission of programme by the contractor the program approved by the Engineer-in-Charge shall be deemed to be final.

(iii) The approval by the Engineer-in-Charge of such programme shall not relieve the contractor of any of the obligations under the contract.

(iv) The contractor shall submit the Time and Progress Chart and progress report using MS project as decided by Engineer-in-Charge for the work done during previous month to the Engineer-in-charge on or before 5th day of each month failing which a recovery Rs. 5000/- shall be made on per week or part basis in case of delay in submission of the monthly progress report.

5.2 If the work(s) be delayed by:-

(i) force majeure, or

(ii) abnormally bad weather, or

(iii) serious loss or damage by fire, or

(iv) civil commotion, local commotion of workmen, strike or lockout, affecting any of the trades employed on the work, or

(v) delay on the part of other contractors or tradesmen engaged by Engineer-in-Charge in executing work not forming part of the Contract, or

(vi) any other cause like above which, in the reasoned opinion of the Engineer-in- Charge is beyond the Contractor's control. then upon the happening of any such event causing delay, the Contractor shall immediately give notice thereof in writing to the Engineer-in-Charge for entry in the hindrance register (physical or web-based as prescribed in schedule F) but shall nevertheless use constantly his best endeavours to prevent or make good the delay and shall do all that may be reasonably required to the satisfaction of the Engineer-in- Charge to proceed with the works.

The contractor shall have no claim of damages for extension of time granted or rescheduling of milestone/s for events listed in sub clause 5.2.

5.3 In case the work is hindered by any reasons, in the opinion of the contractor, by HLL/ Client or for any reason/event, for which the Client/HLL is responsible, the contractor may immediately give notice thereof in writing to the Engineer-in-Charge inthe same manner as prescribed under sub Clause 5.2 seeking extension of time or rescheduling of milestone/s. The authority as indicated in Schedule 'F' shall, if justified,give a fair and reasonable extension of time and reschedule the mile stones for completion of work. Such extension of time or rescheduling of milestone/s shall be without prejudice to anyother right or remedy of the parties in contract or in law; provided further that for concurrent delays under this sub clause and sub clause 5.2 to the extent the delay is covered under sub clause 5.2 the contractor shall be entitled to only extension of time and no damages.

5.4 Request for rescheduling of Mile stones or extension of time, to be eligible for consideration, shall be made by the Contractor in writing within fourteen days of the happening of the event causing delay on the prescribed forms i.e. Form of application by the contractor for seeking rescheduling of milestones (Appendix-XVI) respectively to the authority as indicated in Schedule 'F'. The Contractor shall indicate in such a request the period by which rescheduling of milestone/s or extension of time is desired. With every request for rescheduling of milestones, or if at any time the actual progress of work falls behind the approved programme by more than 10% of the

stipulated period of completion of contract, the contractor shall produce a revised programme which shall include all details of pending drawings and decisions required to complete the contract and also the target dates by which these details should be available without causing any delay in execution of the work. A recovery as specified in Schedule 'F' shall be made on per day basis in case of delay in submission of the revised programme.

5.4.1. In any such case the authority as indicated in Schedule 'F' may give a fair reasonable extension of time and reschedule the mile stones for completion of work. Such extension or rescheduling of the milestones shall be communicated to the Contractor by the authority as indicated in Schedule 'F' in writing, within 30 days of the date of receipt of such request from the contractor in prescribed form. In event of non-application by the contractor for extension of time E-in-C after affording opportunity to the contractor, may give, supported with a programme (as specified under 5.4 above), a fair and reasonable extension within a reasonable period of occurrence of the event.

5.4.2. In case the work is delayed by any reasons, in the opinion of the Engineer-in-Charge, by the contractor for reasons beyond the events mentioned in clause 5.2 or clause 5.3 or clause 5.4 and beyond the justified extended date without prejudice to right to take action under Clause 3, the Engineer-in-Charge may grant extension of time required for completion of work without rescheduling of milestones. The contractor shall be liable for levy of compensation for delay for such extension of time.

CLAUSE 6 COMPUTERIZED MEASUREMENT BOOK

Engineer-in-Charge shall, except as otherwise provided, ascertain and determine by measurement the value of work done in accordance with the contract. All measurements of all items having financial value shall be entered by the contractor and compiled in the shape ofthe Computerized Measurement Book having pages of A-4 size as per the foLLrmat of the department so that a complete record is obtained of all the items of works performed under the contract.

All such measurements and levels recorded by the contractor or his authorized representative from time to time, during the progress of the work, shall be got checked by the contractor fromthe Engineer-in-Charge or his authorized representative as per interval or program fixed in consultation with Engineer-in-Charge or his authorized representative. After the necessary corrections made by the Engineer-in-Charge, the measurement sheets shall be returned to the contractor for incorporating the corrections and for resubmission to the Engineer-in-Charge for the dated signatures by the Engineer-in-Charge and the contractor or their representatives in token of their acceptance.

Whenever bill is due for payment, the contractor would initially submit draft computerized measurement sheets and these measurements would be got checked/test checked from the Engineer-in-Charge and/or his authorized representative. The contractor will, thereafter, incorporate such changes as may be done during these checks/test checks in his draft computerized measurements, and submit to the department a computerized measurement book, duly bound, and with its pages machine numbered. The Engineer-in- Charge and/or his authorized representative would thereafter check this MB, and record the necessary certificates for their checks/test checks.

The final, fair, computerized measurement book given by the contractor, duly bound, with its pages machine numbered, should be 100% correct, and no cutting or over-writing in the measurements would thereafter be allowed. If at all any error is noticed, the contractor shall have to submit a fresh computerized MB with its pages duly machine numbered and bound, after getting the earlier MB cancelled by HLL. Thereafter, the MB shall be taken in the Engineer- in- charge's Office records, and allotted a number as per the Register of Computerized MBs. This should be done before the corresponding bill is submitted to the

Engineer in charge for payment. The contractor shall submit two spare copies of such computerized MB's for the purpose of reference and record by the various officers of the HLL.

The contractor shall also submit to the HLL separately his computerized Abstract of Cost and the bill based on these measurements, duly bound, and its pages machine numbered along with two spare copies of the bill. Thereafter, this bill will be processed by the Engineer in charge Office and allotted a number as per the computerized record in the same way as done for the measurement book meant for measurements.

The contractor shall, without extra charge, provide all assistance with every appliance, labour and other things necessary for checking of measurements/levels by the Engineer-in- Charge orhis representative.

Except where any general or detailed description of the work expressly shows to the contrary, measurements shall be taken in accordance with the procedure set forth in the specifications notwithstanding any provision in the relevant Standard Method of measurement or any general or local custom. In the case of items which are not covered by specifications, measurements shall be taken in accordance with the relevant standard method of measurement issued by the Bureau of Indian Standards and if for any item no such standard is available then a mutually agreed method shall be followed.

The contractor shall give not less than seven days' notice to the Engineer-in-Charge or his authorized representative in charge of the work before covering up or otherwise placing beyond the reach of checking and/or test checking the measurement of any work in order that the same may be checked and/or test checked and correct dimensions thereof be taken before the same is covered up or placed beyond the reach of checking and/or test checking measurement and shall not cover up and place beyond reach of measurement any work without consent in writing of the Engineer-in-Charge or his authorized representative in charge of the work who shall within the aforesaid period of seven days inspect the work, and if any work shall be covered up or placed beyond the reach of checking and/or test checking measurements without such notice having been given or the Engineer-in-Charge's consent being obtained in writing the same shall be uncovered at the Contractor's expense, or in default thereof no payment or allowance shall be made for such work or the materials with which the same was executed.

Engineer-in-Charge or his authorized representative may cause either themselves or through another officer of the HLL to check the measurements recorded by contractor and all provisions stipulated herein above shall be applicable to such checking of measurements or levels.

It is also a term of this contract that checking and/or test checking the measurements of any item of work in the measurement book and/or its payment in the interim, on account of final bill shall not be considered as conclusive evidence as to the sufficiency of any work or materialto which it relates nor shall it relieve the contractor from liabilities from any over measurement or defects noticed till completion of the defects liability period.

CLAUSE 7 PAYMENT ON INTERMEDIATE CERTIFICATE TO BE REGARDED ASADVANCES

No payment shall be made for work, estimated to cost Rs. Twenty lac or less till after the wholeof the work shall have been completed and certificate of completion given. For works estimated to cost over Rs, Twenty lac the interim or running account bills shall be submitted by the contractor for the work executed on the basis of such recorded measurements on the format of the HLL in triplicate on or before the date of every month fixed for the same by the Engineer-in-Charge. The contractor shall not be entitled to be paid any such interim payment

if the gross work done together with net payment/ adjustment of advances for material collected, if any, since the last such payment is less than the amount specified in Schedule 'F', in which case the interim bill shall be prepared on the appointed date of the month after the requisite progress is achieved. Engineer-in-Charge shall arrange to have the bill verified by taking or causing to be taken, where necessary, the requisite measurements of the work. In the event of the failure of the contractor to submit the bills, no claims whatsoever due to delays on payment including that of interest shall be payable to the contractor. Payment on account of amount admissible shall be made by the **Client** based on the recommendation made by the Engineer-in-Charge certifying the sum to which the contractor is considered entitled by way of interim payment at such rates as decided by the Engineer-in-Charge. The amount admissible shall be paid by 30th working day after the day of presentation of the bill to the **Client** together with the account of the dismantled materials, if any. In the case of works outside the headquarters of the Engineer- in-Charge, the period of 30th working days will be extended to 35 working days.

All such interim payments shall be regarded as payment by way of advances against final payment only and shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be rejected, removed, taken away and reconstructed or re-erected. Any certificate given by the Engineer-in-Charge relating to the work done or materials delivered forming part of such payment, may be modified or corrected by any subsequent such certificate(s) or by the final certificate and shall not by itself be conclusive evidence that any work or materials to which it relates is/are in accordance with the contract and specifications. Any such interim payment, or any part thereof shall not in any respect conclude, determine or affect in any way powers of the Engineer-in-Charge under the contract or any of such payments be treated as final settlement and adjustment of accounts or in any way vary or affect the contract.

Pending consideration of extension of date of completion, interim payments shall continue to be made as herein provided without prejudice to the right of the HLL/ CLIENT to take action under the terms of this contract for delay in the completion of work, if the extension of date of completion is not granted by the competent authority.

The Engineer-in-Charge in his sole discretion to the effect that the work has been completed up to the level in question make interim advance payments without detailed measurements for work done (other than foundations, items to be covered under finishing items) up to lintel level (including sunshade etc.) and slab level, for each floor working out at 75% of the assessed value. The advance payments so allowed shall be adjusted in the subsequent interim bill to be submitted by the contractor within 10 days of the interim payment. In case of delay in submission of bill by the contractor a simple interest @ 10% per annum shall be paid to the HLL from the date of expiry of prescribed time limit which will be compounded on yearly basis.

In case main contractor fails to make the payment to his subcontractor associated by him within 15 days of receipt of each running account payment, then on the written complaint of subcontractor associated for such component, Engineer in charge shall serve the show cause to the main contractor and if reply of main contractor either not received or found unsatisfactory, he may make the payment directly to the subcontractor associated for such component as per the terms and conditions of the agreement drawn between main contractor and associate contractor fixed by him. Such payment made to the associate contractor shall be recovered by Engineer-in-charge from the next RA/ final bill due to main contractor as the case may be.

CLAUSE 7A

The Contractor shall submit proof of having valid ESI registration (if applicable) for site workers located in the ESI implemented areas for every site workers before his/ her

engagement on the site of works as per requirement of ESI act, 1948 amended upto date and rules made there under.

The contractors are required to ensure that in ESI implemented areas, every site worker has been registered online and they are required to ensure that these workers and their families have got their photography and capturing of biometrics at nearest ESIC branch office and got their respective Identity cards (from ESIC office) issued for extension of ESI benefits to all the engaged construction site workers.

The contractors are required to submit proof of having registered/got issued Identity cards in respect of every Construction site workers in ESI implemented areas before engagement at siteof works.

The contractors are required to comply with all the relevant provisions of ESI act,1948 as amended from time to time and deposit of his contribution as may be required under the above said act to the ESI authorities at required intervals/ time of deposit and submit the proof to Engineer in charge of HLL.

The contractor shall at all times indemnify Client/ HLL and owner against all claims, damages or compensation under the provision of ESI Act, 1948 or any modifications thereof or as consequence of any accident or injury to any workman or other persons in or about the works, whether in the employment of the contractor or not, against all costs, charges and expenses of any suit, action or proceedings arising out of such incident or injury and against allsum or sums which may with the consent of the contractor be paid to compromise or Compound any such claim.

No running account bill shall be paid for the work till the applicable labour licenses, registration with EPFO, ESIC and BOCW Welfare Board, whatever applicable are submitted by the contractor to the Engineer-in-charge.

CLAUSE 8 COMPLETION CERTIFICATE AND COMPLETION PLANS

Within ten days of the completion of the work, the contractor shall give notice of such completion to the Engineer-in-Charge and within thirty days of the receipt of such notice, the Engineer-in-Charge shall inspect the work and if there is no defect in the work, shall furnish the contractor with a final certificate of completion, otherwise a provisional certificate of physical completion indicating defects (a) to be rectified by the contractor and/or (b) for which payment will be made at reduced rates, shall be issued. But no final certificate of completion shall be issued, nor shall the work be considered to be complete until the contractor shall have removed from the premises on which the work shall be executed all scaffolding, surplus materials, rubbish and all huts and sanitary arrangements required for his/their work people on the site in connection with the execution of the works as shall have been erected or constructed by the contractor(s) and cleaned off the dirt from all wood work, doors, windows, walls, floor or other parts of the building, in, upon, or about which the work isto be executed or of which he may have had possession for the purpose of the execution; thereof, and not until the work shall have been measured by the Engineer-in-Charge. If the contractor shall fail to comply with the requirements of this Clause as to removal of scaffolding, surplus materials and rubbish and all huts and sanitary arrangements as aforesaid and cleaning off dirt on or before the date fixed for the completion of work, the Engineer-in-Charge may at the expense of the contractor remove such scaffolding, surplus materials and rubbish etc., and dispose of the same as he thinks fit and clean off such dirt as aforesaid, and the contractor shall have no claim in respect of scaffolding or surplus materials as aforesaid except for any sum actually realized by the sale thereof.

CLAUSE 8A CONTRACTOR TO KEEP SITE CLEAN

When the annual repairs and maintenance of works are carried out, the splashes and droppings from white washing, colour washing, painting etc., on walls, floor, windows, etc shall be removed and the surface cleaned simultaneously with the completion of these items ofwork in the individual rooms, quarters or premises etc. where the work is done: without

waiting for the actual completion of all the other items of work in the contract. In case the contractor fails to comply with the requirements of this clause, the Engineer-in-Charge shall have the right to get this work done at the cost of the contractor either departmentally or through any other agency. Before taking such action, the Engineer-in-Charge shall give ten days' notice in writing to the contractor.

CLAUSE 8B COMPLETION PLANS TO BE SUBMITTED BY THE CONTRACTOR

The contractor shall submit completion plans for Internal and External Civil, Electrical and Mechanical Services within thirty days of the completion of the work, provided that the service plans having been issued for execution by the Engineer-in-Charge, unless the contractor, by virtue of any other provision in the contract, is required to prepare such plans.

In case, the contractor fails to submit the completion plan as aforesaid, he shall be liable to pay a sum of 0.1 % (zero point one percent) of accepted Tendered Value or limit prescribed in Schedule F whichever is more as may be fixed by the authority as mentioned in Schedule F and in this respect the decision of the that authority shall be final and binding on the contractor.

CLAUSE 9 PAYMENT OF FINAL BILL

The final bill shall be submitted by the contractor, along with all supporting documents in the same manner as specified in interim bills within three months of physical completion of the work or within one month of the date of the final certificate of completion furnished by the Engineer-in-Charge whichever is earlier. No further claims shall be made by the contractor after submission of the final bill and these shall be deemed to have been waived and extinguished. Payments of those items of the bill in respect of which there is no dispute and of items in dispute, for quantities and rates as approved by Engineer-in-Charge [E-I-C], will, as far as possible be made based on recommendation of HLL E-I-C within the period specified here- in-under, the period being reckoned from the date of receipt of the bill by the Engineer-in- Charge or his authorized Engineer, complete with account of dismantled materials.

(i) If the Tendered value of work is up to Rs. 45 lac: 2 Months

(ii) If the Tendered value of work is more than Rs. 45 lac and up to Rs.2.5 Crore: 3 Months

(iii) If the Tendered value of work exceeds Rs. 2.5 Crore: 6 Months

CLAUSE 10: MATERIALS TO BE PROVIDED BY THE CONTRACTOR

The contractor shall, at his own expense, provide all materials, required for the works other than those which are stipulated to be supplied by the Client.

The contractor shall, at his own expense and without delay, supply to the Engineer-in- Charge samples of materials to be used on the work and shall get these approved in advance. All such materials to be provided by the Contractor shall be in conformity with the specifications laid down or referred to in the contract. The contractor shall, if requested by the Engineer-in-Charge furnish proof, to the satisfaction of the Engineer-in-Charge that the materials so comply. The Engineer-in-Charge shall within thirty days of supply of samples or within such further period as he may require intimate to the Contractor in writing whether samples are approved by him or not. If samples are not approved, the Contractor shall forthwith arrange to supply to the Engineer-in-Charge for his approval, fresh samples complying with the specifications laid down in the contract. When materials are required to be tested in accordance with specifications, approval of the Engineer-in-Charge shall be issued after the test results are received.

The Contractor shall at his risk and cost submit the samples of materials to be tested or analyzed and shall not make use of or incorporate in the work any materials represented by the samples until the required tests or analysis have been made and materials finally accepted

by the Engineer-in-Charge. The Contractor shall not be eligible for any claim or compensation either arising out of any delay in the work or due to any corrective measures required to be taken on account of and as a result of testing of materials.

The contractor shall, at his risk and cost, make all arrangements and shall provide all facilities as the Engineer-in-Charge may require for collecting, and preparing the required number of samples for such tests at such time and to such place or places as may be directed by the Engineer-in-Charge and bear all charges and cost of testing unless specifically provided for otherwise elsewhere in the contract or specifications. The Engineer-in-Charge or his authorized representative shall at all times have access to the works and to all workshops and places where work is being prepared or from where materials manufactured articles or machinery are being obtained for the works and the contractor shall afford every facility and every assistance in obtaining the right to such access.

The Engineer-in-Charge shall have full powers to require the removal from the premises of all materials which in his opinion are not in accordance with the specifications and in case of default, the Engineer-in-Charge shall be at liberty to employ at the expense of the contractor, other persons to remove the same without being answerable or accountable for any loss or damage that may happen or arise to such materials. The Engineer-in-Charge shall also have full powers to require other proper materials to be substituted thereof and in case of default, the Engineer-in-Charge may cause the same to be supplied and all costs which may attend such removal and substitution shall be borne by the Contractor.

The contractor shall, at his own expense, provide a material testing lab at the site for conducting routine field tests. The lab shall be equipped at least with the testing equipment as specified in schedule F.

CLAUSE 10A Secured Advance on Materials

(i) The contractor, shall be entitled to be paid during the progress of the execution of the work up to 75% of the assessed value of any materials, which are in the opinion of the Engineer-in- charge non-perishable, non-fragile and non-combustible and are in accordance with the contract and which have been brought on the site in connection therewith and are adequately stored and/or protected against damage by weather or other causes but which have not at the time of advance been incorporated in the works. When materials on account of which an advance has been made under this subclause are incorporated in the work, the amount of such advance shall be recovered/deducted from the next payment made under any of the clause or clauses of this contract.

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.

Clause 10B: Payment on Account of Increase in Prices/Wages due to Statutory Order(s)

If after submission of tender, if the price of any material incorporated in the work and/ or wages of labour increases as a direct result of the coming into force of any fresh, law or statutory rule or order (but not due to any variation of rate in GST applicable on such material(s) being considered under this clause) beyond the prices/wages prevailing at the time of the last stipulated date of receipt of tenders including extensions, if any, for the work during contract period including the justified period extended under the provisions of clause 5 of the contract without any action under clause 2, then the amount of the contract shall accordingly be varied.

If after submission of the tender, the price of any material incorporated in the works and/or wages of labour as prevailing at the time of last stipulated date of receipt of tender including extensions, if any, is decreased as a direct result of the coming into force of any fresh law or statutory rules or order (but not due to any variation of rate in GST applicable on such material(s) being considered under this clause), Government shall in respect of materials incorporated in the works and/or labour engaged on the execution of the work after the date of coming into force of such law statutory rule or order be entitled to deduct from the dues of the contractor, such amount as shall be equivalent to the difference between the prices of the materials and/or wages as prevailed at the time of the last stipulated date for receipt of tenders including extensions if any, for the work and the prices of materials and/or wages of labour on the coming into force of such law, statutory rule or order. This will be applicable for the contract period including the justified period extended under the provisions of clause 5 of the contract without any action under clause 2.

Engineer-in-Charge shall call books of account and other relevant documents from the contractor to satisfy himself about reasonability of increase in prices of materials and wages.

The contractor shall, within a reasonable time of his becoming aware of any alteration in the price of any such materials and/or wages of labour, give notice thereof to the Engineer-in-Charge stating that the same is given pursuant to this condition together with all information relating thereto which he may be in position to supply.

For this purpose, the labour component of 85% of the value of the work executed during period under consideration shall not exceed the percentage as specified in Schedule F, and the
increase/decrease in labour shall be considered on the minimum daily wages in rupees of any unskilled Mazdoor, fixed under any law statutory role and order. The cost of work for which escalation is applicable (W) is same as cost of work done worked out as indicated in sub-para (ii)(j) of clause 10 BB except the amount of full assessed value of secured Advance.

Provided always that:

(a) Where provisions of clause 10BB are applicable, provisions of clause 10B will not be applicable.
(b) Where provisions of clause 10BB are not applicable, provisions of clause 10B will become applicable.

Clause 10BB

If the prices of materials and/or wages of labour required for execution of the work increase, the contractor shall be compensated for such increase as per provisions detailed below and the amount of the contract shall accordingly be varied, subject to the condition that such compensation for escalation in prices and wages shall be available only for the work done during the stipulated period of the contract including the justified period extended under the provisions of clause 5 of the contract without any action under clause 2. Such compensation for escalation in the prices of materials and labour, when due, shall be worked out based on the following provisions:

i. The base date for working out such escalation shall be the last stipulated date of receipt of tenders including extension, if any.

ii. The cost of work on which escalation will be payable shall be reckoned as below :
   a) Gross value of work done up to this quarter : (A)
   b) Gross value of work done up to the last quarter : (B)
   c) Gross value of work done since previous quarter (C) = (A-B)
   d) Full assessed value of Secured Advance fresh paid in this quarter : (D)
   e) Full assessed value of Secured Advance recovered in this quarter : (E)
   f) Full assessed value of Secured Advance for which escalation Payable in this quarter, (F) = (D-E)
   g) Advance payment made during this quarter: (G)
   h) Advance payment recovered during this quarter: (H)
   i) Advance payment for which escalation is payable in this Quarter (I) = (G-H)
   j) Amount paid based on prevailing market rates due to deviations/variations as per clause 12 during this quarter: (J)

Then, M = C+F+I-J

Cost of work for which escalation is applicable (W) = 0.85M

Components for materials, labour, etc. shall be pre-determined for every work and incorporated in the conditions of contract attached to the tender documents included in Schedule 'F'. The decision of the Engineer-in-Charge in working out such percentage shall be binding on the contractors.

iii. The following principles shall be followed while working out the payment/recovery on account of variation of prices of materials and/ or wages of labour.
   (a) The compensation for escalation shall be worked out at quarterly intervals and shall be with respect to the cost of work done as per bills paid during the three calendar months of the said quarter. The date of submission of bill by the contractor to the department shall be the guiding factor to decide the bills relevant to the quarterly interval. The first such payment shall be made at the end of three months after the month (excluding the month in which the letter of commencement of work is issued by the Engineer-in-Charge) and thereafter at three months' interval. At the time of completion of the work, the last period for payment might become less than 3 months, depending on the actual date of completion.

(b) The indices as defined below (excluding LI) relevant to any quarter/period for which such compensation is to be paid shall be the arithmetical average of the indices relevant to the three calendar months. If the period up to the date of completion after the quarter covered by the last such installment of payment, is less than three months, the indices shall be the average of the indices for the months falling within that period.

(c) The minimum wage of an unskilled Mazdoor shall be the higher of the wage notified by Government of India, Ministry of Labour and that notified by the local administration both relevant to the place of work and the period of reckoning.

(d) The escalation for labour also shall be paid at the same quarterly intervals when escalation due to increase in cost of materials is paid under this clause. If such revision of minimum wages takes place during any such quarterly intervals, the escalation compensation shall be payable at revised rates only for work done in subsequent quarters;

(e) Irrespective of variations in minimum wages of any category of labour, for the purpose of this clause, the variation in the rate for an unskilled Mazdoor alone shall form the basis for working out the escalation compensation payable on the labour component.

iv. In the event the price of materials and/or wages of labour required for execution of the work decreases, there shall be a downward adjustment of the cost of work so that such price of materials and/or wages of labour shall be deductible from the cost of work under this contract and in this regard the formula herein stated below under this Clause 10BB shall mutatis mutandis apply.

v. The contract price shall be adjusted for increase or decrease in rates and prices of labour, cement, steel reinforcement bar, fuel and lubricants and other input materials as per percentage of materials/labour specified in schedule F and in accordance with the principles, procedures and formulae specified below:

(a) Price adjustment for change in cost shall be paid in accordance with the following formulae:

1. For Construction period of this work:
   VW= W*(1/100)*[CP *(CI-CO)/CO + LP* (LI-LO)/LO+CMP*(CMI-CMO)/ CMO+EMP*(EMI-EMO)/EMO +FP* (FI-FO)/FO+SP* (SI- SO)/SO+ Bp *(BI-Bo)/BO]
2. For Maintenance period of this work:
   VW= W *(1/100)*[LP* (LI-LO)/LO +CMP* (CMI-CMO)/CMO+EMP* (EMI-EMO)/EMO+ Bp*(BI- Bo)/BO]

(* means multiplication)
Where, W=cost of work done as per para (ii) above.

Percentage components of materials &labour as specified in the schedule F are defined as under:-

- CP - Cement component,
- LP - Labour component,

- CMP - Civil component of other construction materials,
- EMP - E & M component of construction materials
- FP - POL (Diesel) component
- SP - Reinforcement steel bars/TMT bars/structural steel (including strands and cables) component
- BP - Bitumen component

Indices for various components of materials &labour to be used for the purpose of this Clause are defined as under:

- CO = Wholesale Price Index for Pozzolana Cement published by office of the Economic Adviser, Ministry of Industry & Commerce valid for the month of last date of receipt of tender including extension, if any.
- CI = Wholesale Price Index for Pozzolana Cement published by office of the Economic Adviser, Ministry of Industry & Commerce for the period under consideration.
- LO = Minimum daily wage in rupees of an unskilled adult mazdoor, fixed under any law, statutory rule or order as on the last date of receipt of tender including extension, if any.
- LI = Minimum wage in rupees of an unskilled adult mazdoor, fixed under any law, statutory rule or order as applicable on the last date of the quarter previous to the one under consideration.
- CMO = Price Index for civil components of other construction materials valid for the month of the last date of receipt of tender including extension, if any, as issued by the office of CE CSQ (Civil) or successor.
- CMI = Price Index for civil components of other construction materials for the period under consideration and as issued by the office of CE CSQ (Civil) or successor.
- EMO = Price Index for E & M components of construction materials valid for the month of the last date of receipt of tender including extension, if any, as issued by the office of CE CSQ (Electrical) or successor.
- EMI = Price Index for E & M components of construction materials for the period under consideration and as issued by the office of CE CSQ (Electrical) or successor.
- FO = Wholesale Price Index of HSD (High Speed Diesel) published by office of the Economic Adviser, Ministry of Industry & Commerce valid for the
- FI = Wholesale Price Index of HSD (High Speed Diesel) published by office of the Economic Adviser, Ministry of Industry & Commerce for the period under consideration.
- SO = Wholesale Price Index of Mild Steel-long products published by office of the Economic Adviser, Ministry of Industry & Commerce valid for the month of the last date of receipt of tender including extension, if any
- SI = Wholesale Price Index of Mild Steel-long products published by office of the Economic Adviser, Ministry of Industry & Commerce for the period under consideration.
- BO = Wholesale Price Index of Bitumen published by office of the Economic Adviser, Ministry of Industry & Commerce valid for the month of the last date of receipt of tender including extension, if any

- BI = Wholesale Price Index of Bitumen published by office of the Economic Adviser, Ministry of Industry & Commerce for the period under consideration.

vi. Provided always that:
   (a) Where provisions of clause 10BB are applicable, provisions of clause 10B will not be applicable.
   (b) Where provisions of clause 10BB are not applicable, provisions of clause 10B will become applicable.

CLAUSE 10C - DISMANTLED MATERIAL GOVT. PROPERTY

The contractor shall treat all materials obtained during dismantling of a structure, excavation of the site for a work, etc. as Client's property and such materials shall be disposed off to the best advantage of Client according to the instructions in writing issued by the Engineer-in-Charge.

CLAUSE 11 WORK TO BE EXECUTED IN ACCORDANCE WITH SPECIFICATIONS,DRAWINGS, ORDERS ETC.

The contractor shall execute the whole and every part of the work in the most substantial and workmanlike manner both as regards materials and otherwise in every respect in strict accordance with the specifications. The contractor shall also conform exactly, fully and faithfully to the design, drawings and instructions in writing in respect of the work signed by the Engineer-in-Charge and the contractor shall be furnished free of charge one copy of the contract documents together with specifications, designs, drawings and instructions.

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

CLAUSE 12 DEVIATIONS/ VARIATIONS EXTENT AND PRICING

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

12.1 The time for completion of the works shall, in the event of any deviations resulting in additional cost over the tendered value sum being ordered, be extended, if requested by the contractor, as follows:

(i) In the proportion which the additional cost of the altered, additional or substituted work, bears to the original tendered value plus

(ii) 25% of the time calculated in (i) above or such further additional time as may be considered reasonable by the Engineer-in-Charge.

Deviation, Extra Items and Pricing

12.2. In the case of extra item(s) (items that are completely new, and are in addition to the items contained in the contract), the contractor may within fifteen days of receipt of order or occurrence of the item(s) submit market rate claim rates, supported by proper analysis which shall include invoices, vouchers etc. and Manufacturer's specification for the work failing which the rate approved later by the Engineer-incharge shall be binding and the Engineer-in-Charge shall within prescribed time limit of the receipt of the claims supported by analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined, failing which it will be deemed to have been approved.

In the case of substituted items (items that are taken up with partial substitution or in lieu of items of work in the contract), the rate for the agreement item (to be substituted) and substituted item shall also be determined in the manner as mentionedin the following para.

(a) If the market rate for the substituted item so determined is more than the market rate of the agreement item (to be substituted), the rate payable to the contractor forthe substituted item shall be the rate for the agreement item (to be substituted) so increased to the extent of the difference between the market rates of substituted item and the agreement item (to be substituted).

(b) If the market rate for the substituted item so determined is less than the market rate of the agreement item (to be substituted), the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted) so decreased to the extent of the difference between the market rates of substituted item and the agreement item (to be substituted). Deviation, deviated Quantities, Pricing

In the case of contract items, substituted items, contract cum substituted items, which exceed the limits laid down in schedule F, the contractor may within fifteen days of receipt of order or occurrence of the excess, claim revision of the rates, supported by proper analysis for the work in excess of the above mentioned limits, provided that if the rates so claimed are in excess of the rates specified in the schedule of quantities,the Engineer-in-Charge shall within prescribed time limit of receipt of the claims supported by analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of the market rates (as per invoice, vouchers from the manufacturers or suppliers submitted by the agency and duly verified by Engineer in Charge or his representative) and the contractor shall be paid in accordance with the rates so determined.

The prescribed time limit for finalizing rates for Extra Item(s), Substitute Item(s) and Deviated Quantities of contract items is within 45 days after submission of proposal bythe contractor without observation of the Engineer-in-Charge.

12.3. The provisions of the preceding paragraph shall also apply to the decrease in the rates of items for the work in excess of the limits laid down in Schedule F, and the Engineer- in-Charge shall after giving notice to the contractor within one month of occurrence of the excess and after taking into consideration any reply received from him within fifteen days of the receipt of the notice, revise the rates for the work in question within one month of the expiry of the said period of fifteen days having regard to the market rates.

12.4. For the purpose of operation of Schedule "F", the following works shall be treated as works relating to foundation unless & otherwise defined in the contract:

(i) For Buildings : All works up to 1.2 metres above ground level or up to floor 1 level whichever is lower.

(ii) For abutments, piers and well staining: All works up to 1.2 m above the bed level.

(iii) For retaining walls, wing walls, compound walls, chimneys, overhead reservoirs/ tanks and other elevated structures: All works up to 1.2 metres above the ground level.

(iv) For reservoirs/tanks (other than overhead reservoirs/tanks): All works up to 1.2 metres above the ground level.

(v) For basement: All works up to 1.2 m above ground level or up to floor 1 level whichever is lower.

(vi) For Roads, all items of excavation and filling including treatment of sub base.

12.5. Any operation incidental to or necessarily has to be in contemplation of tenderer while quoting tender, or necessary for proper execution of the item included in the Schedule of quantities or in the schedule of rates mentioned above, whether or not, specifically indicated in the description of the item and the relevant specifications, shall be deemed to be included in the rates quoted by the tenderer or the rate given in the said schedule of rates, as the case may be. Nothing extra shall be admissible for such operations.

CLAUSE 13: FORECLOSURE OF CONTRACT DUE TO ABANDONMENT OR REDUCTION INSCOPE OF WORK

If at any time after acceptance of the tender or during the progress of work, the purpose or object for which the work is being done changes due to any supervening cause and as a result of which the work has to be abandoned or reduced in scope, HLL shall decide to abandon or reduce the scope of the works for any reason whatsoever and hence not require the whole or

any part of the works to be carried out, the Engineer-in-Charge shall give notice in writing to that effect to the contractor stating the decision as well as the cause for such decision and the contractor shall act accordingly in the matter. The contractor shall have no claim to any payment of compensation or otherwise whatsoever, on account of any profit or advantage which he might have derived from the execution of the works in full but which he did not derive in consequence of the foreclosure of the whole or part of the works.

The contractor shall be paid at contract rates, full amount for works executed at site and, in addition, a reasonable amount as certified by the Engineer-in-Charge for the items hereunder mentioned which could not be utilized on the work to the full extent in view of the foreclosure;

(i) Any expenditure incurred on preliminary site work, e.g. temporary access roads, temporary labour huts, staff quarters and site office; storage accommodation and water storage tanks.

(ii) HLL shall have the option to take over contractor's materials or any part thereof either brought to site or of which the contractor is legally bound to accept delivery from suppliers (for incorporation in or incidental to the work) provided, however HLL shall be bound to take over the materials or such portions thereof as the contractor does not desire to retain. For materials taken over or to be taken over by HLL, cost of such materials as detailed by Engineer-in- Charge shall be paid. The cost shall, however, take into account purchase price, cost of transportation and deterioration or damage which may have been caused to materials whilst in the custody of the contractor.

(iii) Reasonable compensation for transfer of T & P from site to contractor's permanent stores or to his other works, whichever is less. If T & P are not transported to either of the said places, no cost of transportation shall be payable.

(iv) Reasonable compensation for repatriation of contractor's site staff and imported labour to the extent necessary.

The contractor shall, if required by the Engineer- in-Charge, furnish to him, books of account, wage books, time sheets and other relevant documents and evidence as may be necessary to enable him to certify the reasonable amount payable under this condition.

The reasonable amount of items on (i) and (iv) above shall not be in excess of 2% of the cost ofthe work remaining incomplete on the date of closure, i.e. total stipulated cost of the work as per accepted tender less the cost of work actually executed under the contract and less the cost of contractor's materials at site taken over by the Client as per item (ii) above. Provided always that against any payments due to the contractor on this account or otherwise, the Engineer-in-Charge shall be entitled to recover or be credited with any outstanding balances due from the contractor for advance paid in respect of any tool, plants and materials and any other sums which at the date of termination were recoverable by the Client from the contractor under the terms of the contract.

In the event of action being taken under Clause 13 to reduce the scope of work, the contractor may furnish fresh Performance Guarantee on the same conditions, in the same manner and at the same rate for the balance tendered amount and initially valid up to the extended date of completion or stipulated date of completion if no extension has been granted plus 60 days beyond that. Wherever such a fresh Performance Guarantee is furnished by the contractor the Engineer-in-Charge may return the previous Performance Guarantee.

CLAUSE 14: CARRYING OUT PART WORK AT RISK & COST OF CONTRACTOR

If Contractor:

(i) At any time makes default during currency of work or does not execute any part of the work with due diligence and continues to do so even after a notice in writing of 7 days in this respect from the Engineer-in-Charge; or

(ii) Commits default in complying with any of the terms and conditions of the contract and does not remedy it or takes effective steps to remedy it within 7 days even after a notice in writing is given in that behalf by the Engineer-in-Charge; or

(iii) Fails to complete the work(s) or items of work with individual dates of completion, on or before the date(s) so determined, and does not complete them within the period specified in the notice given in writing in that behalf by the Engineer-in-Charge.

(iv) The Engineer-in-Charge without invoking action under clause 3 may, without prejudice to any other right or remedy against the contractor which have either accrued or accrue thereafter to EIC, by a notice in writing to take the part work/ part incomplete work of any item(s) out of his hands and shall have powers to:

  (a) Take possession of the site and any materials, constructional plant, implements, stores, etc., thereon; and/or

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

The Engineer-in-Charge shall determine the amount, if any, is recoverable from the Contractor for completion of the part work/ part incomplete work of any item(s) taken out of his hands and execute at the risk and cost of the contractor, the liability of contractor on account of loss or damage suffered by Client/HLL because of action under this clause shall not exceed 10% of the tendered value of the work.

In determining the amount, credit shall be given to the Contractor with the value of work done in all respect in the same manner and at the same rate as if it had been carried out by the original contractor under the terms of his contract, the value of contractor's materials taken over and incorporated in the work and use of plant and machinery belonging to the contractor. The certificate of the Engineer-in-Charge as to the value of work done shall be final and

conclusive against the contractor provided always that action under this clause shall only be taken after giving notice in writing to the contractor. Provided also that if the expenses incurred by the HLL/ Client are less than the amount payable to the Contractor at his agreement rates, the difference shall not be payable to the Contractor.

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

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

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

CLAUSE 15: SUSPENSION OF WORK

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

(a) on account of any default on the part of the contractor or;

(b) for proper execution of the works or part thereof for reasons other than the default of the contractor; or

(c) for safety of the works or part thereof.

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

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

(a) the contractor shall be entitled to an extension of time equal to the period of every such suspension PLUS 25%, for completion of the item or group of items of work for which a separate period of completion is specified in the contract and of which the suspended work forms a part, and;

(b) If the total period of all such suspensions in respect of an item or group of items or work for which a separate period of completion is specified in the contract exceeds thirty days, the contractor shall, in addition, be entitled to such compensation as the Engineer-in-Charge may consider reasonable in respect of salaries and/or wages paid by the contractor to his employees and labour at site, remaining idle during the period of suspension, adding thereto 2% to cover indirect expenses of the contractor provided the contractor submits his claim supported by details to the Engineer-in-Charge within fifteen days of the expiry of the period of 30 days.

(iii) If the works or part thereof is suspended on the orders of the Engineer-in-Charge for more than three months at a time, except when suspension is ordered for reason (a) in sub-para (i) above, the contractor may after receipt of such order serve a written notice

on the Engineer-in-Charge requiring permission within fifteen days from receipt by the Engineer-in-Charge of the said notice, to proceed with the work or part thereof in regard to which progress has been suspended and if such permission is not granted within that time, the contractor, if he intends to treat the suspension, where it affects only a part of the works as an omission of such part by Client/EIC or where it affects whole of the works, as an abandonment of the works by Client/EIC, shall within ten days of expiry of such period of 15 days give notice in writing of his intention to the Engineer-in-Charge. In the event of the contractor treating the suspension as an abandonment of the contract by Client/EIC, he shall have no claim to payment of any compensation on account of any profit or advantage which he might have derived from the execution of the work in full but which he could not derive in consequence of the abandonment. He shall, however, be entitled to such compensation, as the Engineer-in- Charge may consider reasonable, in respect of salaries and/or wages paid by him to his employees and labour at site, remaining idle in consequence adding to the total thereof 2% to cover indirect expenses of the contractor provided the contractor submits his claim supported by details to the Engineer-in-Charge within 30 days of the expiry ofthe period of 3 months.

CLAUSE 16 ACTION IN CASE WORK NOT DONE AS PER SPECIFICATIONS

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 HLL or any organization engaged by the HLL/Client 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 thatpurpose. Orders given to the Contractor's agent shall be considered to have the same force as ifthey had been given to the contractor himself.

If it shall appear to the Engineer-in-charge or his authorized subordinates in-charge of the work or to the Chief Engineer in charge of Quality Assurance or his subordinate officers or theofficers of the organization engaged by the HLL/Client 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 (six months in the case of work costing Rs. 10 Lac and below except road work) 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 2 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 authority specified in schedule 'F' 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.

CLAUSE 17 CONTRACTORS LIABLE FOR DAMAGES, DEFECTS DURING DEFECT LIABILITY PERIOD

If the contractor or his working people or servants shall break, deface, injure or destroy any part of building in which they may be working, or any building, road, road kerb, fence, enclosure, water pipe, cables, drains, electric or telephone post or wires, trees, grass or grassland, or cultivated ground contiguous to the premises on which the work or any part is being executed, or if any damage shall happen to the work while in progress, from any cause whatever or if any defect, shrinkage or other faults appear in the work within DLP period after a certificate final or otherwise of its completion shall have been given by the Engineer-in-Charge as aforesaid arising out of defect or improper materials or workmanship the contractor shall upon receipt of a notice in writing on that behalf make the same good athis own expense or in default the Engineer-in-Charge cause the same to be made good by

other workmen and deduct the expense from any sums that may be due or at any time thereafter may become due to the contractor, or from his security deposit or the proceeds of sale thereof or of a sufficient portion thereof. The security deposit of the contractor shall notbe refunded before the expiry of DLP period after the issue of the certificate final or otherwise, of completion of work, or till the final bill has been prepared and passed whichever is later.

CLAUSE 18: CONTRACTOR TO SUPPLY TOOLS & PLANTS ETC

The contractor shall provide at his own cost all materials machinery, tools & plants as specified in schedule F. In addition to this, appliances, implements, other plants, ladders, cordage, tackle, scaffolding and temporary works required for the proper execution of the work, whether original, altered or substituted and whether included in the specifications or other documents forming part of the contract or referred to in these conditions or not, or which may be necessary for the purpose of satisfying or complying with the requirements of the Engineer-in-Charge as to any matter as to which under these conditions he is entitled to be satisfied, or which he is entitled to require together with carriage therefore to and from the work. The contractor shall also supply without charge the requisite number of persons with the means and materials, necessary for the purpose of setting out works, and counting, weighing and assisting the measurement for examination at any time and from time to time of the work or materials. Failing his so doing, the same may be provided by the Engineer-in-Charge at the expense of the contractor and the expenses may be deducted, from any money due to the contractor, under this contract or otherwise and/or from his security deposit or the proceeds of sale thereof, or of a sufficient portion thereof.

CLAUSE 18A: RECOVERY OF COMPENSATION PAID TO WORKMEN

In every case in which by virtue of the provisions sub-section (1) of Section 12, of the Workmen's Compensation Act, 1923, HLL is obliged to pay compensation to a workman employed by the contractor, in execution of the works, HLL/Client will recover from the contractor, the amount of the compensation so paid; and, without prejudice to the rights of the Client under sub-section (2) of Section 12, of the said Act, HLL/Client shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due by HLL/Client to the contractor whether under this contract or otherwise. HLL/Client shall not be bound to contest any claim made against it under sub-section (1) of Section 12, of the said Act, except on the written request of the contractor and upon his giving to Client/EIC full security for all costs for which Client/EIC might become liable in consequence of contesting such claim.

CLAUSE 18B: ENSURING PAYMENT AND AMENITIES TO WORKERS IF CONTRACTOR FAILS

In every case in which by virtue of the provisions of the Contract Labour (Regulation and Abolition) Act, 1970, and of the Contract Labour (Regulation and Abolition) Central Rules,

1971, HLL/Client is obliged to pay any amounts of wages to a workman employed by the contractor in execution of the works, or to incur any expenditure in providing welfare and health amenities required to be provided under the above said Act and the rules under Clause 19H or under the Contractor's Labour Regulations, or under the Rules framed by HLL/Client from time to time for the protection of health and sanitary arrangements for workers employed by Contractors, HLL/Client will 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 Client under sub-section(2) of Section 20, and sub-section (4) of Section 21, of the Contract Labour (Regulation and Abolition) Act, 1970, Client shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due by HLL/Client to the contractor whether under this contract or otherwise HLL/Client shall not be bound to contest any claim made against it under sub-section (1) of Section 20, sub- section (4) of Section 21, of the said Act, except on the written request of the contractor and upon his giving to the HLL/Client full security for all costs for which HLL/Client might become liable in contesting such claim.

CLAUSE 19 LABOUR LAWS TO BE COMPLIED BY THE CONTRACTOR

The contractor shall obtain a valid license under the Contract Labour (R&A) Act, 1970, and the Contract Labour (Regulation and Abolition) Central Rules, 1971, before the commencement of the work, and continue to have a valid license until the completion of the work. The contractor shall also comply with provisions of the Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979.

The contractor shall also abide by the provisions of the Child Labour (Prohibition and Regulation) Act, 1986.

The contractor shall also comply with the provisions of the building and other Construction Workers (Regulation of Employment & Conditions of Service) Act, 1996 and the building and other Construction Workers Welfare Cess Act, 1996.

The contractor shall also comply with provisions of the Inter-State migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979.

Any failure to fulfill these requirements shall attract the penal provisions of this contract arising out of the resultant non-execution of the work.

CLAUSE 19A

No labour below the age of fourteen years shall be employed on the work.

CLAUSE 19 B PAYMENT OF WAGES

Payment of wages:

(i) The contractor shall pay to labour employed by him either directly or through sub-contractors, wages not less than fair wages as defined in the CPWD Contractor's Labour Regulations or as per the provisions of the Contract Labour (Regulation and Abolition) Act, 1970 and the contract Labour (Regulation and Abolition) Central Rules, 1971, wherever applicable.

(ii) The contractor shall, notwithstanding the provisions of any contract to the contrary, cause to be paid fair wage to labour indirectly engaged on the work, including any labour engaged by his sub-contractors in connection with the said work, as if the labour had been immediately employed by him.

(iii) In respect of all labour directly or indirectly employed in the works for performance of the contractor's part of this contract, the contractor shall comply with or cause to be complied with the Central Public Works Department contractor's Labour Regulations made by Government from time to time in regard to payment of wages, wage period, deductions from wages recovery of wages not paid and deductions unauthorizedly

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

(iv)

(a) The Engineer-in-Charge concerned shall have the right to deduct from the moneys due to the contractor any sum required or estimated to be required for making good the loss suffered by a worker or workers by reason of non-fulfillment of the conditions of the contract for the benefit of the workers, non-payment of wages or of deductions made from his or their wages which are not justified by their terms of the contract or non-observance of the Regulations.

(b) Under the provision of Minimum Wages (Central) Rules, 1950, the contractor is bound to allow to the labours directly or indirectly employed in the works one day rest for 6 days continuous work and pay wages at the same rate as for duty. In the event of default, the Engineer-in-Charge shall have the right to deduct the sum or sums not paid on account of wages for weekly holidays to any labours and pay the same to the persons entitled thereto from any money due to the contractor by the Engineer-in- Charge concerned.

In the case of Union Territory of Delhi, however, as the all-inclusive minimum daily wages fixed under Notification of the Delhi Administration No. F.12(162)MWO/ DAB/43884-91, dated 31-12-1979 as amended from time to time are inclusive of wages for the weekly day of rest, the question of extra payment for weekly holiday would not arise.

(v) The contractor shall comply with the provisions of the Payment of Wages Act, 1936, Minimum Wages Act, 1948, Employees Liability Act, 1938, Workmen's Compensation Act, 1923, Industrial Disputes Act, 1947, Maternity Benefits Act, 1961, and the Contractor's Labour (Regulation and Abolition) Act 1970, or the modifications thereof or any other laws relating thereto and the rules made thereunder from time to time.

(vi) The contractor shall indemnify and keep indemnified Client against payments to be made under and for the observance of the laws aforesaid and the CPWD Contractor's Labour Regulations without prejudice to his right to claim indemnity from his sub-contractors.

(vii) The laws aforesaid shall be deemed to be a part of this contract and any breach thereof shall be deemed to be a breach of this contract.

(viii) Whatever is the minimum wage for the time being, or if the wage payable is higher than such wage, such wage shall be paid by the contractor to the workmen directly without the intervention of Jamadar and that Jamadar shall not be entitled to deduct or recover any amount from the minimum wage payable to the workmen as and by way of commission or otherwise.

(ix) The contractor shall ensure that no amount by way of commission or otherwise is deducted or recovered by the Jamadar from the wage of workmen.

CLAUSE 19C

In respect of all labour directly or indirectly employed in the work for the performance of the contractor's part of this contract, the contractor shall at his own expense arrange for the safety provisions as per Safety Code framed from time to time and shall at his own expense provide for all facilities in connection therewith. In case the contractor fails to make arrangement and provide necessary facilities as aforesaid, he shall be liable to pay a penalty of Rs.200/- for each default and in addition, the Engineer-in- Charge shall be at liberty to make arrangement

and provide facilities as aforesaid and recover the costs incurred in that behalf from the contractor.

CLAUSE 19 D

The contractor shall submit by the 4th and 19th of every month, 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: -

(1) the number of labourers employed by him on the work,

(2) their working hours,

(3) the wages paid to them,

(4) the accidents that occurred during the said fortnight showing the circumstances underwhich they happened and the extent of damage and injury caused by them, and

(5) the number of female workers who have been allowed maternity benefit according to Clause 19F and the amount paid to them.

Failing which the contractor shall be liable to pay to Client, a sum not exceeding Rs.200/- for each default or materially incorrect statement. The decision of the Engineer in charge shall be final in deducting from any bill due to the contractor; the amount levied as fine and be binding on the contractor.

CLAUSE 19E

In respect of all labour directly or indirectly employed in the works for the performance of the contractor's part of this contract, the contractor shall comply with or cause to be compliedwith all the rules framed by Government from time to time for the protection of health and sanitary arrangements for workers employed by the Central Public Works Department and its contractors.

CLAUSE 19 F

Leave and pay during leave shall be regulated as follows:-

1. Leave:

(i) in the case of delivery - maternity leave not exceeding 8 weeks, 4 weeks up to and including the day of delivery and 4 weeks following that day,

(ii) in the case of miscarriage - upto 3 weeks from the date of miscarriage.

2. Pay:

(i) in the case of delivery - leave pay during maternity leave will be at the rate of the women's average daily earnings, calculated on total wages earned on the days when full time work was done during a period of three months immediately preceding the date on which she gives notice that she expects tobe confined or at the rate of Rupee one only a day whichever is greater.

(ii) in the case of miscarriage - leave pay at the rate of average daily earning calculated on the total wages earned on the days when full time work was done during a period of three months immediately preceding the date of such miscarriage.

3. Conditions for the grant of Maternity Leave:

No maternity leave benefit shall be admissible to a woman unless she has been employed for a total period of not less than six months immediately preceding the dateon which she proceeds on leave.

4. The contractor shall maintain a register of Maternity (Benefit) in the Prescribed Form as shown in appendix -I and II, and the same shall be kept at the place of work.

CLAUSE 19 G

In the event of the contractor(s) committing a default or breach of any of the provisions of the CPWD Contractor's Labour Regulations and Model Rules for the protection of health andsanitary arrangements for the workers as amended from time to time or furnishing any information or submitting or filing any statement under the provisions of the above Regulations and' Rules which is materially incorrect, he/they shall, without prejudice to any other liability, pay to the Client a sum not exceeding Rs.200/- for every default, breach or furnishing, making, submitting, filing such materially incorrect statements and in the event of the contractor(s) defaulting continuously in this respect, the penalty may be enhanced to Rs.200/- per day for each day of default subject to a maximum of 5 per cent of the estimated cost of the work put to tender. The decision of the Engineer-in-Charge shall be final and binding on the parties.

Should it appear to the Engineer-in-Charge that the contractor(s) is/are not properly observing and complying with the provisions of the CPWD Contractor's Labour Regulations and Model Rules and the provisions of the Contract Labour (Regulation and Abolition) Act 1970, and the Contract Labour (R& A) Central Rules 1971, for the protection of health and sanitary arrangements for work-people employed by the contractor(s) (hereinafterreferred as "the said Rules") the Engineer-in-Charge shall have power to give notice in writing to the contractor(s) requiring that the said Rules be complied with and the amenities prescribed therein be provided to the work-people within a reasonable time to be specified in the notice. If the contractor(s) shall fail within the period specified in the notice to comply withand/observe the said Rules and to provide the amenities to the work-people as aforesaid, the Engineer-in-Charge shall have the power to provide the amenities hereinbefore mentioned at the cost of the contractor(s). The contractor(s) shall erect, make and maintain at his/their own expense and to approved standards all necessary huts and sanitary arrangements required for his/their work-people on the site in connection with the execution of the works, and if the same shall not have been erected or constructed, according to approved standards, the Engineer-in-Charge shall have power to give notice in writing to the contractor(s) requiring that the said huts and sanitary arrangements be remodeled and/or reconstructed according to approved standards, and if the contractor(s) shall fail to remodel or reconstruct such huts and sanitary arrangements according to approved standards within the period specified in the notice, the Engineer-in-Charge shall have the power to remodel or reconstruct such huts and sanitary arrangements according to approved standards at the cost of the contractor(s).

CLAUSE 19H

The contractor(s) shall at his/their own cost provide his/their labour with a sufficient number of huts (hereinafter referred to as the camp) of the following specifications on a suitable plotof land to be approved by the Engineer-in-Charge.

(i)

(a) The minimum height of each hut at the eaves level shall be 2.10m (7 ft.) and thefloor area to be provided will be at the rate of 2.7 sq.m. (30 sq.ft.)for each member of the worker's family staying with the labourer.

(b) The contractor(s) shall in addition construct suitable cooking places having a minimum area of 1.80m x 1.50m (6'x5') adjacent to the hut for each family.

(c) The contractor(s) shall also construct temporary latrines and urinals for the use of the labourers each on the scale of not less than four per each one hundred of the total strength, separate latrines and urinals being provided for women.

(d) The contractor(s) shall construct sufficient number of bathing and washing places, one unit for every 25 persons residing in the camp. These bathing and washing places shall be suitably screened.

(ii)

(a) All the huts shall have walls of sun-dried or burnt-bricks laid in mud mortar or other suitable local materials as may be approved by the Engineer-in-Charge. In case of sun-dried bricks, the walls should be plastered with mud gobri on both sides. The floor may be kutcha but plastered with mud gobri and shall be at least 15 cm (6") above the surrounding ground. The roofs shall be laid with thatch or any other materials as may be approved by the Engineer-in-Charge and the contractor shall ensure that throughout the period of their occupation, the roofs remain water-tight.

(b) The contractor(s) shall provide each hut with proper ventilation.

(c) All doors, windows, and ventilators shall be provided with suitable leaves for security purposes.

(d) There shall be kept an open space of at least 7.2m (8 yards) between the rows of huts which may be reduced to 6m (20 ft.) according to the availability of site with the approval of the Engineer-in-Charge. Back to back construction will be allowed.

(iii) Water Supply - The contractor(s) shall provide adequate supply of water for the use of labourers. The provisions shall not be less than two gallons of pure and wholesome water per head per day for drinking purposes and three gallons of clean water per head per day for bathing and washing purposes. Where piped water supply is available, supply shall be at stand posts and where the supply is from wells or river, tanks which may be of metal or masonry, shall be provided. The contractor(s) shall also at his/ their own cost make arrangements for laying pipe lines for water supply to his/ their labour camp from the existing mains wherever available, and shall pay all fees and charges therefore.

(iv) The site selected for the camp shall be high ground, removed from jungle.

(v) Disposal of Excreta - The contractor(s) shall make necessary arrangements for the disposal of excreta from the latrines by trenching or incineration which shall be according to the requirements laid down by the Local Health Authorities. If trenching or incineration is not allowed, the contractor(s) shall make arrangements for the removal of the excreta through the Municipal Committee/authority and inform it about the number of labourers employed so that arrangements may be made by such Committee/authority for the removal of the excreta. All charges on this account shall be borne by the contractor and paid direct by him to the Municipality/authority. The contractor shall provide one sweeper for every eight seats in case of dry system.

(vi) Drainage - The contractor(s) shall provide efficient arrangements for draining away sullage water so as to keep the camp neat and tidy.

(vii) The contractor(s) shall make necessary arrangements for keeping the camp area sufficiently lighted to avoid accidents to the workers.

(viii) Sanitation - The contractor(s) shall make arrangements for conservancy and sanitation in the labour camps according to the rules of the Local Public Health and Medical Authorities.

CLAUSE 19I

The Engineer-in-Charge may require the contractor to dismiss or remove from the site of the work any person or persons in the contractors' employ upon the work who may be incompetent or misconduct himself and the contractor shall forthwith comply with such requirements. In respect of maintenance/repair or renovation works etc. where the labour have an easy access to the individual houses, the contractor shall issue identity cards to the labourers, whether temporary or permanent and he shall be responsible for any untoward action on the part of such labour. The Engineer-in-Charge will display a list of contractors working in the colony/Blocks on the notice board in the colony and also at the service centre, to apprise the residents about the same.

CLAUSE 19J

It shall be the responsibility of the contractor to see that the building under construction is not occupied by anybody unauthorized during construction, and is handed over to the Engineer in-Charge with vacant possession of complete building. If such building though completed is occupied illegally, then the Engineer-in-Charge shall have the option to refuse to accept the said building/buildings in that position. Any delay in acceptance on this account will treated asthe delay in completion and for such delay, a levy upto 5% of tendered value of work may be imposed by the Engineer in charge whose decision shall be final both with regard to the justification and quantum and be binding on the contractor.

CLAUSE 19K EMPLOYMENT OF SKILLED/SEMI SKILLED WORKERS

The contractor shall, at all stages of work, deploy skilled/semi-skilled tradesmen who are qualified and possess certificate in particular trade from CPWD Training Institute/Industrial Training Institute/National Institute of construction Management and Research (NICMAR)/ National Academy of Construction, CIDC, National Skill Development Corporation certified training institute or any similar reputed and recognized Institute managed/ certified by State/Central Government. The number of such qualified tradesmen shall not be less than 20%of total skilled/semi-skilled workers required in each trade at any stage of work. The contractor shall submit number of man days required in respect of each trade, its scheduling and the list of qualified tradesmen along with requisite certificate from recognized Institute to Engineer in charge for approval. Notwithstanding such approval, if the tradesmen are found to have inadequate skill to execute the work of respective trade, the contractor shall substitute such tradesmen within two days of written notice from Engineer- in-Charge. Failure on the part of contractor to obtain approval of Engineer-in-Charge or failure to deploy qualifiedtradesmen will attract a compensation to be paid by contractor at the rate of Rs. 100 per such tradesman per day. Decision of Engineer in Charge as to whether particular tradesman possesses requisite skill and amount of compensation in case of default shall be final and binding.

Provided always, that the provisions of this clause shall not be applicable for works with estimated cost put to tender being less than Rs. 5 crores.

For work costing more than Rs. 10 Crores, and upto Rs. 50 Crores, the contractor shall arrange on site training as per National Skill Development Corporation (NSDC) norms for at least 20% of the unskilled workers engaged in the project in co-ordination with the CPWD Regional Training Institute & National Skill Development Corporation (NSDC) for certification at the level of skilled/semi-skilled tradesmen.

For works costing more than Rs. 50 Crores, the contractor shall arrange on site training as per National Skill Development Corporation (NSDC) norms for at least 30% of the unskilled worker engaged in the project in co-ordination with the CPWD Regional Training Institute & National Skill Development Corporation (NSDC) for certification at the level of skilled/semi-skilled tradesmen. The cost of such training as stated above shall be borne by the Government. The necessary space and workers shall be provided by the contractor and no claim what so ever shall be entertained.

CLAUSE 19L: CONTRIBUTION OF EPF AND ESI

The ESI and EPF contributions (if applicable) on the part of the HLL in respect of this Contract shall be paid by the Contractor. These contributions on the part of the HLL paid by the contractor shall be reimbursed by the Engineer-in-charge to the Contractor on actual basis.

The applicable and eligible amount of EPF&ESI shall be reimbursed preferably within 7 days but not later than 30 days of submission of documentary proof of payment provided same are in order.

CLAUSE 20: MINIMUM WAGES ACT TO BE COMPLIED WITH

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

CLAUSE 21: WORK NOT TO BE SUBLET. ACTION IN CASE OF INSOLVENCY

The contract shall not be assigned or sublet without the written approval of the Engineer-in-Charge. And if the contractor shall assign or sublet his contract, or attempt to do so, or become insolvent or commence any insolvency proceedings or make any composition with his creditors or attempt to do so, or if any bribe, gratuity, gift, loan, perquisite, reward or advantage pecuniary or otherwise, shall either directly or indirectly, be given, promised or offered by the contractor, or any of his servants or agent to any public officer or person in the employ of Client in any way relating to his office or employment, or if any such officer or person shall become in any way directly or indirectly interested in the contract, the Engineer-in-Charge on behalf of the Client shall have power to adopt the course specified in Clause 3 hereof in the interest of Client and in the event of such course being adopted, the consequences specified in the said Clause 3 shall ensure.

CLAUSE 22 COMPENSATION

All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the use of HLL without reference to the actual lossor damage sustained and whether or not any damage shall have been sustained.

CLAUSE 23 CHANGES IN FIRM'S CONSTITUTION TO BE INTIMATED

Where the contractor is a partnership firm, the previous approval in writing of the Engineer-in-Charge shall be obtained before any change is made in the constitution of the firm. Where the contractor is an individual or a Hindu undivided family business concern, such approval as aforesaid shall likewise be obtained before the contractor enters into any partnership agreement where under the partnership firm would have the right to carry out the works hereby undertaken by the contractor. If previous approval as aforesaid is not obtained, the contract shall be deemed to have been assigned in contravention of Clause 21 hereof and the same action may be taken, and the same consequences shall ensue as provided in the said Clause 21.

CLAUSE 24 – DEFECT LIABILITY PERIOD

All works to be executed under the contract shall be executed under the direction and subject to the approval in all respects of the Engineer-in-Charge who shall be entitled to direct at what point or points and in what manner they are to be commenced, and from time to time carried on.

The contractor shall be responsible for safety, quality and soundness of the work including structural elements beyond maintenance period. The contractor shall have obligation to rectify such defects minimum up to 5 (five) years from the date of completion of work. The defects have to be rectified within a reasonable time not exceeding three months after issue of notice by Engineer- in- Charge.

CLAUSE 25 SETTLEMENT OF DISPUTES & ARBITRATION

Except where otherwise provided in the contract, all questions and disputes relating to the meaning of the approved specifications, design, drawings and instructions here-in before mentioned and as to the quality of workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever in any way arising out of or relating to the contract, designs, drawings, specifications, estimates, instructions, orders or these conditions or otherwise concerning the works or the execution or failure to execute the same

whether arising during the progress of the work or after the cancellation, termination, completion or abandonment thereof shall be dealt with as mentioned hereinafter:

(i) If the contractor considers any work demanded of him to be outside the requirements of the contract, or disputes any drawings, record or decision given in writing by the Engineer-in-Charge or the Engineer in charge considers any act or decision of the contractor on any matter in connection with or arising out of thecontract or carrying out of the work, to be unacceptable, such party shall promptly within 15 days of the arising of the disputes request the authority indicating in schedule 'F" (Reviewing Authority) who shall refer the disputes to Dispute redressal committee (DRC) within a period of 15 days along with a list of disputes with amounts claimed in respect of each such dispute. The DRC shall give the opposing party two weeks for a written response, and, give its decision within a period of 60 days extendable by 30 days by consent of both the parties from the receipt of reference from Reviewing authority. The constitution of Dispute Redressal Committee (DRC) shall be as indicated in Schedule 'F'. Provided that no party shall be represented before the Dispute Redressal Committee by an advocate/ legal counsel etc.

If the Dispute Redressal Committee (DRC) fails to give his decision within the aforesaid period or any party is dissatisfied with the decision of Dispute Redressal Committee (DRC) or expiry of time limit given above, then either party may within a period of 30 days from the receipt of the decision of Dispute Redressal Committee (DRC), give notice to the Reviewing authority for appointment of arbitrator on prescribed proforma as per Appendix XV, under intimation to the other party.

It is a term of contract that each party invoking arbitration must exhaust the aforesaid mechanism of settlement of claims/disputes prior to invoking arbitration.

The HLL shall in such case appoint the sole arbitrator as the case may be within 30 days of receipt of such a request and refer such disputes to arbitration.

(ii) Disputes or difference shall be referred for adjudication through arbitration by a Tribunal having sole arbitrator. The requirements of the Arbitration and Conciliation Act, 1996 (26 of 1996) and any further statutory modifications or re-enactment thereof and the rules made there under and for the time being in force shall be applicable.

It is a term of this contract that the party invoking arbitration shall give a list of disputes with amounts if any claimed in respect of each such dispute along with the notice for appointment of arbitrator and giving reference to the decision of the DRC.

It is also a term of this contract that any member of the Arbitration Tribunal shall be a Graduate Engineer with experience in handling public works engineering contracts at a level not lower than Chief Engineer. This shall be treated as a mandatory qualification to be appointed as arbitrator.

Parties, before or at the time of appointment of Arbitral Tribunal may agree in writing for fast track arbitration as per the Arbitration and Conciliation Act, 1996 (26 of 1996) as amended in 2015.

Subject to provision in the Arbitration and Conciliation Act, 1996 (26 of 1996) as amended in 2015 whereby the counter claims if any can be directly filed before the arbitrator without any requirement of reference by the appointing authority, the arbitrator shall adjudicate on only such disputes as are referred to him by the appointing authority and give separate award against each dispute and claim referred to him and in all cases where the total amount of the claims by any party exceeds Rs. 1,00,000/-, the arbitrator shall give reasons for the award.

It is also a term of the contract that if any fees are payable to the arbitrator, these shall be paid as per the act.

The place of arbitration shall be as mentioned in Schedule F. In case there is no mention of place of arbitration, the arbitral tribunal shall determine the place of arbitration.

The venue of the arbitration shall be such place as may be fixed by the Arbitral Tribunal in consultation with both the parties. Failing any such agreement, then the Arbitral Tribunal shall decide the venue

CLAUSE 26 CONTRACTORS TO INDEMNIFY HLL AGAINST PATENT RIGHTS

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

CLAUSE 27 ACTION WHERE NO SPECIFICATIONS ARE SPECIFIED

In the case of any class of work for which there is no such specifications as referred to in Clause 11, such work shall be carried out in accordance with the Bureau of Indian Standards Specifications. In case there are no such specifications in Bureau of Indian Standards, the work shall be carried out as per manufacturers' specifications, if not available then as per state/ District Specifications. In case there are no such specifications as required above, the work shall be carried out in all respects in accordance with the instructions and requirements of the Engineer-in-Charge.

CLAUSE 28 WITHHOLDING AND LIEN IN RESPECT OF SUM DUE FROM CONTRACTOR

(i) Whenever any claim or claims for payment of a sum of money arises out of or under the contract or against the contractor, the Engineer-in-Charge shall be entitled to withhold and also have a lien to retain such sum or sums in whole or in part from the security, if any deposited by the contractor and for the purpose aforesaid, the Engineer-in-Charge shall be entitled to withhold the security deposit, if any, furnished as the case may be and also have a lien over the same pending finalisation or adjudication of any such claim. In the event of the security being insufficient to cover the claimed amount or amounts or if no security has been taken from the contractor, the Engineer-in-Charge shall be entitled to withhold and have a lien to retain to the extent of such claimed amount or amounts referred to above, from any sum or sums found payable or which may at any time thereafter become payable to the contractor under the same contract or any other contract with the Engineer-in-Charge of the HLL or any contracting person through the Engineer- in-Charge pending finalization of adjudication of any such claim.

It is an agreed term of the contract that the sum of money or moneys so withheld or retained under the lien referred to above by the Engineer-in-Charge will be kept withheld or retained as such by the Engineer-in-Charge till the claim arising out of or under the contract is determined by the arbitrator (if the contract is governed by the arbitration clause) by the competent court, as the case may be and that the contractor will have no claim for interest or damages whatsoever on any account in respect of such withholding or retention under the lien referred to above and duly notified as such to the contractor. For the purpose of this clause, where the contractor is a partnership firm or a limited company, the Engineer-in-Charge shall be entitled to withhold and also have a lien to retain towards such claimed amount or amounts in

whole or in part from any sum found payable to any partner/limited company as the case may be, whether in his individual capacity or otherwise.

(ii) Client/HLL shall have the right to cause an audit and technical examination of the works and the final bills of the contractor including all supporting vouchers, abstract, etc., to be made after payment of the final bill and if as a result of such audit and technical examination any sum is found to have been overpaid in respect of any work done by the contractor under the contract or any work claimed to have been done by him under the contract and found not to have been executed, the contractor shall be liable to refund the amount of over-payment and it shall be lawful for Client to recover the same from him in the manner prescribed in sub-clause (i) of this clause or in any other manner legally permissible; and if it is found that the contractor was paid less than what was due to him under the contract in respect of any work executed by him under it, the amount of such under payment shall be duly paid by HLL to the contractor, without any interest thereon whatsoever.

Provided that the HLL shall not be entitled to recover any sum overpaid, nor the contractor shall be entitled to payment of any sum paid short where such payment has been agreed upon between the Engineer- in- charge on the one hand and the contractor on the other under any term of the contract permitting payment for work after assessment by the Engineer- in- charge.

CLAUSE 28A LIEN IN RESPECT OF CLAIMS IN OTHER CONTRACTS

Any sum of money due and payable to the contractor (including the security deposit returnable to him) under the contract may be withheld or retained by way of lien by the Engineer-in-Charge or any other contracting person or persons through Engineer-in-Charge against any claim of the Engineer-in-Charge or such other person or persons in respect of payment of a sum of money arising out of or under any other contract made by the contractor with the Engineer- in-Charge or with such other person or persons.

It is an agreed term of the contract that the sum of money so withheld or retained under this clause by the Engineer-in-Charge will be kept withheld or retained as such by the Engineer-in- Charge or till his claim arising out of the same contract or any other contract is either mutually settled or determined by the arbitration clause or by the competent court, as the case may be and that the contractor shall have no claim for interest or damages whatsoever on this account or on any other ground in respect of any sum of money withheld or retained under this clause and duly notified as such to the contractor.

CLAUSE 29 EMPLOYMENT OF COAL MINING OR CONTROLLED AREA LABOUR NOT PERMISSIBLE

The contractor shall not employ coal mining or controlled area labour falling under any category whatsoever on or in connection with the work or recruit labour from area within a radius of 32 km (20 miles) of the controlled area. Subject as above the contractor shall employ imported labour only i.e., deposit imported labour or labour imported by contractors from area, from which import is permitted.

Where ceiling price for imported labour has been fixed by State or Regional Labour Committees not more than that ceiling price shall be paid to the labour by the contractor.

The contractor shall immediately remove any labourer who maybe pointed out by the Engineer- in-Charge as being a coal mining or controlled area labourer. Failure to do so shall render the contractor liable to pay to Client a sum calculated at the rate of Rs.10/- per day per labourer. The certificate of the Engineer-in-Charge about the number of coal mining or controlled area labourer and the number of days for which they worked shall be final and binding upon all parties to this contract.

It is declared and agreed between the parties that the aforesaid stipulation in this clause is one in which the public are interested within the meaning of the exception in Section 74 of Indian Contract Act, 1872.

Explanation:- Controlled Area means the following areas:

Districts of Dhanbad, Hazaribagh, Jamtara - a Sub-Division under Santhal Pargana Commissionery, Districts of Bankuara, Birbhum, Burdwan, District of Bilaspur. Any other area which may be declared a Controlled Area by or with the approval of the Central Government.

CLAUSE 30 UNFILTERED WATER SUPPLY

The contractor(s) shall make his/their own arrangements for water required for the work and nothing extra will be paid for the same. This will be subject to the following conditions.

(i) That the water used by the contractor(s) shall be fit for construction purposes to the satisfaction of the Engineer-in-Charge.

(ii) The Engineer-in-Charge shall make alternative arrangements for supply of water at the risk and cost of contractor(s) if the arrangements made by the contractor(s) for procurement of water are in the opinion of the Engineer-in- Charge, unsatisfactory.

CLAUSE 31 DEPARTMENTAL WATER SUPPLY, IF AVAILABLE

Water if available may be supplied to the contractor by the Client subject to the following conditions:-

(i) The water charges @ 1 % shall be recovered on gross amount of the work done.

(ii) The contractor(s) shall make his/their own arrangement of water connection and laying of pipelines from existing main of source of supply.

(iii) HLL do not guarantee to maintain uninterrupted supply of water and it will be incumbent on the contractor(s) to make alternative arrangements for water at his/ their own cost in the event of any temporary break down in the Government water main so that the progress of his/their work is not held up for want of water. No claim of damage or refund of water charges will be entertained on account of such break down.

CLAUSE 32 ALTERNATE WATER ARRANGEMENTS

(iv) Where there is no piped water supply arrangement and the water is taken by the contractor from the wells or hand pump constructed by the Client, no charge shall be recovered from the contractor on that account. The contractor shall, however, draw water at such hours of the day that it does not interfere with the normal use for which the hand pumps and wells are intended. He will also be responsible for all damage and abnormal repairs arising out of his use, the cost of which shall be recoverable from him. The Engineer-in-Charge shall be the final authority to determine the cost recoverable from the contractor on this account and his decision shall be binding on the contractor.

(v) The contractor shall be allowed to construct temporary wells in Client land for taking water for construction purposes only after he has got permission of the Engineer- in-Charge in writing. No charges shall be recovered from the contractor on this account, but the contractor shall be required to provide necessary safety arrangements to avoid any accidents or damage to adjacent buildings, roads and service lines. He shall be responsible for any accidents or damage caused due to construction and subsequent maintenance of the wells and shall restore the ground to its original condition after the wells are dismantled on completion of the work.

CLAUSE 33 EMPLOYMENT OF TECHNICAL STAFF AND EMPLOYEES

Contractors Superintendence, Supervision, Technical Staff & Employees

(i) The contractor shall provide all necessary superintendence during execution of the work and all along thereafter as may be necessary for proper fulfilling of the obligations under the contract.

The contractor shall immediately after receiving letter of acceptance of the tender and before commencement of the work, intimate in writing to the Engineer-in-Charge, the name(s), qualifications, experience, age, address(s) and other particulars along with certificates, of the principal technical representative to be in charge of the work and other technical representative(s) who will be supervising the work. Minimum requirement of such technical representative(s) and their qualifications and experience shall not below than specified in Schedule 'F'. The Engineer-in-Charge shallwithin 3 days of receipt of such communication intimate in writing his approval or otherwise of such a representative(s) to the contractor. Any such approval may at any time be withdrawn and in case of such withdrawal, the contractor shall appoint another such representative(s) according to the provisions of this clause. Decision of the tender accepting authority shall be final and binding on the contractor in this respect. Such a principal technical representative and other technical representative(s) shall be appointed by the contractor soon after receipt of the approval from Engineer-in-charge and shall be available at site before start of work.

All the provisions applicable to the principal technical representative under the Clause will also be applicable to other technical representative(s) The principal technical representative and other technical representative(s) shall be present at the site ofwork for supervision at all times when any construction activity is in progress and also present himself/themselves, as required, to the Engineer-in-Charge and/or his designated representative to take instructions. Instructions given to the principal technical representative or other technical representative(s) shall be deemed to have the same force as if these have been given to the contractor. The principal technical representative and other technical representative(s) shall be actually available at site fully during all stages of execution of work, during recording/checking/test checking of measurements of works and whenever so required by the Engineer-in-Charge and shall also note down instructions conveyed by the Engineer-in- Charge or his designated representative(s) in the site order book and shall affix his/their signature in token of noting down the instructions and in token of acceptance of measurements/ checked measurements/test checked measurements. The representative(s) shall not look after any other work. Substitutes, duly approved by Engineer-in-Charge of the work in similar manner as aforesaid shall be provided in event of absence of any of the representative(s) by more than two days.

If the Engineer-in-Charge, whose decision in this respect is final and binding on the contractor, is convinced that no such technical representative(s) is/are effectively appointed or is/are effectively attending or fulfilling the provision of this clause, a recovery (non-refundable) shall be effected from the contractor as specified in Schedule 'F' and the decision of the Engineer-in-Charge as recorded in the site order book and measurement recorded checked/test checked in Measurement Books shall be final and binding on the contractor. Further if the contractor fails to appoint suitable Principal technical representative and/or other technical representative(s) and if such appointed persons are not effectively present or are absent by more than two days without duly approved substitute or do not discharge their responsibilities satisfactorily, the Engineer-in-Charge shall have full powers to suspend the executionof the work until such date as suitable other technical representative(s) is/are appointed and the contractor shall be held responsible for the delay so caused to the work. The contractor shall submit a certificate of employment of the technical representative(s) alongwith every on account bill/ final bill and shall produce evidence if at any time so required by the Engineer-in-Charge. The contractor shall submit a certificate of employment of the technical representative(s) (in the form of copy of

Form-16 or CPF deduction issued to the Engineers employed by him) along with every on account bill/ final bill and shall produce evidence if at any time so required by the Engineer-in-Charge.

(ii) The contractor shall provide and employ on the site only such technical assistants as are skilled and experienced in their respective fields and such foremen and supervisory staff as are competent to give proper supervision to the work.

The contractor shall provide and employ skilled, semiskilled and unskilled labour as is necessary for proper and timely execution of the work. The Engineer-in-Charge shall be at liberty to object to and require the contractor to remove from the works any person who in his opinion misconducts himself, or is incompetent or negligent in the performance of his duties or whose employment is otherwise considered by the Engineer-in-Charge to be undesirable. Such person shall not be employed again at works site without the written permission of the Engineer- in-Charge and the persons so removed shall be replaced as soon as possible by competent substitutes.

CLAUSE 34 LEVY/TAXES PAYABLE BY CONTRACTOR

(i) GST, Building and other Construction Workers Welfare Cess or any other tax, levy or Cess in respect of input for or output by this contract shall be payable by the contractorand HLL shall not entertain any claim whatsoever in this respect except as provided under clause 38.

(ii) The contractor shall deposit royalty and obtain necessary permit for supply of the red bajri, stone, kankar, etc. from local authorities.

(iii) If pursuant to or under any law, notification or order any royalty, cess or the like becomes payable by the Government of India and does not any time become payable by the contractor to the State Government, Local authorities in respect of any material used by the contractor in the works, then in such a case, it shall be lawful to the Government of India and it will have the right and be entitled to recover the amount paid in the circumstances as aforesaid from dues of the contractor.

CLAUSE 35 CONDITIONS FOR REIMBURSEMENT OF LEVY/TAXES IF LEVIED AFTERRECEIPT OF TENDERS

(i) All tendered rates shall be inclusive of any tax, levy or cess applicable on last date of receipt of tender including extension if any. No adjustment ie., increase or decrease shall be made for any variation in the rate of GST, Building and other Construction Workers Welfare Cess or any other tax, levy or Cess applicable on inputs.

However effect of variation in rates of GST or Building and other Construction WorkersWelfare Cess or imposition or repeal of any other tax, levy or cess applicable on output of the works contract shall be adjusted on either side, increase or decrease.

Provided further that for Building and other Construction Workers Welfare Cess or anytax (other than GST), levy or cess varied or imposed after the last date of receipt of tender including extension if any, any increase shall be reimbursed to the contractor only if the contractor necessarily and properly pays such increased amount of taxes/ levies/ cess.

Provided further that such adjustment including GST shall not be made in the extendedperiod of contract for which the contractor alone is responsible for delay as determined by authority for extension of time under clause 5 in Schedule F.

(ii) The contractor shall keep necessary books of accounts and other documents for the purpose of this condition as may be necessary and shall allow inspection of the same by a duly authorized representative of the Client and/or the Engineer-in-Charge and shall also furnish such other information/document as the Engineer-in-Charge may require from time to time.

(iii) The contractor shall, within a period of 30 days of the imposition of any such further tax or levy or cess, give a written notice thereof to the Engineer-in-charge that the same is given pursuant to this condition, together with all necessary information relating thereto.

CLAUSE 36 TERMINATION OF CONTRACT ON DEATH OF CONTRACTOR

Without prejudice to any of the rights or remedies under this contract, if the contractor dies, the authority indicated in schedule "F" on behalf of the Client shall have the option of terminating the contract without compensation to the contractor.

CLAUSE 37 IF RELATIVE WORKING IN OFFICE OF CLIENT/HLL THEN THECONTRACTOR NOT ALLOWED TO TENDER

The contractor shall not be permitted to tender for works in the Client/ HLL in which his near relative is posted in Accounts dept. or equivalent or as an officer in any capacity between the grades of the General Manager/ Chief Engineer and Site Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any Gazetted Officer in HLL. Any breach of this condition by the contractor would render him liable to be removed from theapproved list of contractors of HLL. If, however the contractor is registered in any other department, he shall be debarred from tendering in the Department in future for any breach ofthis condition.

NOTE: By the term "near relatives" is meant wife, husband, parents and grandparents, children and grandchildren, brothers and sisters, uncles, aunts and cousins and their corresponding in- laws.

CLAUSE 38 NO GAZETTED ENGINEER TO WORK AS CONTRACTOR WITHIN ONEYEAR OF RETIREMENT

No engineer of gazetted rank or other gazetted officer employed in engineering or administrative duties in an engineering department of the Government of India shall work as acontractor or employee of a contractor for a period of one year after his retirement from government service without the previous permission of Government of India in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found at anytime to be such a person who had not obtained the permission of Government of India as aforesaid, before submission of the tender or engagement in the contractor's service, as the case may be.

CLAUSE 39 COMPENSATION DURING WARLIKE SITUATIONS

The work (whether fully commissioned or not) and all materials, machines, tools and plants, scaffolding, temporary buildings and other things connected therewith shall be at the risk of the contractor until the work has been delivered to the Engineer-in-Charge and a certificate from him to that effect obtained. In the event of the work or any materials properly brought to the site for incorporation in the work being damaged or destroyed in consequence of hostilities or warlike operation, the contractor shall when ordered (in writing) by the Engineer-in-Charge to remove any debris from the site, collect and properly stack or remove in store all serviceable materials salvaged from the damaged work and shall be paid at the contract rates in accordance with the provision of this agreement for the work of clearing the site of debris, stacking or removal of serviceable material and for reconstruction of all works ordered by the Engineer-in-Charge, such payments being in addition to compensation upto thevalue of the work originally executed before being damaged or destroyed and not paid for. In case of works damaged or destroyed but not already measured and paid for, the compensationshall be assessed by the Engineer- in- charge or his authorized representative. The contractor shall be paid for the damages/destruction suffered and for restoring the material at the rate based on analysis of rates tendered for in accordance with the provision of the contract. The certificate of the Engineer-in-Charge regarding the quality and quantity

of materials and the purpose for which they were collected shall be final and binding on all parties to this contract.

Provided always that no compensation shall be payable for any loss in consequence of hostilities or warlike operations (a) unless the contractor had taken all such precautions against air raid as are deemed necessary by the A.R.P. Officers or the Engineer-in-Charge (b) for any material etc. not on the site of the work or for any tools, plant, machinery, scaffolding, temporary building and other things not intended for the work.

In the event of the contractor having to carry out reconstruction as aforesaid, he shall be allowed such extension of time for its completion as is considered reasonable by the Engineer- in- charge.

CLAUSE 40 APPRENTICES ACT PROVISIONS TO BE COMPLIED WITH

The contractor shall comply with the provisions of the Apprentices Act, 1961 and the rules andorders issued thereunder from time to time. If he fails to do so, his failure will be a breach of the contract and the Client may, in his discretion, cancel the contract. The contractor shall also be liable for any pecuniary liability arising on account of any violation by him of the provisionsof the said Act.

CLAUSE 41 RELEASE OF SECURITY DEPOSIT AFTER LABOUR CLEARANCE

Deposit of the work shall not be refunded till the contractor produces a clearance deposit after labour certificate from the Labour Officer. As soon as the work is virtually complete the contractor clearance shall apply for the clearance certificate to the Labour Officer under intimation to the Engineer-in-Charge. The Engineer-in-Charge, on receipt of the said communication, shall write to the Labour Officer to intimate if any complaint is pending against the contractor in respect of the work. If no complaint is pending, on record till after 3 months after completion of the work and/or no communication is received from the Labour Officer to this effect till six months after the date of completion, it will be deemed to have received the clearance certificate and the Security Deposit will be released if otherwise due.

CLAUSE 42 INSURANCE

Without limiting the Contractor's obligations and responsibilities stated elsewhere in the Contract, the Contractor shall at his own cost arrange, secure and maintain insurance in the joint names of the HLL and the contractor with any of the subsidiary of the General Insurance Corporation of India in such a manner that the HLL and the contractor are covered for all time during the period of contract i.e. the time period allowed for completion of work, extended period and the defect liability period.

The insurance shall be affected in accordance with terms approved by the HLL and the contractor shall submit the insurance policies to the Engineer-In-Charge within one week of signing of the agreement along with the receipt of premium. The contractor shall timely pay and submit the receipts of payment of premiums for extensions of policies, if any. The insurance shall cover the following:-

A. **Contractor's All Risks Insurance:** The contractor shall insure the work for a sum equivalent to the Contract value or such additional sums as specified and the interests of the HLL against ALL RISKS claims, proceedings, loss or damages, costs, charges and expenses from whatsoever cause arising out of or in consequence of the execution and maintenance of the work for which the contractor is responsible under the contract

B. Workman Compensation & Employers Liability Insurance: This insurance shall be affected for all the contractor's employees engaged in the performance of the contract. The HLL shall not be liable in respect of any damages or compensation payable at law in respect of or in consequence of any accident or injury to any workman or any other person in the employment of the contractor and the contractor shall indemnify and keep

indemnified the HLL against all such damages and compensation and against all claims, demands, proceedings, costs, charges and expenses, whatsoever in respect or in relation thereof.

C. Third Party Insurance: The contractor shall be responsible for making good to the satisfaction of the Engineer-in-Charge any loss or any damage to all structures and properties belonging to the HLL or being executed or procured or being procured by the HLL or of the other agencies within the premises of all work of the HLL. If such loss or damage is due to fault and or the negligence or wilful acts or omissions of the contractor, his employees, agents, representatives.

The contractor shall take sufficient care in moving his plants, equipment and materials from one place to another so that they do not cause any damage to any person or to the property of the HLL or any third party including overhead and underground cables and in the event of any damage resulting to the property of the HLL or to a third party during the movement of the aforesaid plant, equipment or materials, the cost of such damages including eventual loss of production, operation or services in any plant or establishment as estimated by the HLL or ascertained or demanded by the third party, shall be borne by the contractor. Before commencing the execution of the work, the contractor, shall insure and indemnify and keep the HLL harmless of all claims, against the contractor's liability for any materials or physical damage, loss or injury which may occur to any property, including that of the HLL or to any person including any employeeof HLL, or arising out of the execution of the work or in the carrying out of the contract, otherwise than due to the matters referred to in the provision to (a) above. Such insurance shall be affected for an amount sufficient to cover such risks. The terms shall include a provision whereby, in the event of any claim in respect of which the contractor, would be entitled to receive indemnify under the policy being brought or made against the HLL, the insurer willfully indemnify HLL against such claims and any costs, charges and expenses in respect thereof.

D. The contractor shall also at times indemnify the HLL against all claims, damages or compensation under the provisions of Payment or Wages Act, 1936, Minimum Wages Act, 1948, Employer's Liability Act, 1938, the Workman's Compensation Act, 1947, Industrial Disputes Act, 1947 and Maternity Benefit Act, 1961, or any modification thereof or any other law relating thereof and rules made there under from time to time.

E. Contractor shall also at his own cost carry and maintain any and all other insurance(s) which he may be required to take out under any law or regulation from time to time. He shall also carry and maintain any other insurance, which may be required by the Engineer-in-Charge.

46.1 The Contractor shall prove to the Engineer-in-charge from time to time he has taken out all the insurance policies referred to above and has paid the necessary premiums for keeping the policies alive till expiry of the Defects Liability Period.

46.2 The aforesaid insurance policies shall provide that they shall not be cancelled till the Engineer- in-charge has agreed for cancellation.

Remedy on the contractor's failure to insure: If the contractor shall fail to effect and keep in force the insurance referred to above or any other insurance which he/they may be required to effect under the terms of the contract then and in any such case Engineer-in-charge may without being bound to, effect and keep in force any such insurance and pay such premiumor premiums, as may be necessary for that purpose and from time to time deduct the amount so paid by the Engineer-in-charge from any moneys due or which may become due to the contractor or recover the same as a debt due from the contractor.

CLAUSE 43 PRICE

The price quoted should be inclusive of all material cost, loading and unloading charges, all applicable taxes and other levies, Laboure charges, insurance, Installation and commissioning charges etc. Price quoted should be firm without any escalation till the order is completely executed.

CLAUSE 44 ESCALATION

The rates quoted by the Contractor in the contract documents shall be final and shall not be subjected to any change due to the increase in Labour wages or inflation in the cost of materials or any other price variations due to any reason during the stipulated time period of the contract or during the extended time period of completion.

Rates quoted should be inclusive of all cost of materials, Tools/Equipment's labor charges, conveyance to site, handling charges, loading and unloading charges, hiring charges, clearing of debris, statutory payments etc.

CLAUSE 45 COMPLETION TIME

The items/Work as per the tender specifications shall be completed within a period of **330 days** from the date of PO/Site clearance.

CLAUSE 46 PAYMENT TERMS

a. All Payments to be disbursed by the Client Department (Conservator of Forest (Wildlife) and Agasthyavanam Biological Park Circle, Thiruvananthapuram) against recommendation of the Project Management Consultant (HLL) based on the tender terms & conditions.

The invoice shall be addressed to:
Office of the Conservator of Forest (Wildlife) &
Agasthyavanam Bio-logical Park Forest Headquarters,
Vazhuthacaud, Thiruvananthapuram – 695 035.

Payment shall be made as given below: -
All payments to the lowest bidder should be made by the concerned department / its head of the Department on milestone basis and payments directly based on the Recommendation by HLL Lifecare Limited.

I. Two running bills on the executed work.
II. One final bill on the submission of final Measurement book (Inspected and Verified by HLL Lifecare Limited) along with completion certificates from concerned authorities and original invoices.
III. All statutory payments should be made by the contractor and the same shall be reimbursed on recipient of valid documents

Retention money shall be deducted at 2.5% from each bills. Retention shall bear no interest and this amount will be released after successful completion of the work**.**

Tax Deduction: All statutory deductions like GST, Income Tax, Works Contract Tax, E.S.I., P.F. or any other government-imposed liabilities shall be borne by the Contractor (as applicable at the time of execution of job) and shall be deducted from each bill submitted by the Contractor.

b. SECURITY DEPOSIT / RETENTION MONEY:

In addition to the Performance Guarantee, 2.5% of contract value shall be deducted from each running bill as Security Deposit/Retention Money until final acceptance of the works. The Earnest Money Deposit (EMD) may be adjusted towards the Security Deposit.

The Contractor may, at his option, replace the retention amount with a Bank Guarantee valid upto 6 months after completion period.

The security deposit/retention amount will be released after passing of final bill as in the case of refund of deposit.

CLAUSE 47 LIQUIDATED DAMAGES FOR DELAYS

In case the Contractor fails to achieve the approved milestones and/or complete the work within the stipulated completion period, Liquidated Damages shall be levied at the rate of 0.5% of the total Contract value per week or part thereof, subject to a maximum of 7.5% of the total Contract value, unless the delay is solely attributable to HLL Lifecare Limited and duly certified as such.

Grant of extension of time, if any, shall not be treated as a matter of right and shall be considered only at the sole discretion of HLL Lifecare Limited, without prejudice to the levy of Liquidated Damages, where applicable.

CLAUSE 48 TERMINATION / CANCELLATION FOR NON-PERFORMANCE

HLL Lifecare Limited reserves the absolute right to terminate the Contract, either wholly or partly, without prejudice to any other remedies available under the Contract, if the Contractor:

- fails to commence the work as per agreed timelines,
- shows unsatisfactory progress,
- repeatedly fails to achieve approved milestones *(where repeated failure shall mean failure to achieve two or more consecutive milestones or three milestones in total, notwithstanding any extension granted),*
- abandons the work,
- surrenders the work, or
- otherwise demonstrates inability to complete the work.

In case the Contractor surrenders the work, a penalty of 3% of the Work Order value shall be levied.

Upon such termination, HLL Lifecare Limited shall be entitled to get the balance work executed at the risk and cost of the Contractor, and any excess expenditure incurred shall be recoverable from the Contractor, including adjustment against the Performance Security, Retention Amount, or any other dues payable to the Contractor under this or any other contract.

CLAUSE 49 SPECIAL INSTRUCTIONS

a. The bidder shall visit the site before quoting for the work and also take their own assessments before quoting of bids.

b. The work should be carried out without causing any inconvenience to the public and shall ensure that no damages are caused to the existing site premises.

c. During the execution of work, the contractor or authorized representative should be present at site.

d. All Materials, Equipment's/ Tools required for the work should be arranged by the contractor and brought to site for the timely completion of the work.

e. The materials used shall be as per specification and of good quality.

f. The Contractor has to arrange necessary insurance coverage for the machine, workmen etc. deployed by him. He shall arrange all safety measures to protect his workmen and also the properties of HLL/Hospital. The work site safety of all employees, their ESI, PF etc. will have to be borne by the contractor.

g. The Purchaser/Owner should be immediately informed for any discrepancy in specifications and instructions in the execution of job before actual execution of particular item having discrepancy.

h. Any item found to be having been executed with poor workmanship then the Contractor shall have to rectify the work as specified by Purchaser/Owner. No extra charge will be admissible in such case. If CONTRACTORS fail to do so, the Purchaser/Owner reserved the right to rectify the work through some other agency at the expenses of Contractor.

i. The schedule of activities as submitted by the Contractor shall have to be strictly adhered to. Regular progress reports shall have to be submitted by the Contractor giving all details for monitoring of the schedule.

j. The Contractor shall have to co-operate with the agencies executing other works in the same area.

k. While executing the work, the Contractor shall ensure safety and security of the property of the Purchaser/Owner so as to avoid theft etc.

l. The Quantity shown in the schedule is an approximate estimated quantity and subject to vary as per each site conditions. No rate revision will be entertained if the quantity increases/decreases due to the site condition

m. while executing the work. During the execution of work, the contractor or authorized representative/s at least one person having technical qualification should be present at site.

n. Final payment shall be paid only after clearing the site as per direction of Engineer-in-charge/ Officer in charge.

o. Rates and amount 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 applicable on this contract.

p. The contractor should post a senior experienced person for the execution of the work and also provide necessary supervisory staff for smooth execution of work.

q. Temporary fences, shelters, watchman, danger signals and such other precautions, necessary to protect the public and properties of public as included in the rate quoted by the contractor.

r. The contractor should submit all documents such as material test certificates, batch reports, guarantee card, Warranty card of Items/ Components supplied by him.

s. The contractor should prepare all the completion drawings required for getting approval and sanction, and will be responsible for obtaining statutory clearance from the

Government/ Electrical inspectorate/ appropriate bodies for commissioning the system as per prevailing rules.

t. All the necessary field tests like cube test, workability test, etc. shall be carried out by the contractor on his expense from time to time and all the records should be maintained at site.

u. Shop drawings, detailed working drawings should be prepared by the contractor and should obtain approval from the site in-charge before the commencement of work.

v. The Contractor shall be responsible for obtaining HLL EIC's approval and carrying out construction after due vetting of the GFC structural drawings by IIT/NIT or any other Institute of National Importance, as approved by HLL.

w. The quantity shown in this work order is only tentative and may increase or decrease to any extend as per the drawing and site condition.

x. The work will be commenced by the Contractor only after the approval of drawings from the concerned local authorities including fire fighting's department or another department as per statuary requirement.

y. No payment shall be provided /recommended against the supply of materials, if the supply & fixing is included in a single specification.

z. The Contractor shall be solely responsible to follow the general clauses of the contract including labour regulations, registration of contractor, obtaining labour license from labour department, safety precautions, etc. and all other statutory provisions related to labour/works as per the prevailing General Clauses of Contract amended from time to time. The Contractor shall stick to the schedule of all activities and carry out it with mutually agreed time frame.

aa. The contractor shall make his own arrangements for obtaining electric connection and water Connection/ arrangement (if required) and make necessary payments directly to the department concerned. No dispute in this regard shall be entertained.

bb. The Project work will be carried out in the manner complying in all respects with the requirements of relevant bye laws of the local body under the jurisdiction of which the work is to be executed or as directed by the Engineer Incharge and nothing extra will be paid on this account.

cc. The contractor shall comply with proper and legal orders and directions of the local or public authority or municipality and abide by their rule and regulations and pay all fees and charges which he may be liable.

dd. The contractor shall give a performance test of the entire installation (s) as per standing specification before the work is finally accepted and nothing extra whatsoever shall be payable to the contractor for the test.

ee. Retention money shall be deducted at 2.5% from each bills. Retention shall bear no interest and this amount will be released after Successful completion of the work**.**

ff. Payments to the contractor shall be contingent upon the availability of funds disbursed by the client. Consequently, the timing of disbursement may be subject to change based

on fund availability. The competent authority will notify the vendor promptly of any anticipated delays in payment.

gg. Samples of various materials required for testing shall be provided free of charges by the contractor. Testing charges, if any, unless otherwise provided shall be borne by the Contractor. All other expenditure required to be incurred for taking the samples, conveyance, packing etc. shall be borne by the contractor himself. The work shall be carried out in accordance with the Architectural drawings and structural drawings, to be issued from time to time, by the Engineer-in-Charge. Before commencement of any item of work the contractor shall correlate all the relevant architectural and structural drawings, nomenclature of items and specifications etc. issued for the work and satisfy himself that the information available there from is complete and unambiguous. The figure and written dimension of the drawings shall be superseding the measurement by scale. The discrepancy, if any, shall be brought to the notice of the Engineer-in-charge before execution of the work.

hh. The contractor alone shall be responsible for any loss or damage occurring by the commencement of work on the basis of any erroneous and/ or incomplete information and no claim whatsoever shall be entertained on this account.

ii. The Contractor shall render all help and assistance in documenting the total sequence of this project by way of photography, slides, audio-video recording etc. nothing extra shall be payable to the contractor on this account.

jj. No payment will be made to the contractor for damage caused by rains, or other natural calamities during the execution of the works and no such claim on this account will be entertained.

kk. The contractor shall bear all incidental charges for cartage, storage and safe custody of materials issued by HLL

ll. Any expenditure incurred on preliminary site work, e.g. temporary access roads, temporary labour huts, staff quarters and site office; storage accommodation and water storage tanks shall be borne by the contractor.

mm. Contractor should ensure the cash flow before quoting the tender. It is not possible to stop the works due to delay in part payment/ payment of any other project from the Client / HLL.

nn. Special conditions for Cement: The contractor shall procure 53 grade Ordinary Portland Cement (conforming to IS:8112), Portland Pozzolona cement (confirming to IS:1489: Part –I) as required in the work, from reputed manufacturers as mentioned in the list of approved make in tender. The tenderers may also submit a list of names of cement manufacturers which they propose to use in the work. The tender accepting authority reserves right to accept or reject name(s) of cement manufacture(s) which the tenderer proposes to use in the work. No change in the tendered rates will be accepted if the tender accepting authority does not accept the list of cement manufactures, given by the tenderer, fully or partially. The cement brought to the site for execution of work shall be in bags bearing manufacturer's name & ISI marking. Weight of cementing each bag shall be 50 kg. Samples of cement arranged by the contactor shall be taken by the Engineer- in-Charge and got tested in accordance with provisions of relevant BIS codes. In case the test results indicate that the cement arranged by the contractor does not conform to the relevant BIS codes, the same shall stand rejected and it shall be removed from the site by the contractor at his own cost within 7 days of written order from the Engineer-in-Charge to do so.

All the following field tests and any other necessary test as per project requirement shall be carried out by the contractor on his expense from time to time as per the instruction of HLL's site engineer in charge and all the records should be maintained at site.

LIST OF RECOMMENDED TESTS/CHECKS			
1	Cement	Compressive Strength	
		Setting Time	
2	Steel	Ultimate Stress	Sample Size 85 cm
		% elongation	
		Unit weight	
		Diameter	
3	Sand	Sieve Analysis	Sample 600g
		Silt %	
		Bulkage	
4	Coarse Aggregate	Size and Shape	Sample 3Kg
		Sieve Analysis	
5	Hollow Blocks	Dimensions	3/5000 No
		Compressive Strength	
		Weight	
6	Bricks	Dimensions	3/10000 No
		Compressive Strength	
		Weight	
		Water Absorption	
7	Tiles	Dimensions	
		Shade	
		Warping	
8	Wood	Section	
		Profile	
9	Pipes	Pressure Ratting	
		Size	
10	Concrete	Slump Test	
		Cube Test	5 to 15 SqM -6 Nos -7/28 days
			16 to 50 SqM -2X6
			>50 SqM -3X6

SECTION - 3 SAFETY CODE

1. Suitable scaffolds should be provided for workmen for all works that cannot safely be donefrom 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-hold shall be provided on the ladder and the ladder shall be given an inclination not steeper than ¼ to 1 (1/4 horizontal and 1 vertical).
2. Scaffolding of staging more than 3.6 m (12 ft.) above the ground or floor, swung or suspended from an overhead support or erected with stationary support shall have a guard rail properly attached or bolted, braced and otherwise secured atleast 90 cm (3 ft.) 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. 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 than 3.6 m (12 ft.) above ground level or floor level, they should be closely boarded, should have adequate width and should be suitably fastened as described in (2) above.
4. Every opening in the floor of a building or in a working platform shall be provided with suitable means to prevent the fall of person or materials by providing suitable fencing or railing whose minimum height shall be 90 cm (3 ft.).
5. Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9 m (30 ft) in length while the width between side rails in rung ladder shall in no case be less than 29 cm. (11 ½") for ladder upto and including 3 metre (10 ft.) in length. For longer ladders this width should be increased atleast ¼" for each additional 30 cm.(1 foot) of length. Uniform step spacing of not more than 30 cm shall be kept. Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites or 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 defence of every suit, action or other proceedings 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 maybe 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.

   (a) Excavation and trenching- All trenches 1.2 m (4 ft,) or more in depth, shall at all times be supplied with at least one ladder for each 30 metre (100 ft) in length or fraction thereof. Ladder shall extend from bottom of the trench to at least 90 cm. (3 ft) above the surface of the ground. The sides of the trenches, which are 1.5 m (5 ft) or more in depth shall be stepped back to give suitable slope or securely held by timber bracing, so as to avoid the danger of sides collapsing. The excavated material shall not be placed within 1.5 m (5 ft) 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.

(b) Safety Measures for digging bore holes:-

(i) If the bore well is successful, it should be safely capped to avoid caving and collapse of the bore well. The failed and the abandoned ones should be completely refilled to avoid caving and collapse;

(ii) During drilling, Sign boards should be erected near the site with the address of the drilling contractor and the Engineer in-charge of the work;

(iii) Suitable-fencing should be erected around the well during the drilling and after the installation of the rig on the point of drilling, flags shall be put 50m alround the point of drilling to avoid entry of people;

(iv) After drilling the borewell, a cement platform (0.50m x 0.50m to 1.20m) 0.60m above ground level and 0.60m below ground level should be constructed around the well casing;

(v) After the completion of the borewell, the contractor should cap the bore well properly by welding steel plate, cover the bore well with the drilled wet soil and fix thorny shrubs over the soil. This should be done even while repairing the pump;

(vi) After the borewell is drilled the entire site should be brought to the ground level.

7. Demolition. - Before any demolition work is commenced and also during the progress of the work,

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

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

iii) All practical steps shall be taken to prevent danger to persons employed from risk of fire or explosion or flooding. No floor, roof or other part of the building shall be so overloaded with debris or materials as to render it unsafe.

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

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

ii) Those engaged in whitewashing and mixing or stacking of cement bags or any material, which is injurious to the eyes, shall be provided with protective goggles.

iii) Those engaged in welding works shall be provided with welder’s protective eye shields.

iv) Stonebreakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.

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

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

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

c) Before entry presence of toxic gases should be tested by inserting wet lead acetate paper, which changes colour 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, worker should be send only with oxygen kit.

e) Safety belt with rope should be provided to the workers. While working inside the manhole 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 for the cleaning works are undertaken during night or day.

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

h) The malba 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 malba.

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 upto which 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 the 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 working in the manhole.

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

n) Workmen descending a manhole shall try each ladder stop 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 individual 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.

vi) 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. Whenever men above the age of 18 years are employed on the work of lead painting, the following precautions should be taken: -

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

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

9. As per additional clause (viii)(i)of Safety Code(iv), the Contractor shall not employ women and men below the age of 18 years on the work of painting with product containing lead in any form. Whenever men above the age of 18 are employed on the work of lead painting, the following principles must be observed for such use:

i) White lead, sulphate of lead or product containing these pigments, shall not beused in painting operation except in the form of pastes or paint ready

for use.

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

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

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

v) Overall shall be worn by working painters during the whole of working period.

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

vii) Cases of lead poisoning and suspected lead poisoning shall be notified and shall be subsequently verified by medical man appointed by the competent authority of Department.

viii) Department may require, when necessary, medical examination of workers.

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

10. When the work is done near any place where there is risk of drowning, all necessary equipment should be provided & 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 of all injuries likely to be obtained during the course of the work.

11. Use of hoisting machines and tackle including their attachments, anchorage and supports shall conform to the following standards or conditions: -

(i)

oo. These shall be of good mechanical construction, sound materials and adequate strength and free from patent defects and shall be kept repaired and in good working order.

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

(ii) 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 give signals to operator.

(iii) In case of every hoisting machine and of every chain ring hook, shackle swivel and pulley blocks used in hoisting or as means of suspension 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 hoisting machine having a variable safe working load each safe working load and the condition under which it is applicable shall be clearly indicated. No part of any machine or any gear, referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.

(iv) In case of departmental machines, the safe working load shall be notified by the Electrical Engineer-in-Charge. As regard contractor's machines the contractors shall notify the safe working load of the machines to the Engineer-in-Charge whenever he brings any machinery to the site of work and get it verified by the Electrical Engineer concerned.

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

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

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

15. 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 Labour Officer or the Engineer-in-Charge or their representatives.

16. Notwithstanding the above clauses from (1) to (15) 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.

SECTION – 4

MODEL RULES FOR THE PROTECTION OF HEALTH AND SANITARY ARRANGEMENTS FORWORKERS EMPLOYED BY CONTRACTORS

1. APPLICATION

These rules shall apply to all buildings and construction works in charge of Central Public Works Department/ PWD (DA) in which twenty or more workers are ordinarily employed or are proposed to be employed in any day during the period during which the contract work is in progress.

2. DEFINITION

Work place means a place where twenty or more workers are ordinarily employed in connection with construction work on any day during the period during which the contract work is in progress.

3. FIRST-AID FACILITIES

(i) At every work place, there shall be provided and maintained, so as to be easily accessible during working hours, first-aid boxes at the rate of not less than one box for 150 contract labour or part thereof ordinarily employed.

(ii) The first-aid box shall be distinctly marked with a red cross on white back ground and shall contain the following equipment:

(a) For work places in which the number of contract labour employed does not exceed 50- Each first-aid box shall contain the following equipment:

1. 6 small sterilised dressings.
2. 3 medium size sterilised dressings.
3. 3 large size sterilised dressings.
4. 3 large sterilised burn dressings.
5. 1 (30 ml.) bottle containing a two per cent alcoholic solution of iodine.

6. 1 (30 ml.) bottle containing salvolatile having the dose and mode of administration indicated on the label.

7. 1 snakebite lancet.

8. 1 (30 gms.) bottle of potassium permanganate crystals.

9. 1 pair scissors.

10. 1 copy of the first-aid leaflet issued by the Director General, Factory Advice Service and Labour Institutes, Government of India.

11. 1 bottle containing 100 tablets (each of 5 gms.) of aspirin.

12. Ointment for burns.

13. A bottle of suitable surgical antiseptic solution.

(b) For work places in which the number of contract labour exceed 50. Each first-aid box shall contain the following equipments.

1. 12 small sterilised dressings.

2. 6 medium size sterilised dressings.

3. 6 large size sterilised dressings.

4. 6 large size sterilised burn dressings.

5. 6 (15 gms.) packets sterilised cotton wool.

6. 1 (60 ml.) bottle containing a two per cent alcoholic solution iodine.

7. 1 (60 ml.) bottle containing salvolatile having the dose and mode of administration indicated on the label.

8. 1 roll of adhesive plaster.

9. 1 snake bite lancet.

10. 1 (30 gms.) bottle of potassium permanganate crystals.

11. 1 pair scissors.

12. 1 copy of the first-aid leaflet issued by the Director General Factory Advice Service and Labour Institutes /Government of India.

13. A bottle containing 100 tablets (each of 5 gms.) of aspirin.

14. Ointment for burns.

15. A bottle of suitable surgical antiseptic solution.

(iii) Adequate arrangements shall be made for immediate recoupment of the equipment when necessary.

(iv) Nothing except the prescribed contents shall be kept in the First-aid box.

(v) The first-aid box shall be kept in charge of a responsible person who shall always be readily available during the working hours of the work place.

(vi) A person in charge of the First-aid box shall be a person trained in First-aid treatment in the work places where the number of contract labour employed is 150 or more.

(vii) In work places where the number of contract labour employed is 500 or more and

hospital facilities are not available within easy distance from the works. First-aid posts shall be established and run by a trained compounder. The compounder shall be on duty and shall be available at all hours when the workers are at work.

(viii) Where work places are situated in places which are not towns or cities, a suitable motor transport shall be kept readily available to carry injured person or person suddenly taken ill to the nearest hospital.

4. DRINKING WATER

(i) A reliable pump shall be fitted to each covered well, the trap door shall be kept locked and opened only for cleaning or inspection which shall be done at least once a month.

5. WASHING FACILITIES

(i) In every work place adequate and suitable facilities for washing shall be provided andmaintained for the use of contract labour employed therein.

(ii) Separate and adequate cleaning facilities shall be provided for the use of male and female workers.

(iii) Such facilities shall be conveniently accessible and shall be kept in clean and hygienic condition.

6. LATRINES AND URINALS

(a) Latrines shall be provided in every work place on the following scale namely: Where female are employed, there shall be at least one latrine for every 25 females.

(b) Where males are employed, there shall be at least one latrine for every 25 males. Provided that, where the number of males or females exceeds 100, it shall be sufficient if there is one latrine for 25 males or females as the case may be upto the first 100, and one for every 50 thereafter.

(i) Every latrine shall be under cover and so partitioned off as to secure privacy, and shall have a proper door and fastenings.

(ii) Construction of latrines: The inside walls shall be constructed of masonry or some suitable heat-resisting nonabsorbent materials and shall be cement washed inside and outside at least once a year, Latrines shall not be of a standard lower than borehole system.

(iii)

a) Where workers of both sexes are employed, there shall be displayed outside each block of latrine and urinal, a notice in the language understood by the majority of the workers "For Men only" or "For Women Only" as the case may be.

b) The notice shall also bear the figure of a man or of a woman, as the case may be.

(iv) There shall be at least one urinal for male workers upto 50 and one for female workers upto fifty employed at a time, provided that where the number of male or female workmen, as the case may be exceeds 500, it shall be sufficient if there is one urinal for every 50 males or females upto the first 500 and one for every 100 or part thereafter.

(v)

a) The latrines and urinals shall be adequately lighted and shall be maintained in a clean and sanitary condition at all times.

b) Latrines and urinals other than those connected with a flush sewage system shall comply with the requirements of the Public Health Authorities.

(vi) Water shall be provided by means of tap or otherwise so as to be conveniently accessible in or near the latrines and urinals.

(vii) Disposal of excreta :- Unless otherwise arranged for by the local sanitary authority, arrangements for proper disposal of excreta by incineration at the work place shall be made by means of a suitable incinerator. Alternately excreta may be disposed of by putting a layer of night soil at the bottom of a pucca tank prepared for the purpose and covering it with a 15 cm. layer of waste or refuse and then covering it with a layer of earth for a fortnight (when it will turn to manure).

(viii) The contractor shall at his own expense, carry out all instructions issued to him by the Engineer-in-Charge to effect proper disposal of night soil and other conservancy work in respect of the contractor's workmen or employees on the site. The contractor shall be responsible for payment of any charges which may be levied by Municipal or Cantonment Authority for execution of such on his behalf.

7. PROVISION OF SHELTER DURING REST

At every place there shall be provided, free of cost, four suitable sheds, two for meals and the other two for rest separately for the use of men and women labour. The height of each shelter shall not be less than 3 meters (10 ft.) from the floor level to the lowest part of the roof. These shall be kept clean and the space provided shall be on the basis of 0.6 sq.m. (6 sft) per head.

Provided that the Engineer-in-Charge may permit subject to his satisfaction, a portion of the building under construction or other alternative accommodation to be used for the purpose.

8. CRECHES

(i) At every work place, at which 20 or more women worker are ordinarily employed, there shall be provided two rooms of reasonable dimensions for the use of their children under the age of six years. One room shall be used as a play room for the children and the other as their bedroom. The rooms shall be constructed with specifications as per clause 19H (ii) a,b & c.

(ii) The rooms shall be provided with suitable and sufficient openings for light and ventilation. There shall be adequate provision of sweepers to keep the places clean.

(iii) The contractor shall supply adequate number of toys and games in the play room and sufficient number of cots and beddings in the bed room.

(iv) The contractor shall provide one ayaa to look after the children in the creche when the number of women workers does not exceed 50 and two when the number of women workers exceed 50.

(v) The use of the rooms earmarked as creches shall be restricted to children, their attendants and mothers of the children.

9. CANTEENS

(i) In every work place where the work regarding the employment of contract labour is likely to continue for six months and where in contract labour numbering one hundred or more are ordinarily employed, an adequate canteen shall be provided by the contractor for the use of such contract labour.

(ii) The canteen shall be maintained by the contractor in an efficient manner.

(iii) The canteen shall consist of at least a dining hall, kitchen, storeroom, pantry and washing places separately for workers and utensils.

(iv) The canteen shall be sufficiently lighted at all times when any person has access to it.

(v) The floor shall be made of smooth and impervious materials and inside walls shall be lime- washed or colour washed at least once in each year. Provided that the inside walls of the kitchen shall be lime-washed every four months.

(vi) The premises of the canteen shall be maintained in a clean and sanitary condition.

(vii) Waste water shall be carried away in suitable covered drains and shall not be allowed to accumulate so as to cause a nuisance.

(viii) Suitable arrangements shall be made for the collection and disposal of garbage.

(ix) The dining hall shall accommodate at a time 30 per cent of the contract labour working at a time.

(x) The floor area of the dining hall, excluding the area occupied by the service counter and any furniture except tables and chairs shall not be less than one square metre (10 sft) per diner to be accommodated as prescribed in sub-Rule 9.

(xi) (a) A portion of the dining hall and service counter shall be partitioned off and reserved for women workers in proportion to their number.

(xii) (b) Washing places for women shall be separate and screened to secure privacy.

(xiii) Sufficient tables stools, chair or benches shall be available for the number of diners to be accommodated as prescribed in sub-Rule 9.

(xiv) There shall be provided and maintained sufficient utensils crockery, furniture and any other equipment necessary for the efficient running of the canteen.

(xv) The furniture utensils and other equipment shall be maintained in a clean and hygienic condition.

a) Suitable clean clothes for the employees serving in the canteen shall be provided and maintained.

b) A service counter, if provided, shall have top of smooth and impervious material.

c) Suitable facilities including an adequate supply of hot water shall be provided for the cleaning of utensils and equipment.

(xvi) The food stuffs and other items to be served in the canteen shall be in conformity with the normal habits of the contract labour.

(xvii) The charges for food stuffs, beverages and any other items served in the canteen shall be based on ‘No profit, No loss’ and shall be conspicuously displayed in the canteen.

(xviii) In arriving at the price of foodstuffs, and other article served in the canteen, the following items shall not be taken into consideration as expenditure namely:

a) The rent of land and building.

b) The depreciation and maintenance charges for the building and equipment provided for the canteen.

c) The cost of purchase, repairs and replacement of equipment including furniture, crockery, cutlery and utensils.

d) The water charges and other charges incurred for lighting and ventilation.

e) The interest and amounts spent on the provision and maintenance of equipment provided for the canteen.

(xix) The accounts pertaining to the canteen shall be audited once every 12 months by registered accountants and auditors.

10. ANTI-MALARIAL PRECAUTIONS

The contractor shall at his own expense, conform to all anti-malarial instructions given to him bythe Engineering-Charge including the filling up of any borrow pits which may have been dug by him.

11. The above rules shall be incorporated in the contracts and in notices inviting tenders and shall form an integral part of the contracts.

12. AMENDMENTS

Government may, from time to time, add to or amend these rules and issue directions - it may consider necessary for the purpose of removing any difficulty which may arise in the administration thereof.

SECTION - 5

CONTRACTOR'S LABOUR REGULATIONS TO BE FOLLOWED IN THIS PROJECT

1. SHORT TITLE

These regulations may be called the CPWD Contractors Labour Regulations andshall be followed by the Contractor for this Project.

2. DEFINITIONS

i) Workman means, any person employed by Department or its contractor directly or indirectly, through a subcontractor, with or without the knowledge of the Department, to do any skilled, semiskilled or unskilled, manual, supervisory, technical or clerical work, for hire or reward, whether the terms of employment are expressed or implied, but does not include any person: -

a) Who is employed mainly in a managerial or administrative capacity; or,

b) Who, being employed in a supervisory capacity draws wages exceeding five hundred rupees per mensem or exercises either by the nature of the duties attached to the office or by reason of powers vested in him, functions mainly of

managerial nature; or,

c) Who is an out worker, that is to say, person to whom any article or materials are given out by or on behalf of the principal employers to be made up cleaned, washed, altered, ornamental finished, repaired adopted or otherwise processed for sale for the purpose of the trade or business of the principal employers and the process is to be carried out either in the home of the out worker or in same another premises, not being premises under the control and management of the principal employer.No person below the of 14 years shall be employed to act as a workman

ii) Fair Wages means wages whether for time or piecework fixed and notified under the provision of the Minimum Wages Act from time to time.

iii) Contractors shall include every person who undertakes to produce a given result other than a mere supply of goods or articles of manufacture through contract labour or who supplies contract labour for any work and includes a subcontractor.

iv) Wages shall have the same meaning as defined in the Payment of Wages Act.

3. WORKING HOURS

i) Normally working hours of an adult employee should not exceed 9 hours a day. The working day shall be so arranged that inclusive of interval for rest, if any, it shall not spread over more than 12 hours on any day.

ii) When an adult worker is made to work for more than 9 hours on any day or for more than 48 hours in any week he shall be paid over time for the extra hours put in by him at double the ordinary rate of wages.

iii)

a) Every worker shall be given a weekly holiday normally on a Sunday, in accordance with the provisions of Minimum Wages (Central) Rules 1960, as amended from time to time, irrespective of whether such worker is governed by the Minimum Wages Act or not.

b) Where the minimum wages prescribed by the Government, under the Minimum Wages Act, are not inclusive of the wages for the weekly day of rest, the worker shall be entitled to rest day wages, at the rate applicable to the next preceding day, provided he has worked under the same contractor for a continuous period of not less than 6 days.

c) Where a contractor is permitted by the Engineer-in-Charge to allow a worker to work on a normal weekly holiday, he shall grant a substituted holiday to him for the whole day, on one of the five days, immediately before or after the normal weekly holiday, and pay wages to such worker for the work performed on the normal weekly holiday at the overtime rate.

4. DISPLAY OF NOTICE REGARDING WAGES ETC.

The contractor shall, before he commences his work on contract, display and correctly maintain and continue to display and correctly maintain, in a clear and legible condition in conspicuous places on the work, notices in English and in local Indian languages spoken by the majority of the workers, giving the minimum rates of the wages fixed under Minimum Wages Act, the actual wages being paid, the hours of work for which such wage are earned, wages periods, dates of payments of wages and other relevant information as per Appendix 'III'.

5. PAYMENT OF WAGES.

i) The contractor shall fix wage periods in respect of which wages shall be payable.

ii) No wage period shall exceed one month.

iii) The wages of every person employed as contract labour in an establishment or by a contractor, where less than one thousand such persons are employed, shall be paid before the expiry of seventh day and in other cases before the expiry of tenth day after the last day of the wage period in respect of which the wages are payable.

iv) Where the employment of any worker is terminated by or on behalf of the contractor the wages earned by him shall be paid before the expiry of the second working day from the date on which his employment is terminated.

v) All payment of wages shall be made on a working day at the work premises and during the working time and on a date notified in advance and in case the work is completed before the expiry of the wage period, final payment shall be made within 48 hours of the last working day.

vi) Wages due to every worker shall be paid to him direct or to other person authorised by him in this behalf.

vii) All wages shall be paid in current coin or currency or in both.

viii) Wages shall be paid without any deductions of any kind except those specified by the Central Government by general or special order in this behalf or permissible under the Payment of Wages Act 1956.

ix) A notice showing the wages period and the place and time of disbursement of wages shall be displayed at the place of work and a copy sent by the contractor to the Engineer-in-Charge under acknowledgement.

x) It shall be the duty of the contractor to ensure the disbursement of wages in presence of authorised representative of the Engineer-in-Charge who will be required to be present at the place and time of the disbursement of wages by the contractor to workmen.

xi) The contractor shall obtain from the junior engineer or any other authorised representative of the Engineer-in-Charge, as the case may be, a certificate under his signature at the end of the entries in the "Register of Wages" or the "Wage- cum-Muster Roll", as the case may be, in the following form: -

"Certified that the amount shown in the column No……has been paid to the workman concerned in my presence on…….at ....."

6. FINES AND DEDUCTIONS WHICH MAY BE MADE FROM WAGES

(i) The wages of a worker shall be paid to him without any deduction of any kind except the following: -

(a) Fines

(b) Deductions for absence from duty i.e. from the place or the places where by the terms of his employment he is required to work. The amount of deduction shall be in proportion to the period for which he was absent.

(c) Deductions for damage to or loss of goods expressly entrusted to the employed person for custody, or for loss of money or any other deductions which he is required to account, where such damage or loss is directly attributable to his neglect or default.

(d) Deduction for recovery of advances or for adjustment of overpayment of

wages, advances granted shall be entered in a register.

(e) Any other deduction, which the Central Government may from time to time, allows.

(ii) No fines should be imposed on any worker save in respect of such acts and omissions on his part as have been approved of by the Chief Labour Commissioner.

Note:- An approved list of Acts and Omission for which fines can be imposed is enclosed at Appendix-1.

(iii) No fine shall be imposed on a worker and no deduction for damage or loss shall be made from his wages until the worker has been given an opportunity of showing cause against such fines or deductions.

(iv) The total amount of fine, which may be imposed, in any one-wage period, on a worker, shall not exceed an amount equal to three paise in a rupee of the total wages, payable to him in respect of that wage period.

(v) No fine imposed on any worker shall be recovered from him by instalment, or after the expiry of sixty days from the date on which it was imposed.

(vi) Every fine shall be deemed to have been imposed on the day of the act or omission in respect of which it was imposed.

7. LABOUR RECORDS

(i) The contractor shall maintain a Register of Persons employed on work on contract in Form XIII of the CL (R&A) Central Rules 1971 (Appendix IV)

(ii) The contractor shall maintain a Muster Roll register in respect of all workmen employed by him on the work under Contract in Form XVI of the CL (R&A) Rules 1971 (Appendix V)

(iii) The contractor shall maintain a Wage Register in respect of all workmen employed by him on the work under contract in Form XVII of the CL (R&A) Rules 1971 (Appendix VI)

(iv) Register of accident – The contractor shall maintain a register of accidents in such form as may be convenient at the work place but the same shall include the following particulars:

a) Full Particulars of the labourers who met with accident.

b) Rate of wages.

c) sex

d) Age

e) Nature of accident and cause of accident

f) Time and date of accident

g) Date and time when admitted in hospital

h) Date of discharge from the hospital

i) Period of treatment and result of treatment

j) Percentage of loss of earning capacity and disability as assessed by Medical Officer.

k) Claim required to be paid under Workmen’s Compensation Act.

l) Date of payment of compensation

m) Amount paid with details of the person to whom the same was paid

n) Authority by whom the compensation was assessed

o) Remarks.

(v) The contractor shall maintain a Register of Fines in the Form XII of the CL (R&A) Rules 1971 (Appendix XI) The contractor shall display in a good condition and in a conspicuous place of work the approved list of acts and omission for which fines can be imposed (Appendix X)

(vi) The contractor shall maintain a Register of deductions for damage or loss in Form XX of the CL (R&A) Rules 1971 (Appendix XII).

(vii) The contractor shall maintain a Register of Advances in Form XXIII of the CL (R&A) Rules 1971 (Appendix-XIII).

(viii) The contractor shall maintain a Register of Overtime in Form XXIII of the CL (R&A) Rules 1971 (Appendix-XIV).

8. ATTENDANCE CARD-CUM WAGE SLIP

i) The contractor shall issue an Attendance card cum wage slip to each workman employed by him in the specimen form at (Appendix-VII).

ii) The card shall be valid for each wage period.

iii) The contractor shall mark the attendance of each workman on the card twice each day, once at the commencement of the day and again after the rest interval, before he actually starts work.

iv) The card shall remain in possession of the worker during the wage period under reference.

v) The contractor shall complete the wage slip portion on the reverse of the card at least a day prior to the disbursement of wages in respect of the wage period under reference.

vi) The contractor shall obtain the signature or thumb impression of the worker on the wage slip at the time of disbursement of wages and retain the card with him.

9. EMPLOYMENT CARD

The contractor shall issue an Employment Card in the Form XIV of CL (R&A) Central Rules 1971 to each worker within three days of the employment of the worker (Appendix-VIII).

10. SERVICE CERTIFICATE

On termination of employment for any reason whatsoever the contractor shall issue to the workman whose services have been terminated, a Service Certificate in the Form XV of the CL (R&A) Central Rules 1971 (Appendix-IX).

11. PRESERVATION OF LABOUR RECORDS

All records required to be maintained under Regulations Nos. 6 &7 shall be preserved in original for a period of three years from the date of last entries made in them and shall be made available for inspection by the Engineer-in-Charge or Labour Officer or any other officers authorised by the Department this behalf.

12. POWER OF LABOUR OFFICER TO MAKE INVESTIGATIONS OR ENQUIRY

The labour officer or any person authorised by the Central Government on their behalf shall have power to make enquiries with a view to ascertaining and enforcing due and proper observance of Fair Wage Clauses and provisions of these Regulations. He shall investigate into any complaint regarding the default made bythe contractor or subcontractor in regard to such provision.

13. REPORT OF LABOUR OFFICER

The Labour Officer or other persons authorised as aforesaid shall submit a report of result of his investigation or enquiry to the Engineer in charge concerned indicating the extent, if any, to which the default has been committed with a note that necessary deductions from the contractor's bill be made and the wages and other dues be paid to the labourers concerned. In case an appeal is made by the contractor under Clause 13 of these regulations, actual payment to labourers will be made by the Client after the competent authority of HLL has given their recommendation on such appeal and on approval by client.

a. Engineer in charge shall recommend for payments to the labour concerned within 45 days from the receipt of the report from competent authority of HLL and approval from client as the case may be.

14. APPEAL AGAINST THE DECISION OF LABOUR OFFICER

Any person aggrieved by the decision and recommendations of the Labour Officer or other person so authorised may appeal against such decision to the Client concerned within 30 days from the date of decision, forwarding simultaneously a copy of his appeal to the Engineer in charge concerned but subject to such appeal,the decision of the officer shall be final and binding upon the contractor.

15. PROHIBITION REGARDING REPRESENTATION THROUGH LAWYER

i) A workman shall be entitled to be represented in any investigation or enquiry under these regulations by: -

ii) An officer of a registered trade union of which he is a member.

iii) An officer of a federation of trade unions to which the trade union referred to in Clause (a) is affiliated.

iv) Where the employer is not a member of any registered trade union, by an officer of a registered trade union, connected with the industry in which the worker is employed or by any other workman employed in the industry in which the worker is employed.

a. An employer shall be entitled to be represented in any investigation or enquiry under these regulations by:-

a) An officer of an association of employers of which he is a member.

b) An officer of a federation of associations of employers to which association referred to in Clause (a) is affiliated.

c) Where the employer is not a member of any association of employers, by an officer of association of employer connected with the industry, in which the employer is

engaged or by any other employer, engaged in the industry in which the employer is engaged.

b. No party shall be entitled to be represented by a legal practitioner in any investigation inquiry under these regulations.

16. INSPECTION OF BOOKS AND SLIPS

The contractor shall allow inspection of all the prescribed labour records to any of his workers or to his agent at a convenient time and place after due notice is received or to the Labour Officer or any other person, authorised by the Central Government on his behalf.

17. SUBMISSION OF RETURNS

The contractor shall submit periodical returns as may be specified from time to time.

18. AMENDMENTS

The Client may from time to time add to or amend the regulations and on any question as to the application/interpretation or effect of those regulations the decision of the EIC concerned shall be final.

19. ENTIRETY OF THE AGREEMENT

All of the terms agreed to between the Supplier and Purchaser will be included in the Purchase/work Order/Contract and no their communication, proposal or understanding, written, oral or implied, will be considered to be included in the Purchase/work Order/Contract or form part of the Contract between the Supplier and Purchaser unless specifically agreed to in that behalf in writing between Purchaser and Supplier.

20. CORRESPONDENCE

All correspondence relating to this Order including Invoice shall be in English,

To:

DEPUTY VICE PRESIDENT (P&S)
HI-CARE DIVISION,
HLL LIFECARE LIMITED (A Government of India Enterprise)
Corporate Head Office, Poojappura.P. O,
Thiruvananthapuram,
Kerala – 695012
Phn: 0471- 2354949, 2775651
E-mail: pskerala@lifecarehll.com

21. SETTLEMENT OF DISPUTES

Arbitration shall be the means of settlement of any dispute or claim arising out of the contract relating to the work. Any disputes or difference arising between the parties with respect to the performance of any part of this agreement or anything connected therewith, etc. shall as far as possible be mutually settled by the process of dialog and negotiation.

The Courts at Thiruvananthapuram alone shall have jurisdiction in respect of settlement of any matter arising out or in connection with the contract.

PART IV

SPECIFIC CONDITIONS OF CONTRACT (SCC)

SECTION 1 - GENERAL

1. Scope of Contract

The scope of work comprises of Construction of New Building for Construction Staff Barrack at Kothamangalam division, Kerala including water supply, sanitary & plumbing, Firefighting System, fire alarm system, HVAC system, Internal & External electrification, ELV systems, Lift/Elevator system, etc.

The scope of work also includes preparation of as-built drawings, all detailed shop drawings, obtaining approvals at different stages from local authorities, electrical inspectorate, state electricity board, water & sewer line connection, pollution control board, Fire department/ inspectorate, Lift License i/c NOC, permission for bore well, completion certificates, occupancy certificate and all other required statutory approvals/clearances from relevant Statutory authorities.

2. Drawings

2.1. Tender Drawings

The tender drawings are for Tender Purpose only and are intended as a guide to the Bidder/ Contractor and give general layout of buildings and general information of the structures and general positions of utilities, services and equipment only. Contractor's quoted rate for any item should not be based on any measurement, quantity, and specification from these drawings. Any claim raised by the contractor in this regard shall not be valid in this contract and shall not be accepted by the HLL.

2.2.Issue and custody of drawings & specifications

The contractor on signing of contract shall be furnished free of cost one copy of all drawings and all further drawings issued during the progress of the works. The contractor shall keep one copy of all drawings at the works site and the Engineer-incharge shall have, at all reasonable times, access to the same.

The drawings shall be provided to the Contractor as per the schedule (prepared at the start of the works and necessarily updated or revised from time to time) as mutually agreed by the Engineer-in-charge and the Contractor. Last major drawings may be provided as per the schedule prior to the stipulated date of completion and the Contractor, if found necessary shall increase his resources and effort so as to complete the works within stipulated time.

From time to time during the course of contract revised drawings may be issued to the Contractor and the Contractor shall ensure that all superseded drawings are removed from site and stored in a lockable cabinet as directed by the Engineer-in-charge and replaced by revised drawings.
The Contractor shall maintain complete up to date Register of drawings issued at site. All drawings shall be properly numbered and indexed for ready reference. Superseded drawings should be properly identified.

The contractor shall ensure that only the valid up to date drawings are used for setting out, construction and preparation of as built drawings etc.

2.3.Bar Bending Schedule

Contractor shall prepare bar bending schedules and shall get them approved from the Engineer-in-charge or his authorized representative.

2.4.Working drawings/ Shop drawings/ Design:

The drawings supplied by the Engineer-in-charge have been listed in the tender documents. These drawings are indicative for the purpose of detailing and requirement of the contract. The contractor shall take into consideration space allocated for equipments before ordering them to ensure that the equipment would fit in the space provided with necessary clearances required as per the relevant standard/ manufacturer's recommendations. In case of any difficulty it should be brought to the notice of the Engineer - in- Charge.

Detailing for shop drawings of services included in the scope of work of contractor will have to be done by the contractor based on the schematics and other details provided by the Engineer-in-charge or local authorities. The work will be executed by the contractor based on the approved shop drawings from the concerned authority and accordingly contractor will be responsible for obtaining all required final NOC/ clearance from concerned authorities. These drawings and details shall also contain details of construction, size, arrangement, operating clearances, performance characteristics and capacity of all items of equipments and also details of all related items of work by other discipline.

The contractor shall submit to the Engineer-in-charge for approval details of all proposed equipment, accessories, equipment characteristics and capacity details of all equipment, accessories and devices etc. as per the specifications and obtain approval of the Engineer-in-charge.

In case there is delay in any drawings and design viz shop drawings, or specialized works drawings etc. to be supplied by the contractor, Engineer-in- Charge may ask the Contractor to make necessary changes, as required. In case of failure on the part of the contractor to carry out the directions of the Engineer - in- Charge action may be taken to get the needful done at the risk and cost of the Contractor. All drawings shall be signed by Contractor or their authorized representative with name, seal and date before submission to Engineer-in-charge.

2.4.1. Engineer in charge shall issue the Good for Construction (GFC) Drawings to the contractor for Electrical & ELV services in the following pattern:

a) Floor layouts indicating position of light fixtures, power sockets (Raw & UPS), Power supply points for various mechanical equipment under HVAC & firefighting services, bio medical devices etc.

b) Floor layouts showing position of distribution boards for various services (lighting, power, UPS etc.), floor electrical panels for various services

c) DB schedules, Single line diagrams of electrical system.

d) External lighting plan indicating position of street light.

e) Lightning protection system layout

f) Floor layouts indicating position of Fire detection and alarm system, Public address system, CCTV system, Telephone System, Data System, Nurse call system and Patient calling system.

g) Riser/schematic diagrams of Fire detection and alarm system and Public address system.

2.4.2. The Contractor shall carry out and complete the said work in every respect in accordance with this Contract and with the directions of and to the satisfaction of the Engineer-in-charge. The Engineer-in-charge may in his absolute discretion and from time to time further issue drawings and/or written instructions, details, directions and explanations, which are hereafter collectively referred to as "Engineer-in-charge's Instructions" in regard to:

a. The variation or modification of the design, quality or quantity of items of works or the addition or omissions or substitution of any item.

b. Any discrepancy in the drawings or between the bill of quantities and/or drawings and/or specifications.

c. The removal from the site of any material brought thereon by the contractor and the substitution of any other material thereof.

d. The removal and/or re-execution of any works executed by the contractor.

e. The removal of any persons employed by the contractor on the site.

f. The opening up for inspection of any work covered up.

g. The amending and making good of any defects noticed during or after execution of the work.

The Contractor shall forthwith comply with and duly execute any work in compliance to above instructions provided always that verbal instructions, directions and explanations given to the contractor or his representative by the Engineer - in- Charge, shall, if involving a variation, be confirmed in writing by the Contractor within seven days, and if not dissented in writing within a further seven days by the Engineer - in-Charge, these shall be deemed to be Engineer - in- Charge's instructions within the scope of the contract.

2.5.Shop Drawings

2.5.1. The Contractor shall furnish for approval of the Engineer-in-charge three sets of detailed electrical & ELV (external & internal), HVAC, sanitary, plumbing, firefighting (external & internal), Lift, Pump room & Shop drawings of all equipment and materials required to complete the work as per specifications well in advance. These drawings shall contain details of construction, size, arrangement, operating clearances, performance characteristics, and capacity of all items of equipment, as

also the details of all related items of work of other trades. All shop drawings are to be made in accordance with latest fire safety norms and building codes.

2.5.2. All drawings necessary for assembly, erection, maintenance, repair and operation of the equipment shall be furnished and different parts shall be suitably numbered for identification and ordering of spare parts.

2.5.3. For any amendments proposed by Engineer-in-charge in the above drawings, the Contractor shall supply fresh sets of drawings with the amendments duly incorporated, along with the drawings on which corrections were indicated.

2.5.4. No material or equipment may be brought at Site until the Contractor has the approved Shop drawings for that particular material or equipment.

2.5.5. After approval of the drawings by the Engineer-in-charge, the Contractor shall further furnish six sets of Shop drawings for the exclusive use of and retention by the Engineer-in-charge.

2.5.6. Approval of drawings by the Engineer-in-charge shall not relieve the Contractor of any obligation to meet all the requirements of the Contract or of the correctness of his drawings. The Engineer-in-charge's approval of specific item shall not mean the approval of the assembly of which it is a component. The Contractor shall be responsible for and is to bear the cost for all alternations of the works due to discrepancies or omission in the drawings or other particulars supplied by him, whether such drawings have been approved by the Engineer-in-charge or not.

2.5.7. Where the work of the Contractor has to be installed in close proximity to, or will interfere with the work of other trades, the Contractor shall assist in working out the space conditions to make a satisfactory adjustment. If so directed by the Engineer-in-charge, the Contractor shall prepare composite working drawings and sections to a suitable scale not less than 1:50, clearly showing how his work is to be installed in relation to the work of other trades. If the Contractor installs his work before coordinating with other trades, and it is cause for any interference with the work of other trades, he shall make all the necessary changes without extra cost.

2.5.8. All shop drawings and detail drawings will be made as per requirements of local authorities and tender drawings incorporating all latest regulations and requirements. No separate drawings will be, issued for making shop drawings.

2.5.9. Contractor shall submit shop drawings of Electrical (Internal & External), HVAC, ELV services in the following manner:

a) Floor layouts (where furniture & false ceiling must be inserted) indicating light fixtures, switches, power layouts (Raw & UPS) etc. All items must be numbered and separate identification marks must be given for raw & UPS power services.

b) Distribution board schedule mentioning circuit number, wire size of circuit, quantity of items, room/location of circuit being fed, connected load of circuit, DB location, incoming cable size, total connected load details, incoming & outgoing circuit breaker details etc.

c) For lighting & small power, separate layouts shall be submitted.

d) Conduit layout shall be submitted separately for each services.

e) Mounting heights of all items must be clearly indicated in the layouts.

f) Cable route & size, cable tray route & dimensions etc. between DBs & panel boards shall be marked for each services in the layout.

g) Position of floor electrical panels shall be marked in the layouts.

h) Main single line diagram of electrical system shall be submitted. Main SLD shall provide arrangement of power intake, details of connected load, details of HT panel, transformers, DG set, Electrical panels, UPS, Cable size, etc.

i) Site plan of external electrical services showing location of Substation, DG set, FP/DP structure, HT cable route, street lights, LT cable route etc. shall be clearly marked in the layout. Trench dimensions, dimensions of equipment, clearance between equipment/wall etc.

j) Electrical Earthing protection system layout showing position of earth pits, earth conductor route.

k) Lightning protection system layout showing position of air terminal, horizontal conductor, down conductor, earth pit location etc.

l) Floor layouts indicating position of Fire alarm devices, telephone outlets and data outlets. Separate layouts shall be submitted for each services.

m) Floor layouts indicating position of HVAC equipment, ducting and piping routing with sizes/dimensions.

n) GA Drawings for Lifts/Elevator.

o) Riser diagrams of Fire alarm, telephone system, data system and nurse call system.

p) Coordination drawing shall be prepared by the contractor. All internal services above & below false ceiling must be inserted in the latest false ceiling layout. The layout shall clearly indicate all dimensional details of various equipment/services. Sectional details must be prepared where all services coincide at many places.

q) A coordination drawing shall be prepared for external services also by inserting electrical, HVAC, water supply, drainage, firefighting, landscaping, internal roads in the site plan. Sectional details must be prepared to provide dimensional details.

3. Disruption of Progress

3.1. The Contractor shall give 4 weeks, in advance, written notice to the Engineer-in-charge whenever planning or progress of the Works is likely to be delayed or disrupted due to non-issue of any drawing or order by the Engineer-in-charge. The notice shall give details of the drawings or order required explaining why and by when it is required and if any delay or disruption is likely to be suffered on that account.

3.2. If by reason of any failure or inability of the Engineer-in-charge to issue drawings/ order/ clarifications within 4 weeks of such notice by the Contractor and the contractor suffers delay, then the Engineer-in-charge, shall record the facts for any extension of time under respective clause of the agreement. Notwithstanding anything stated above, the Contractor shall not be eligible for any financial compensation arising due to any delay.

3.3. No compensation whatsoever shall be payable to the contractor for any damage by rains, lightening, wind, storm, floods, tornadoes, earthquakes, or any other natural calamities during execution of work and no claim on this account will be entertained for such damages.

4. Contractor's General Responsibilities

A) Execution of works:

The Contractor shall, subject to the provisions of the Contract, and with due care and diligence, execute and complete the Works & remedy any defects therein in accordance with the Contract. The Contractor shall provide all labour, including the supervision thereof, materials, Constructional Plant and Machineries and all other things, whether of a temporary or permanent nature, required in and for such execution, completion, maintenance and remedying of any defects, so far as the necessity for providing the same is specified in or is reasonably to be inferred from the Contract.

If the contractor finds any discrepancy in the drawings or between the drawings, bill of quantities and specifications, he shall immediately and in writing refer the same to the Engineer - in- Charge for clarifications who shall decide the matter.

The successful contractor is bound to carry out any items of work necessary for the completion of the job even though such items are not included in the bill of quantities and rates instructions in respect of such additional items and their quantities will be decided as per the provision of the contract and issued in writing by the Engineer-in-charge.

The Contractor must bear in mind that all the work shall be carried out strictly in accordance with the specifications as given in these documents and also in compliance of the requirements of the local public authorities and to the requirements/ satisfaction/ direction of the Engineer-in-charge and no deviation of any account will be permitted.

The contractor shall have to use materials from the makes / manufacturers specified in the list of materials of approved brand and/or manufacture contained in the contract documents and as approved by the Engineer - in- Charge. Wherever different pattern/ Design/ Quality of materials with same specification/ make as specified in the contract, is available in the market, Engineer-in-Charge will approve the pattern/ Design/ Quality of the material/ item which shall be final and binding on the contractor. The contractor shall supply samples of all the materials/ fittings/ fixtures proposed to be used in the work and obtain approval of the Engineer - in- Charge. These samples shall be retained at site till completion of the work. If subsequently it is found that approved material upon testing does not meet the requirement as specified in the contract the contractor shall get approval of alternate material.

B) Samples & Approval of Materials

i. The Engineer-in-charge will not supply any materials required for execution of the Works under this Contract. The Contractor must, therefore, make his own

arrangements for timely procurement of various materials including steel and cement.

ii. Prior to ordering any equipment/ material/ system, the Contractor shall submit to the Engineer-in-charge the catalogues, along with samples from approved list of manufacturers. No material shall be procured without written approval of the Engineer-in-charge.

iii. Prior approval of each and every material including steel cement, aggregate, bricks etc or any other fittings & fixtures shall be taken by the contractor from the Engineer-in-charge. Samples for all the materials to be used in the work shall be got approved from Engineer-in-charge before their bulk procurement. Samples approved shall be kept in the sample room till the completion of the work.

iv. All materials used on the Works shall be new and of the approved quality and make available, conforming to the relevant specifications of the contract. Prior approval shall be obtained in writing from the Engineer-in-charge for all materials proposed and when necessary, approved samples duly identified and labeled shall be deposited with the Engineer-in-charge and shall be kept in the sample room at Site. List of approved make indicates make/ manufacturer generally acceptability. Final choice of make/ manufacturer of material & models shall be with the Engineer-in-charge.

C) Material and Equipment

i. All material and equipment shall conform to the relevant Indian Standards and bear IS marking where ever applicable.

ii. Where interfacing is involved, both Equipments shall be mutually compatible in all respects.

iii. Where an item of equipment, other than as specified or detailed on the drawings, is approved by Engineer-in-charge, requires any re-design of the structure, partitions, foundation, piping, writing or any other part of the mechanical, electrical or architectural layout, all such re-design, and all new drawings and detailing required therefore, shall be prepared by the Contractor at his own expense and approval obtained from the Engineer-in-charge.

iv. All similar equipment, materials, removable parts of similar equipment etc. shall be inter-changeable with one another.

D) Approved makes for materials and vendor list

The contractor shall procure materials amongst the vendors as mentioned in the approved make lists enclosed with Volume IV. In case a material is not available from any of the vendors in the enclosed vendor lists, the contractor may intimate and submit details of source from where the contractor wishes to procure the material, along with complete details and the particular material shall be got approved from the Engineer - in- Charge before procurement.

E) Safety in Construction

The contractor shall employ only such methods of construction, tools and plant as are appropriate for the type of work or as approved by Engineer-in-Charge in writing.
The contractor shall take all precautions and measures to ensure safety of works and workmen and shall be fully responsible for the same. Safety pertaining to construction works such as excavation, centering and shuttering, trenching, blasting, demolition, electric connections, scaffolds, ladders, working platforms, gangway, mixing of bituminous materials, electric and gas welding, use of hoisting and construction machinery shall be governed by the Safety code, relevant safety codes and the direction of Engineer-in-Charge

F) Adequacy, stability and safety:

The Contractor shall be fully responsible for the adequacy, stability and safety of all site operations and methods of construction, the contractor shall ensure that all safety norms are followed as per contractual and other statutory requirements.

G) Temporary works and arrangements:

The Contractor shall furnish to the Engineer-in-charge full particulars i.e. site location and area required including drawings, etc. of all temporary works necessary for the execution of the works and shall give adequate time to the Engineer - in- Charge for his approval. The Contractor shall be solely responsible for the stability and structural safety of all temporary works including obtaining statutory approvals and payment of statutory fees, if any. Should it be necessary to shift the temporary works to some other place during the execution of the works, the Contractor shall do so, at his own cost.

H) Initial and Final Clearance of site for temporary works:

The Contractor shall be responsible for the clearance of the site of all scrub, debris, rubbish, etc. to be removed off site to a location to be provided by the contractor and approved by the Engineer- in-charge. However, no trees shall be removed without the prior permission of the Engineer-in-charge. The structures, services and works required to be demolished and removed shall also be removed off site to a location as mentioned above. The Contractor shall obtain necessary permissions and approvals from the local authorities for such disposals. The demolition shall include digging, excavating and removal of substructures, foundations and buried works. The cost of all this shall be included in the rates quoted by the Contractor.
The above is applicable for all site offices, labour camps, and godowns etc., which are not required after the work is completed.

I) Storage, Cleaning and Dewatering

The Contractor shall at all the times during construction keep the Site clean and free from all debris and unwanted materials on a daily basis as per instructions of the Engineer-in-charge.

Storage of materials shall be in an organized manner and in proper compartments as directed by the Engineer - in- Charge. Storage on suspended floors shall not be permitted unless specifically approved in writing by the Engineer-in-charge for

specific materials in specific locations and in approved manner. The Engineer-in-charge shall be furnished with load details, if requested, before seeking approval for storage.

Regular cleaning operations shall be undertaken to remove all dust, debris, waste materials etc. A cleaning schedule shall be maintained.

The Contractor shall make his own arrangement for storage of those materials, which can be accommodated at site. Contractor shall be fully responsible for safe custody of the same. Materials shall be considered as "Delivered at Site" only after the physical presence of materials at site are verified by the Engineer-in-charge. Storage of materials / equipment elsewhere shall not be considered as "Delivered at Site."

The Contractor shall be responsible to keep entire site free from water due to water coming from any source at any level and shall protect all materials and works from being damaged by the water from any source. Contractor shall make proper arrangements for drainage prior to use of water for curing, testing, cleaning etc.

Any expenditure incurred by the Contractor in fulfillment of his obligations under this sub-clause shall be deemed to have been included in the financial bid and subsequent contract.

5. Watch & Ward and Lighting

The Contractor shall throughout the execution and completion of the Works and the remedying of the site and the Works and the remedying of any defects therein have full regard for the safety of all persons entitled to be on the site and keep the site and the Works in an orderly state to avoid any accident or danger and provide safety measures, lights, guards, fencing and barricades where ever necessary or required by the Engineer-incharge, or by any duly constituted authority, for the execution and for the protection of the Work, and/or for the safety and convenience of the public or others and take all reasonable steps to protect the environment on and off the site and to avoid damage or nuisance to person or property of the public or others resulting from pollution, noise and other causes etc. at his own cost.

6. Care of Works

From the commencement to the certified completion of the whole of works, the contractor shall be responsible for the care, safety and maintenance of the works executed under the contract thereof and of all temporary works. In case of any damage/ loss or injury shall happen to the works or to any part thereof or to any temporary works from any cause whatsoever save and except the expected risks, the contractor shall at his own cost repair and make good the same, so that on completion the works shall be in good order and condition in conformity to every respect with the requirements of the contract. The contractor shall also be liable for any damage to the works occasioned by him including his subcontractors in the course of any operations carried out by him for the purpose of completing any outstanding work and complying with his obligations under the Contract. In case of failure on the part of the contractor the damage/ loss/ injury shall be made good by the HLL at the risk and cost of the contractor.

7. Force Majeure:

a. Neither the Contractor nor the Purchaser/Owner shall be considered in default in the performance of their obligations as per the Contract so long as such performance is prevented or delayed because of strikes, war, hostilities, revolution, civil commotion, epidemics, accidents, fire, cyclone, flood or because of any law and order proclamation, regulation or ordinance of Government or subdivision thereof or because of any act of God. The proof of existence of force majeure shall be provided by the party claiming it to the satisfaction of the other.

b. The Contractor shall advise Purchaser/Owner initially by a Fax, followed by post, the beginning and end of any of the above causes of delay, failing which Purchaser/Owner shall not be liable to consider delays due to the above reasons. Notice as stated above should be given even in case where only the Contractor's bids are under the consideration of the Purchaser/Owner and no acceptance of the same has been given and detailed order issued.

c. In the event of definite delay even if arising out of reasons due to force majeure, Purchaser/Owner shall have the right at their discretion to cancel the Order or part of the Order without any liability on their part to make any payment to the Contractor while reserving the right to claim refund of and any payment if advanced or paid to Contractor.

8. Contractor's Superintendence

A. The contractor shall be solely responsible for the means, methods, techniques sequence and procedure of construction. The Contractor shall be responsible to see the completed work complies accurately with the Contract requirements. The Contractor shall provide all necessary superintendence during the execution of the Works as per contractual provisions.

B. Contractor's Representative for Execution & Coordination of Works

The Contractor shall ensure his presence at site all times during working hours throughout the course of the Contract or depute a Competent representative who shall be empowered to receive instructions from the Engineer - in- Charge in respect of all matters likely to arise in connection with the execution & coordination of the works at the site. Contractor's Authorized Representative shall take joint measurements and sign the measurement books / bills. Any direction, explanations, instructions or notices given by the Engineer-in-charge to such representative shall be held to be given to the Contractor. In case of absence of said Representative other alternative representative should also be mentioned having same responsibilities.

The contractor should submit curriculum vitae (CV) of the key personnel proposed to be deployed at site as per Schedule "F" of GCC for supervision and execution of work. The contractor under normal circumstances would not be allowed to replace the key personnel during the execution of the contract. However, for any reasons, due to unavoidable circumstances if it becomes necessary in the interest of the project to replace any one / all the above key personnel the contractor must submit the CV of the new personnel (having qualifications and experience as per requirement of the contract) to Engineer-in-Charge for their approval.

A list of all technical and key personal staffs must be submitted to the Engineerein-Charge with their area of work/ responsibility with verified signature and the link persons to receive the instructions at site (in case the main person was not found at site) during the inspection by representative of Engineer-in-charge. Any staff of contractor found incapable/unsuitable to execute the assigned work shall be replaced by the Contractor if desired by the Engineer-in-Charge.

C. Contractor's Employees

The Contractor shall employ competent Engineering staff/ technical assistants/ technicians who are qualified, skilled and experienced in their respective trades, to ensure proper supervision, quality & output of the work they are required to supervise. No child labour shall be employed on the work. All the skilled semi-skilled and unskilled labour shall work under the sole guidance of the contractor/his representative.

D. Removal of Contractor's Employees

The Contractor shall on the direction of the Engineer-in-Charge immediately remove from the work any person employed thereon by him who may, in the opinion of the Engineer-in-Charge has misconducted himself and such person shall not be again employed on the works without the permission of the Engineer-in- charge.

E. Unauthorized Persons

No unauthorized persons shall be allowed on the site. The contractor shall provide complete security arrangement for the campus during construction to avoid trespassing. The Contractor shall ensure all such persons are kept out and shall take steps to prevent trespassing. However, the contractor will make sure to provide free access at any time for Engineer-in-charge to the site and other working places.

F. Compliance with Statutes, Regulations, Etc.

The contractor shall conform to the provisions of all statutes, ordinance, laws, acts of the legislature relating to the works, and to the regulations and by-laws of any local or other duly constituted authority and of any water, electric supply and other companies and/or authorities with whose systems the structure is proposed to be connected. The Contractor shall keep the HLL indemnified against all fines or penalties or liability of every kind for breach of any such statutory ordinance, law act of the legislation, regulations, and byelaws as aforesaid.

The contractor shall before making any variations from the drawings or specifications that may be necessitated by such regulations, give to the Engineer- in-charge written notice, specifying the variation proposed to be made and the reasons for making it and apply for instructions thereon. The contractor will not execute any work without written permission from the Engineer-in- charge

The contractor shall bring to the attention of the Engineer-in-charge any specific requirement of the local authorities or any notice required for execution by virtue of such acts, regulations or bye-laws of such authority, or public office. All fees that may be

chargeable in respect of these works shall be reimbursed by the HLL on production of authorized receipts.

9. Setting out

The contractor shall be responsible for the true and proper setting-out of the Works in relation to original points, lines and levels or reference issued by Engineer-in-charge in drawing or in writing and for the correctness, subject as above mentioned, of the position, levels, dimensions and alignment of all parts of works and for the provision of all necessary instruments, appliances and labour in connection therewith. If, at any time during the progress of the works, and during defects liability period, any error shall appear or arise in the position, levels, dimensions or alignment of any part of the Works, the Contractor, on being required to do by the Engineer-in-charge and/ or his authorized representative shall at his own cost, rectify such error to the satisfaction of the Engineer-in-charge. The checking of any setting out or of any line or level by the Engineer-in-charge not in any way relieve the Contractor of his responsibility for the correctness thereof. The Contractor shall carefully protect and preserve the benchmarks; sight-rails, pegs and other things used in setting-out the Works. Any rectification works required should be done by the Contractor at his own cost.

10. Quality of Materials, Workmanship and Test

d. All the materials used in the work shall be subjected to the mandatory tests as prescribed in the specifications detailed in Schedule F of the General Conditions of Contract and other specifications referred to in the contract and workmanship shall be the best of the respective kinds described in the Contract and in accordance with the Engineer-in-charge's instructions and shall be subjected from time to time to such tests as the Engineer-in-charge may direct at the place of manufacture or fabrication or on the Site or at an approved testing laboratory. The source of supply and/ or manufacturing within/ outside India may be inspected by the Engineer-in-charge or any representative as nominated by the HLL. The expenditure on this account is deemed to be included in the rate quoted.

The contractor shall upon the instruction of the Engineer-in-charge's representative furnish him with documentation to prove that the materials & goods comply with the requirements of contract and for requirement stated above. The Engineer-in-charge may issue instruction in regard to removal of material from site or any work, if these are not in accordance with the contract. The contractor shall provide such assistance, instruments, machinery, labour and materials as are required for examining, measuring, sampling, testing of material or part of work.

The Engineer-in-charge may carry out Third Party Quality Assurance /Audit by an independent agency/ individual/firm/institute at any time. The agency will be permitted and offered all support related to site inspection by the Contractor. Observations/ discrepancies noticed by third party quality assurance/audit shall be attended by the contractor at his own cost.

In addition to the above, technical inspection team of Client may conduct site inspection during the progress of work. The observations/modifications/repairs instructed by Client shall be done by the contractor at his own cost.

e. Samples

a) All samples of materials and/or items of works in adequate numbers, sizes, shades & pattern as per specifications shall be supplied free of charge by the contractor without any extra charge. All other expenditure required to be incurred like conveyance for taking the samples for testing at the laboratory, packing, etc, shall be borne by the contractor. If the test results do not conform to the specifications and standards laid down, the materials shall be rejected, the contractor shall remove such materials from site. The laboratory for testing of samples shall be decided by the Engineer – in charge, whose decision shall be final and binding. ii) Contractor shall submit Samples to the Engineer-in-charge for approval. If certain items proposed to be used are of such nature that samples cannot be presented or prepared at the site, detailed literature/ test certificate of the same shall be provided to the satisfaction of the Engineer-in-charge. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalogue numbers and the use for which intended and otherwise as the Engineer-in-charge may require to review the submittals for the limited purposes required by paragraph (d) below. The numbers of each sample to be submitted will be as specified in the Specifications, or as shall be specified by the Engineer-in-charge.

b) Submittal Procedures

ii. Before submitting each Sample, Contractor shall have determined and verified all materials with respect to intended use, fabrication, shipping, handling, storage, assembling and installation pertaining to the performance of the Work and All information relative to Contractor's sole responsibilities in respect of means, methods, techniques, sequences and procedures of construction and safety precautions and programmes incident thereto.

iii. Each submittal will bear a specific written indication that Contactor has satisfied Contractor's obligation under the Contract Documents with respect to Contractor's review and approval of that submittal.

iv. At the time of each submission, contractor shall give the Engineer-in-charge specific written notice of such variations, if any; that the sample submitted may have from the requirements of the contract document. Such notice shall be separate from the submittal and in addition shall cause a specific notation to be made on each sample submitted for review and approval of each such variation

c) Review and Approval:

a) Sample shall be reviewed and approved only to determine if the items covered by the submittals will, after installation or incorporation in the work, conform to the information given in the contract documents and be compatible with the design concept of the completed project functioning as a whole as indicated by the contract documents, drawings.

b) Review and approval will not extend to means, methods, techniques, sequences or procedures of construction. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. Contractor shall make corrections required by Engineer-incharge and shall submit as required

new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for and by the Engineer-in-charge on previous submittals.

c) Above referred review and approval of Samples shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Document unless Contractor has in writing called the Engineer-in-charge attention to each such variation at the time of submission as specified above and received written approval of each such variation by specific written notation thereof incorporated in or accompanying the Sample approval; nor will any approval by Engineer-in-charge relieve Contractor from responsibility for complying with the requirements of contract.

d) Only when the samples are approved in writing by the Engineer-in-charge, the contractor shall proceed with the procurement and installation of the particular material/ equipment. The approved samples shall be signed by the Engineer-in-charge for identification and shall be kept on record at site office until the completion and acceptance of the work and shall be available at the site for inspection / comparison at any time. The contractor shall keep with him a duplicate of such samples to enable him to process the matter.

e) For items of works where the samples are to be made at the site, the same procedure shall be followed. All such samples shall be prepared at a place where it can be left undisturbed until the completion of the project.

f) The Engineer-in-charge shall communicate his comments/ approval to the Contractor to the samples at his earliest convenience. Any delay that might occur in approving of the samples for reasons of its not meeting with the specifications or other discrepancies, inadequacy in furnishing samples of appropriate quality from various manufacturers and such other aspects causing delay on the approval of the materials/ equipment's etc., shall be ascribable to the account of the contractor. In this respect the decision of the Engineer-in-charge shall be the final.

d) On delivery of the supplies of materials/ Equipments for permanent works at the site, the contractor shall specifically arrange to get the supply inspected by the Engineer-in-charge and compared with the approved sample and his specific approval obtained before using the same in the work.

e) Cost of Tests

The cost of making any test shall be borne by the Contractor as intended by or provided for the Contract or as found necessary by the Engineer-in- charge for ascertaining whether the quality of materials intended to be used by the Contractor in the Works is acceptable, whether any finished or partially finished work is appropriate for the purposes for which it was intended to fulfill.

f) Testing facilities

The Contractor shall, at his own cost, provide testing facilities as per CPWD specifications and IS Codes at site as stipulated in the General conditions of the contract (GCC) or as directed by the Engineer-in-charge including staff required for testing. The tests shall be carried out jointly in the presence of Engineer-in-charge or his representative and the contractor or his representative.

The contractor shall also provide suitable weighing and measuring arrangement and testing instruments and machines for testing of materials and cubes at site as per details given in GCC.

The contractor shall carryout all the mandatory tests and shall maintain records of testing & checks of material, in formats, checklists etc. to be given by Engineer-in-charge. All such records shall be maintained jointly by the contractor and Engineer-in-charge these shall remain under the custody of the Engineer-in-charge.

The laboratory shall be connected to the main potable water, electricity and other Services. Some of the mandatory tests for each item of work and /or materials shall be carried out in approved outside laboratory as directed by the Engineer-in charge. The Contractor shall bear the entire cost of testing charges for samples of items of work and /or materials and also the other expenditure towards making samples, packaging, and transport etc.
The materials brought at site of work shall not be used in the work before getting satisfactory test result as per relevant mandatory tests, detailed in the relevant CPWD specifications and BIS codes.

11. Absence of Specifications

If the nomenclature of any item does not contain particulars of materials and works which are necessary for its proper execution, all such materials shall be supplied and item shall be executed by the Contractor without extra charge over the quoted rates and If the Contractor requires any information, he shall request in writing well in advance to commencement of the particular work to the Engineer-in-charge who will clarify the issue within a reasonable time.

12. Obtaining Informations related to Execution of work

No claim by the Contractor for additional payment will be entertained which in consequent upon failure on his part to obtain correct information as to any matter affecting the execution of the works, nor will any misunderstandings or the obtaining of incorrect information or the failure to obtain information relieve him from any risks or from the entire responsibility for the fulfillment of the contract.

13. Access for Inspection

Persons nominated by Engineer-in-charge shall at all reasonable times have free access to work and/ or to the workshops, factories or other places where materials are lying or from which they are being obtained and the Contractor shall extend necessary service to Engineer-in-charge and their representatives every facility necessary for checking measurements, inspection and examination and test of the materials and workmanship.

14. Examination of Work before covering up

a) No part of the works shall be covered up or put out of view without the written approval of the Engineer-in-charge and the contractor shall give due notice to the Engineer-in-charge whenever any such work or foundation is or ready or about to be ready for examination and the Engineer-in-charge shall, examine and measure any work before it

is covered up or put out of view and to examine foundations before further work is placed thereon.

b) Uncovering and making openings

The contractor shall uncover any part or parts of the works or make openings in or through the same as the Engineer-in-charge may direct from time to time and shall reinstate and make good such part or parts to the satisfaction of the Engineer-incharge at his own cost.

15. Assignment

The contractor shall not, without the prior consent of the Engineer-in-charge assign the Contract or any part thereof, or any benefit or interest therein or there under, otherwise than by:

a) A change in favour of the Contractor's bankers of any money due or to become due under the Contract, or

b) Assignment to the Contractor's insurers (in case where the insurers have discharged the Contractor's loss or liability) of the Contractor's right to obtain relief against any other party liable.

The Contractor shall not sub-contract the whole of the Works. Also, the Contractor shall not subcontract any part of the works without the prior consent of the Engineer-in-charge, except where otherwise provided under the Contract. Any such consent shall not relieve the Contractor from any liability or obligation under the Contract and he shall be fully responsible for the quality of the work executed and acts, omission and commission, defaults and neglects of any Subcontractor, his agents, servants or workmen as if these were the acts, defaults or neglects of the Contractor, his agents, servants or workmen. Such Permission may be granted only for the specialized work etc and the decision of Engineer-in-charge shall be final.

16. Claims

The contractor shall submit to the Engineer-in-charge monthly statement giving full details of claims for any additional payments for extra or additional / substituted work ordered by the Engineer-in-charge which he has executed during the preceding month, to which the contractor may consider himself entitled supported with analysis of rates being claimed failing which the contractor shall be deemed to have waived his right. The Engineer-incharge may authorize consideration of such claims on merits on production of sought out documents/ vouchers etc.

17. Secured Advance

i. Secured advance on materials, which are admissible as per Clause 10 (B) (i) of the General Conditions of Contract and brought to site for use in the work, shall be paid only after the Engineer in charge has personally verified that the material brought at site of work for use in the work conforms to the specifications/sample approved by him.

ii. Secured advance shall be recovered according to consumption of material in the work. Contractor shall have to sign an Indenture Bond (on a non-judicial stamp paper of appropriate value) as per proforma provided in GCC before release of the advance.

iii. The materials shall virtually stand Hypothecated to HLL but contractor shall be fully responsible for watch & ward/ security of materials for which Secured Advance has been paid by HLL.

iv. Any infringement and / or breach of the above specifications and conditions etc, shall render the contractor liable to action under various clauses of the contract and such action as stipulated in the conditions therein.

v.

(a) Inspection & Testing during manufacture

The Engineer-in-charge shall be entitled to inspect, examine and test during manufacture the materials and workmanship and check the progress of manufacture of all fabrication materials to be supplied under the contract on the contractor's premises during working hours, and if part of the said materials is being manufactured on other premises, the contractor shall obtain for the Engineer-in-charge permission to inspect the same at such premises. This inspection, examination or testing shall not relieve the contractor from any obligation under the contract.

(b) Dates for Inspection & Testing

(c) The dates of Inspection & Testing, after receipt of written request by the Contractor, shall be mutually agreed by the Engineer-in-charge and the contractor.

(d) Facilities for Testing at Manufacturer's Works

Where the contract provides for tests on the premises of the contractor or of any subcontractor the contractor shall provide such assistance, labour, materials, electricity, fuel, stores, apparatus and instruments as may be required and as may be reasonably demanded to carry out such tests.

vi. Rejection

If as a result of such inspection, examination or test of the works (other than a Test on Completion the Engineer-in-charge shall decide that such material is defective or not in accordance with the contract he shall notify the contractor accordingly stating in writing his observations and reasons thereof. The contractor shall with due diligence make good the defect and ensures that the material complies with the Contract. Thereafter, if required by the Engineer-in-charge, the tests shall be repeated under the same terms and conditions till satisfactory results are made available.

vii. Delivery of Materials and Equipment

The contractor shall be responsible for all materials and equipment brought at site for the purposes of the contract. Unless the Engineer-in-charge directs, no material shall be brought to the site which is not required for execution of the work.

viii. Inspection & Testing and Re-inspection

All deficiencies revealed by testing and inspection shall be rectified by the contractor at his own expense and to the satisfaction and approval of the Engineer-in-charge. Rectified components shall be subject to re-testing till desired results are obtained.

ix. Inspection Reports

The contractor shall provide the Engineer - in- Charge with five copies of reports of all inspection and tests.

18. Physical and Virtual Completion of Work

When the whole of the Work is physically and virtually complete and has satisfactorily passed required tests that may be prescribed under the Contract:-

a) The contractor shall give a written notice to this effect within 10 days of completion along with an undertaking to rectify any defects that may be found during inspection. The Engineer - in- Charge shall jointly inspect the work with the contractor within 30 days of receipt of such notice.

b) The Engineer-in-charge shall inspect the works completed to see if they are in such a condition so as to be put to its proper or other intended final use and / or occupied without any short comings and no major or minor items of works are remaining which in the opinion of the Engineer-in-charge will cause undue difficulties in satisfactory use/ occupation of the works.

19. Provisional Acceptance and Certificate of completion

19.1. Provisional Acceptance and Issue of Certificate of Physical Completion of work

The work shall be deemed to have been physically completed and provisionally accepted after fulfillment of all the following by the Contractor.

i. Physical completion of all works and obtaining all required approvals from the statutory authorities as required for occupation and use of the works and handing over such certificates to the Engineer-in-charge

ii. Submitting As-Built Drawings, Catalogues, Brochures, and Data Sheets, manuals in the form as directed by Engineer in Charge

iii. Issue of Certificate of Physical Completion by the Engineer-in- charge as specified in clause 8 of GCC.

19.2. Certificate of Final Completion

The contract shall not be considered as completed until a Certificate of Final Completion has been issued by the Engineer-in-charge stating that the Works have been completed to his satisfaction and / rectifying of defects have been satisfactorily completed.

The composite work shall be treated as complete when all the components of the work are complete. The Certificate for Final Completion of the Composite work shall be recorded by the Engineer-in-charge after obtaining/ recording of completion certificate of all the components.

The Engineer-in-charge shall give the Certificate for Final Completion ON FULFILMENT OF FOLLOWING:

- Contractor has rectified all defects noticed by the Engineer –in –charge and as specified in the Provisional completion certificate.

- Contractor shall have removed from the premises on which the work is executed all scaffolding, surplus materials, rubbish and all huts and sanitary arrangements required for his/their work people on the site in connection with the execution of the works
- Cleaned off the dirt from all wood work, doors, windows, walls, floor or other parts of the building, in, upon, or about which the work is executed or of which he may have had possession for the purpose of the execution.

Provided always that the issue of the Certificate of Final Completion shall be a condition precedent to payment or return to the Contractor the security deposit and/ or Performance security in accordance with the conditions set out in the contract.

19.3. The contractor shall give performance test of the entire work as per standards specifications before the work is finally accepted and nothing extra whatsoever shall be payable to the contractor for the tests.

19.4. The contractor shall maintain in perfect condition all works executed till the completion of the entire work allotted to him. Where phased handing over of completed portion of the work is required by the Engineer – in – charge, the provisions mentioned for completion of entire work will apply to each phase.

20. Defect after completion

a) General

Any defect, shrinkage, settlement or other faults that may appear within the "Defects Liability Period" which in the opinion of the Engineer-in- charge are due to materials or workmanship not in accordance with the contract, shall be rectified as per the directions in writing of the Engineer-in- charge to the Authorized representative of the contractor within such reasonable time as shall be specified therein by the contractor, at his own cost. In case of default, the Engineer-in-charge may employ any person's to amend and make good such defects, shrinkage, settlements or other faults and all expenses consequent thereon or incidental thereto shall be borne by the contractor. Such damages, losses and expenses shall be recoverable from the bills due or may be deducted from any money due to or that may become due to the contractor. If no amount is available to the credit of contractor, the Engineer-in charge may recover the amount from the dues of the contractor from any other contract made by the Contractor with the Engineer-in-charge with any government/ department.

b) Execution of work of repair etc.

Any defects, shrinkage, settlement or other faults which may appear or be noticed within the defect liability period, and arising in the opinion of the Engineer-in-charge from materials or workmanship not having in accordance with the contract, shall upon the direction in writing of the Engineer-in-charge's representative and within such reasonable time as shall be specified therein and without any delay, be amended and made good or replaced by the contractor at his own cost.

c) Cost of Execution of Work of Repair, Etc.

All such works shall be carried out by the Contractor at his own expense if the necessity thereof shall, in the opinion of the Engineer-in- charge, be due to the use of materials or workmanship not in accordance with the Contract, or due to neglect or failure on the part of the Contractor to comply with any obligation, expressed or implied, on the Contractor's part under the Contract.

d) Contractor's personnel to be at site

During the defects liability period the contractor shall depute at least one of his authorized representative at site along with required tradesmen to attend the defects to the satisfaction of Engineer-in-charge.

21. Works by Other Agencies

The Engineer-in-charge reserves the right to use premises and any portion of the site for the execution of any work not included in this contract which it may desire to have carried out by other persons simultaneously, and the contractor shall allow the reasonable facilities for the execution of such work, but shall not be required to provide any plant or material for the execution of such work except by special arrangement with the other agency. Such work shall be carried out in a manner so as not to impede the progress of the works included in the contract, the contractor shall not be responsible for any damage or delay which may happen to or occasioned by such work.

The contractor shall co-operate with other agencies working in the same project, and coordinate his plans and time schedules so that there will be no interference. The Contractor shall forward to the Engineer-in-charge all correspondences and drawings exchanged. Failure to check plans for conditions will render the Contractor responsible forbearing the cost of any subsequent changes found necessary or damages done.

The Engineer-in-charge shall not entertain any claim on account of the Contractor affording necessary facilities to execute the work simultaneously with other agencies executing the works for the same project.

22. Dues not paid by the Contractor

The contractor shall pay all dues or fees to Statutory authorities and Electric and Water supply authorities etc. within due period and indemnify the HLL and the Engineer-incharge from any claims or compensations or penalties or damages arising out of nonpayment of any such dues or fees. However, in case some dues or fees are not paid by contractor and or claims for compensations or penalties etc. are raised by the Statutory authorities, the HLL may deposit the required amount or any or all of the above and recover or deduct the same from any money payable to the contractor by the HLL or any other means available to the HLL such as bank guarantee.

23. Urgent Repairs

If, by reason of any accident, or failure, or other event occurring to or in connection with the works, or any part thereof, either during the execution of the works, or during period of Defects Liability any remedial or other work or repair, shall, in the opinion of the Engineer-

in-charge be urgently necessary for the safety of the Works and the Contractor is unable or unwilling to do such work or repair despite notice, the Engineer-in-charge may employ and pay other persons to carry out such work or repair as the case may be and may consider necessary. If the work or repair so done by the other agency is the work which, in the opinion of the Engineer-in-charge the Contractor was liable to do at his own expense under the Contract, all expenses incurred by Other agency in so doing shall be recoverable from the Contractor by the Engineer-in-charge, or shall be deducted by the Engineer-in- charge from any monies due or which may become due to Contractor.

24. Boreholes & Exploratory Excavation

If, at any time during the execution of the Works, the Engineer-in-charge shall require the Contractor to make boreholes or to carry out exploratory excavation, such requirement shall be ordered in writing and shall be deemed to be an additional ordered under the provisions unless a provisional sum in respect of such anticipated work shall have been included in the schedule of items.

24.1. Fossils, Etc.

All fossils, coins, articles of value or antiquity and structures and other remains or things of geological or archaeological interest discovered on the site of the works shall be the property of the Government.

25. Plant Temporary Works & Materials

a) Plant, etc. Exclusive use for the Works

All Constructional Plant, Temporary Works and materials provided by the Contractor shall, when brought on to the Site, be deemed to be exclusively intended for the execution of the Works and the Contractor shall not remove the same or any part thereof except for the purpose of moving it from one part of the Site to another, without the consent, in writing of the Engineer-in-charge, which shall not be unreasonably withheld.

b) Removal of Plant etc.

Upon completion of the Works, the Contractor shall remove from the Site all the said Constructional Plant and Temporary Works remaining thereon and any unused materials provided by the Contractor, within 10 days of obtaining the completion certificate/ Virtual completion of the work.

26. Reports by Contractor

a) The Contractor shall submit detailed programme schedule in the MS project as instructed by the Engineer in charge, indicating the duration of each item of the work, for the complete work within 15 days of award of work or as per Clause 5 of the GCC, whichever is earlier, for approval by the Engineer - in- Charge. On the basis of approved programme schedule contractor shall submit Progress Charts by the 5th day of every month. Soft copy of programme schedule shall be supplied whenever demanded by the Engineer-in-charge. It shall be noted that the payment for the work will be released based on the target date as per the programme chart.

b) In case progress as scheduled in the construction programme is not achieved on the target date for stage payment due to occurrence of deviation in items or delay in execution, the programme schedule may be revised in advance as instructed by Engineer in charge and as per clause 5 of GCC. The revision in programme schedule shall be intimated to HLL prior to the target date. The payment to the contractor is based on the milestones finalized in MS project.

c) The Contractor shall submit Monthly Progress Report in triplicate in format approved by Engineer-in-charge. Failure to submit reports may result in holding up or delay in Payment of bills.

d) Monthly Progress Photographs:- The Contractor shall arrange at his own cost to maintain a progress record of the works by taking postcard size colour photographs (preferably digitized photographs) 6 Nos. or more per month per block as directed by the Engineer-in-charge during the construction stages and after completion shall supply three sets at no extra cost. The Contractor will be required to submit monthly reports on the progress of his work as per the format approved by the Engineer-in-charge.

e) The Contractor shall prepare Weekly Reports of planned and actual progress of work and subsequent week's scheduled work. These will also include material procurement status. These reports shall be submitted to the Engineer-in-charge & shall be reviewed in Weekly Co-ordination Meetings.

f) The Contractor shall file daily category-wise labour report to the Engineer-in- charge. The report shall indicate scheduled requirement against actual strength.

g) The contractor shall maintain daily weather record. Daily maximum and minimum temperature and corresponding, humidity shall be recorded and charted. Rainy days shall be recorded when the rain lasting more than one hour hampers the work. Any other inclemency in weather shall be recorded. The records shall be regularly shown to the Engineer-in-charge and his signature obtained.

h) Every care has been made to include all the aspects/ terms and condition in these documents. However, during execution, if any issue arises, which has not been included in these documents then standard norms /rules & regulations/terms & conditions as prevalent in CPWD shall be followed which shall be binding on both the parties.

j) Audit and Technical Examination

The HLL/ Engineer-In-Charge/ Client shall have the right to cause Audit and Technical Examination of the works and the final bills of the contractor including all supporting vouchers, abstracts, etc. to be made as per payments of the final bill and if as a result of such Audit and Technical Examination the sum is found to have been overpaid in respect of any work done by the contractor under the contract and found not to have been executed, the contractor shall be liable to refund the amount of over payment and it shall be lawful for the Engineer-in-charge to recover the same from the Security Deposit or Performance Security of the contractor or from any dues payable to the contractor. If it is found that the contractor was paid less than what was due to him under the contractor in respect of any work executed by him under it, the amount of such under payment shall be duly paid.

In the case of any audit examination and recovery consequent on the same the contractor shall be given an opportunity to explain his case and the decision of the

Engineer-in-charge shall be final. Payment on this account will be recovered from the contractor.

In the case of Technical Audit, consequent upon which there is a recovery from the contractor, recovery shall be made with orders of the Engineer-in-charge whose decision shall be final. All action under this clause shall be initiated and intimated to the contractor within the period of twelve months from the date of final completion.

27. Operations and Maintenance Manual

The Contractor shall provide and submit to the Engineer-in-charge with three copies of the Operation and Maintenance Instruction Manuals, as may be applicable, for the works in a durable plastic case. The arrangement of these manuals shall be as follows:

SECTION A:	Index
SECTION B:	Full set of Indexed Photographs showing all salient features of the Project.
SECTION C:	Description and details of materials, items and fittings and fixtures used for the project along with Catalogues & Addresses of the Suppliers including operation & maintenance Manuals etc.
SECTION D:	Planned maintenance instructions and dates for order replacements.
SECTION E:	List of recommended Spare parts of consumables.
SECTION F:	List of "As-Built" Drawings (related to Working/ Shop drawings)

Until the Record Drawings, prints, transparencies and manuals referred to above have been received and approved by the Engineer-in-charge, Contract shall not be considered as complete and payment of monies will be withheld until such drawings, etc. have been submitted to and approved by the Engineer-in-charge. The cost of providing such records including proper submission thereof is deemed to be included in the Contract Sum quoted by the Contractor.

27.1. Miscellaneous

a) Safety Regulations

Contractor shall be fully responsible for the safety of his Employees/ Visitors / Contract Labour/ Sub-Contractors Labour. The Contractor shall provide first-aid box readily available at site. The Contractor shall provide all safety measures as per labour safety rules applicable.

b) Labour Laws

The Contractor shall strictly adhere to all labour laws prevailing in the region. The contractor shall make timely payment of wages of his labour and the wages paid to the labour shall be equal to or more than the minimum wage prevailing at the time of payment. The Contractor shall comply with all applicable labour legislation, maintain labour records including payment made to the workers and obtain license for engaging workers for the work as required under the labour laws.

c) By-Laws of Statutory Authorities

The Contractor and his labour shall not violate municipal /sanitation /health or any other byelaws.

d) Tax Deduction at Source

All Taxes and surcharge as applicable on date shall be deducted from the amount due to the Contractor towards the value of the work done. TDS certificate thereof shall be issued to the Contractor.

e) General Lighting and Securities

The Contractor shall, throughout the execution, completion and remedying of the defects, provide and maintain at his own cost all lights, guards, fencing, barricading (up to 3 ms. Height approx.), warning signs and watch post, when and where necessary or directed by the Engineer-in-charge or by any duly constituted authority for the protection, safety and convenience of the workers/ public / or others.

f) Delay in starting the work

No compensation shall be allowed for any delay caused in the starting of the work on account of acquisition of land, encroachment or in the case of clearance of works, on account of any delay in according sanction to estimates in issue of drawings, decisions etc. However, the extension of time shall be granted as per relevant conditions of Contract.

g) Site instruction book

For the purpose of quick communication between Engineer-in- charge and the Contractor or his representative, site instruction book shall be maintained at site as described below:

Any communication, relating the works may be conveyed through instructions in the site instruction book. Such a communication from Engineer-in-charge to the Contractor shall be deemed to have been adequately served in terms of the contract once the entries are made and signed by the authorized representative of the contractor. For this purpose the contractor should authorize one of his employees on the site itself. Site instruction book shall have machine numbered pages and shall be carefully maintained and remain under custody of Engineer-in-charge. The contractor can also avail of the site instructions book for urgent communication with Engineer-in-charge. Any instruction which Engineer-in- charge may like to issue to the Contractor may be recorded by the Engineer-in-charge in site instruction book.

h) Signage

The Contractor shall provide at his own cost, different sign boards at directed location having size as instructed by HLL as per the guidelines of _____indicating name of the project, and a three-D view of the project as well as the name of the Contractor and the HLL with addresses, cost of the Project, date of start & completion, as approved by Engineer-In-Charge. The signboards should be illuminated during night.

i) Cutting of Trees: -Permission for cutting of trees, if required, will be obtained by the Contractor from the concerned authority. HLL will provide necessary support in the matter.

j) The contractor shall have adequate generators of required capacity as per site requirement as standby arrangement.

k) The temporary connection for electric line and water line from local authorities shall be taken by the contractor who will bear the expenditures in this account.

l) No idling charges or compensation shall be paid for idling of the contractor's labour, staff or P&M etc. on any ground or due to any reason whatsoever.

m) The Contractor shall mobilize and employ sufficient resources for completion of all the works within the stipulated time period as per agreement and as indicated in the approved construction schedule. No additional payment will be made to the contractor for any multiple shift work or other incentive methods contemplated by him in his work schedule even though the time schedule is approved by Engineer-in charge.

28. Co-ordination Meetings

The Contractor shall be required to attend co-ordination meetings with the Engineer-in charge/ HLL and the other Contractors during the period of Contract as intimated by the Engineer-in-charge/ HLL. All costs incidental to such interaction shall be to the Contractor's account and no claim will be entertained by the Engineer-in-charge/ HLL on this account.

29. Site Management:

29.1. Contractor's Working Area

Suitable working space will be provided by the Engineer-in-charge/HLL to the Contractor as per site conditions and availability. The Contractor may have to carry out some cutting/ filling work for making this area workable. The cost of all such Works shall be deemed to have been included in the contract price quoted for the Works and no payment shall be made on this account.

Before commencement of the work, the Contractor shall obtain approval of the Engineer-in charge the location of cement godown, steel stacking and fabrication yard, site office and shall from time to time take instructions from the Engineer – in-charge regarding collection and stacking of materials at the site.

No excavated earth or building material shall be stacked on areas where other buildings, roads, services or compound wall or any other structure are to be constructed.

29.2. Contractor's Temporary Structures

The Contractor may, at his own expense and subject to the approval of the Engineer-incharge/ HLL and statutory authorities, as required, construct temporary structures for its site office, stores; Workshop in the working area allocated to him as above and remove the same on completion of Works. The Contractor shall furnish such details of his Temporary Works as may be called for by the Engineer-in-charge/HLL and the Contractor shall satisfy the Engineer-in-charge as to their structural safety. Temporary structures, found unsafe or inefficient shall be removed and replaced in a satisfactory manner.

29.3. Contractor's Labour Camp

The Contractor shall make arrangements at his own expense for labour camp/ accommodation for labour and staff to be employed for execution of the work and their conveyance to Site. Labour camp shall not be allowed to construct within the proposed site. No workers/ staff shall be allowed to stay within the Site except with

the specific approval of the Engineer-in-charge/ HLL. Proper ID Cards shall be got approved /authorized by the contractor from the Engineer-in-charge/ HLL to authorise the Contractor's staff and workers to enter the Site.

29.4. Water Supply & Power Supply

The Contractor shall make his own arrangement for water supply at Site for drinking as well as construction purposes & Power Supply at his own cost. Non-availability of power supply and /or water from whatever source shall not entail any additional claims or extension of Contract period in this account.

29.5. Infrastructure for Project Coordination & Site office

The contractor shall, within 30 days of issue of letter of acceptance, at his own cost, provide a reasonably furnished air conditioned site office of area 60 Sqm (approx.) having, a sample room, A.C meeting room, staff rooms along with toilets & pantry with file storage facility, licensed software (MS project), brand new computer (1 No.) with Auto Cad, Broad band (1 No.) and printer (1 No.) with their consumables, a telephone, as instructed by the HLL Engineer in charge.
Electricity & drinking water shall also be provided by the contractor free of cost for such period.

29.6. Temporary Barricading

The Contractor shall at his own expense, erect and maintain in good condition temporary barricades all around the working area as per directions of the Engineer-incharge.

29.7. The contractor shall make, till completion of the project arrangements for/of:

29.7.1. Proper pumping for removing water from the basement or elsewhere at site.

29.7.2. Proper security, safety, transportation, manpower, lighting arrangement for execution of works at night.

29.7.3. Tower crane, batching plant and others machinery, tools and tackles required for timely execution of work.

29.7.4. Proper barricading around site so that surrounding area is made free from disturbances. The specifications of barricading shall be got approved by Engineerin-charge. A signage board shall be placed in the External face of barricading also as instructed by Engineer in charge.

29.7.5. Diversion of underground services with the approval of Engineer-in- charge.

29.8. Restriction in work areas.

(a). The contractor must see the site of the work, its approaches carefully before tendering, No claim of any sort shall be entertained on account of any site conditions. If any approach from main road is required or existing approach is to be improved and maintained, for cartage and materials by the contractor, the same shall be done by the contractor his own cost.

(b). Some restrictions may be imposed by the HLL's authorities or its security staff etc., on the working and/or movement of labour, materials etc. The contractor shall follow all such restrictions / instructions and nothing shall be payable on this account.

(c). In case the contractor is not permitted to erect the huts for labour at the site of work, the contractor will have to make his own arrangement to provide such accommodation elsewhere and nothing extra shall be paid on this account.

(d). The contractor shall obtain approval of the HLL to erect the hutments for labour etc. at the site of work; denial of approval shall not affect the construction activities.

(e). The contractor shall take all precautions to avoid accidents by exhibiting necessary caution boards such as day and night boards, speed limit boards, red lights and providing barriers. He shall be responsible for all damages and accidents caused due to negligence on his part. No hindrance shall be caused to traffic during the execution of the work as the site is located within the premises of a running hospital.

30. Compliance of Statutory Obligations and obtaining Approvals/ Completion Certificates:

The Contractor shall comply all the statutory obligations and obtain all required clearances to implement the project without any financial repercussions to Engineer-in-charge and ensure all follow up actions with the local authorities in this respect for smooth completion of the project. The Contractor shall obtain all necessary approvals from Municipal bodies and other local bodies including, Water supply agencies, State Electricity Board and Electrical Inspectorate, Police and Security Agencies, Chief Controller of Explosives, Fire Department, Civil Aviation Department, in accordance to prevailing rules, Building Bye-Laws etc., as the case may be with related to Construction/ Completion. The responsibility of the Contractor shall include obtaining approval from local electrical inspector, water & Sewer line connection, permission for bore well and for temporary structures etc. from local Authorities.

The contractor shall obtain all NOC, completion & Occupancy certificates from respective local bodies and other statutory authorities as under:

a) Pollution control Board,
b) Fire department
c) Chief Electrical Inspectorate CEA, Lift License including NOC
d) State Electricity board
e) Local Municipal authority.
f) Airport Authority,
g) Forest Department for Tree cutting etc.,
h) Explosive department,
i) Local Municipal authority for water and sewer connection,
j) Any other statutory requirement for execution of work and to occupy the buildings and run the services in all respects.

Contractor shall organize all inspections of concerned authorities & obtain the NOC's within the time for completion. The Engineer-in-charge may, at the written request of

the Contractor, assist him in obtaining the approvals from relevant authorities. However, any such request by the Contractor shall not bind the Engineer-in-charge / HLL in any manner.

All expenditure on these accounts will be borne by the contractor. However, the fees paid by the contractor to these statutory authorities only for obtaining the required statutory approvals shall be reimbursed by the Client on submission of valid payment receipts from these statutory authorities.

The contractor is required to submit the relevant drawings like completion Drawings and any other statutory documentary requirements of local bodies in copies as per requirement to obtain the above etc. at their own cost.

31. Rates:

31.1. The quoted rates shall be for complete items of work i.e. inclusive of material, labour, plant and machinery, tools and tackles, batching plant etc. including water & electricity, overhead charges, all taxes, duties, statutory charges/ levies applicable from time to time and others as specified etc, incidental works and all other charges for items contingent to the work, such as, packing, forwarding, insurance, freight and delivery at Site, watch and ward of all materials & successful installation, testing & commissioning at site etc.

31.2. The rate of all items of work, shall, unless clearly specified otherwise include cost of all labour, materials and all other inputs required in the execution of the item, including GST and any other levies.

31.3. Unless otherwise specified in the schedule of quantities, the rate tendered by the contractor shall be all inclusive and shall apply to all heights, lifts, leads and depth of the building and nothing extra shall be payable to him on any account.

31.4. The rates for items of work wherein cement is used are inclusive of cost for curing.

31.5. Royalty at the prevalent rates whenever payable shall have to be borne by the contractor on the boulders, metal, shingle, sand and bajri etc., or any other materials collected by him for the work direct to the revenue authority of the District / State Government concerned and nothing extra shall be payable on this account

32. EXECUTION TIMELINE AND MONITORING

The successful bidder shall submit a detailed Work Programme / Execution Schedule within **seven (7) days** from the date of issue of the Purchase Order / Letter of Award. The programme shall indicate activity wise milestones and timelines for commencement and completion of various sections of the work. The programme shall be subject to approval by the Engineer-in-Charge, HLL Lifecare Limited.

The approved Work Programme shall form an integral part of the Contract and shall be binding on the Contractor. HLL Lifecare Limited shall have the right to monitor the progress of work at site and through periodic review meetings. Any deviation or slippage from the approved timelines shall be promptly communicated by the Contractor in writing, along with reasons for the delay and a proposed corrective action plan.

Any request for revision of the Work Programme shall be made by the Contractor in writing within fourteen (14) days of the occurrence of the event causing delay, failing which the request shall not be considered or accepted. Further, any request found to be unnecessary or unjustified shall be liable to be rejected by HLL Lifecare Limited. The Work Programme may be amended, as necessary, by mutual agreement between HLL Lifecare Limited and the Contractor, subject to the overall completion period stipulated in the Contract documents. With every rescheduling of milestones, or if at any time the actual progress of the work falls behind the approved programme by more than ten percent (10%) of the stipulated contract completion period, the Contractor shall submit a revised Work Programme. The revised programme shall be accompanied by all required designs/ drawings/ documents which shall be prepared and made available by the Contractor concurrently and without causing any delay to the execution of the work.

In the event of non-submission of the Work Programme by the Contractor within the stipulated time, the programme approved by the Engineer-in-Charge shall be deemed final and binding on the Contractor. Approval of the Work Programme by the Engineer-in-Charge shall not relieve the Contractor of any obligations or responsibilities under the Contract.

33. DISQUALIFICATION

Contractors or vendors who have exhibited poor performance, repeated delays, quality failures or contractual non-compliance in previous works executed for HLL Lifecare Limited may be disqualified or debarred from participating in future tenders of HLL Lifecare Limited for a period as decided by the Competent Authority and the decision in this regard shall be final and binding on the Contractor.

34. PERFORMANCE BASED COMPLETION CERTIFICATE

Completion Certificate shall be issued only after verification and confirmation of actual execution of the work in accordance with the approved scope, timelines and quality requirements. HLL Lifecare Limited reserves the right to record performance remarks in the Completion Certificate, which may be taken into consideration during evaluation of the Contractor in future tenders.

35. NO CLAIM CLAUSE FOR ENFORCEMENT ACTIONS

Any action taken by the Company under the Contract, including Liquidated Damages, termination, risk and cost execution or debarment, shall not give the Contractor any right to claim compensation or damages.

SECTION 2 - ADDITIONAL CONDITIONS & SPECIFICATIONS

A) GENERAL - RELATING TO CIVIL, ELECTRICAL, PLUMBING & FIRE FIGHTING WORKS, etc.

1. General

1.1. The following Specifications of Contract shall be read in conjunction with General Conditions of Contract and Specific Conditions of Contract- General. If there are any provisions in these Additional Specifications of Contract which are at variance with the provisions in the above mentioned documents, the provisions in these Additional Conditions & Specifications of Contract shall take precedence.

2. The work shall be carried out in conformity with the relevant drawings and the requirement of architectural, electrical, structural, and other specialized service drawings approved by Engineer-in-charge.

2.1. The Contractor shall make provision of hangers, sleeves, structural openings and other requirements during construction to avoid holding up progress of the construction schedule. The Contractor should ensure that the structure is designed for additional loads or cut outs. Subsequent Cutting of holes in the RCC structural members /slab shall not be allowed.

2.2. The contract items comprise of furnishing of all materials, equipment, labour& transportation etc. necessary to render the installation / item fully operational as per the intent of specifications and drawings, including any necessary adjustment or corrections. Further the installation / item shall be in conformity with local laws and manufacturer's instructions applicable.

3. Contract Drawings

3.1. The drawings issued with the Bid are diagrammatic only and indicate the extent and general arrangement of the installation. Drawings shall not be scaled.

3.2. The Contractor shall follow the Bid drawings for preparation of his detailed sanitary, plumbing, firefighting, Electrical & ELV, HVAC etc. Shop drawings and for subsequent installation work and also cross check the drawings of other services to avoid subsequent complications in inter services. Any discrepancies observed should be immediately brought into the notice of Engineer-in-charge and clarifications obtained. No changes from approved plans shall be made without prior approval of the Engineer-in-charge.

4. Shop Drawings

4.1. The Contractor shall furnish for approval of the Engineer-in-charge three sets of detailed electrical & ELV (external & internal), sanitary, plumbing, firefighting (external & internal), HVAC, Lift, Pump room & Shop drawings of all equipment and materials required to complete the work as per specifications well in advance. These drawings shall contain details of construction, size, arrangement, operating clearances, performance characteristics, and capacity of all items of equipment, as also the details of all related items of work of other trades. All shop drawings are to be made in accordance with latest fire safety norms and building codes.

4.2. All drawings necessary for assembly, erection, maintenance, repair and operation of the equipment shall be furnished and different parts shall be suitably numbered for identification and ordering of spare parts.

4.3. For any amendments proposed by Engineer-in-charge in the above drawings, the Contractor shall supply fresh sets of drawings with the amendments duly incorporated, along with the drawings on which corrections were indicated.

4.4. No material or equipment may be brought at Site until the Contractor has the approved Shop drawings for that particular material or equipment.

4.5. After approval of the drawings by the Engineer-in-charge, the Contractor shall further furnish six sets of Shop drawings for the exclusive use of and retention by the Engineer-in-charge.

4.6. Approval of drawings by the Engineer-in-charge shall not relieve the Contractor of any obligation to meet all the requirements of the Contract or of the correctness of his drawings. The Engineer-in-charge's approval of specific item shall not mean the approval of the assembly of which it is a component. The Contractor shall be responsible for and is to bear the cost for all alternations of the works due to discrepancies or omission in the drawings or other particulars supplied by him, whether such drawings have been approved by the Engineer-in-charge or not.

4.7. Where the work of the Contractor has to be installed in close proximity to, or will interfere with the work of other trades, the Contractor shall assist in working out the space conditions to make a satisfactory adjustment. If so directed by the Engineer-in-charge, the Contractor shall prepare composite working drawings and sections to a suitable scale not less than 1:50, clearly showing how his work is to be installed in relation to the work of other trades. If the Contractor installs his work before coordinating with other trades, and it is cause for any interference with the work of other trades, he shall make all the necessary changes without extra cost.

4.8. All shop drawings and detail drawings will be made as per requirements of local authorities and tender drawings incorporating all latest regulations and requirements. No separate drawings will be, issued for making shop drawings.

4.9. Coordination drawings shall be prepared by the contractor. All services above & below false ceiling must be inserted in the latest false ceiling layout. The layout shall clearly indicate all dimensional details of various equipments/ services. Sectional details must be prepared where all services coincide at many places.

4.10. A coordination drawing shall be prepared for external services also by inserting electrical, HVAC, water supply, drainage, firefighting, landscaping, internal roads in the site plan. Sectional details must be prepared to provide dimensional details.

5. Receipt and storage of materials:

a. Cement bags shall be stored in Godowns to be constructed by contractor at his own cost as per sketch of CPWD specifications with weather proof roofs and walls. Godown shall be provided with a single door with two locks. The keys of one lock shall remain with the authorized representatives of HLL and that of the other lock with the authorized agent of the contractor at the site of work so that the cement is removed from the godown according to the daily requirement with the knowledge of both the parties. Samples of fresh cement shall be got tested from lab. Only tested cement shall be allowed in the work, contractor shall bring cement keeping this in view to maintain progress of the work. No request for extension of time on this account shall be entertained.

b. The contractor shall be fully responsible for the safe custody of the materials brought at site even if the materials are under double lock system.

c. The contractor shall construct suitable godowns – yards at the location of the site of work duly approved by the Engineer – in – charge or his authorized representative for storing all other materials so as to be safe against damage by sun, rain, dampness, theft etc. at his own cost and employ necessary watch and ward establishment at his cost.

d. The contractor shall maintain and render proper account of all material brought by him to the site, consumed by him on the work and balance if any. In respect of steel reinforcement bars, theoretical consumption will be calculated diameter wise.

6. Procurement of Cement and Steel

The procurement of Cement and Reinforcement Steel, and, their issue and consumption shall be governed as per conditions laid down hereunder.

6.1.Cement

6.1.1. The contractor shall procure 43 grade Ordinary Portland cement conforming to IS 8112 / Portland Pozzolana Cement conforming to IS 1489 (Part I) as required in the work, from manufacturers as per list of approved makes.

6.1.2. In case the cement is not available from manufacturers as per list of approved makes, the tenderer may submit a list of names of cement manufacturers from which they propose to procure for use in the work or from any other reputed manufacturer having a production capacity not less than one million tonnes per annum as approved by the Engineer-in-charge.

6.1.3. The tender accepting authority reserves right to accept or reject name(s) of cement manufacturer(s) which the tenderer proposes to use in the work. No change in the tendered rates will be accepted if the tender accepting authority does not accept the list of cement manufacturers, given by the tenderer, fully or partially.

6.1.4. The supply of cement shall be taken in 50 kg. bags bearing manufacturer's name and ISI marking. Samples of cement arranged by the contractor shall be taken by the Engineer-in-charge and got tested in accordance with provisions of relevant BIS codes. In case the test results indicate that the cement arranged by the contractor does not conform to the relevant BIS codes, the same shall stand rejected, and it shall be removed from the site by the contractor at his own cost within a week's time of written order from the Engineer- in-charge to do so.

6.1.5. The Cement shall be brought at site in bulk supply of approximately 50 tonnes or as decided by the Engineer-in-Charge.

6.1.6. The cement godown of the capacity to store about 2000 bags of cement or higher capacity as decided by the Engineer-in-Charge shall be constructed by the contractor at site of work for which no extra payment shall be made. Double lock provision shall be made to the door of the cement godown. The keys of one lock shall remain with the Engineer-in-Charge or his authorized representative and the key of other lock shall remain with the contractor. The contractor shall facilitate the inspection of the cement godown by the Engineer-in-Charge at any time.

6.1.7. The contractor shall supply free of charge the cement required for testing including its transportation to testing laboratories. The cost of tests shall be borne by the contractor.

6.2.Steel

6.2.1. Reinforcement Steel conforming to BIS specifications (latest edition) shall be procured directly from main manufacturers or their authorized dealers as per the approved list provided in the agreement. The manufacturer has to give a certificate that the material supplied is not a re-rolled product. Relevant vouchers & test certificates will be produced by the contractor. Re-rolled sections will not be allowed. Reinforcement steel, structural steel shall be stored and stacked in such manner so as to facilitate easy identification, removal etc. The contractor shall take proper care to prevent direct contact between the steel and the ground/ water for which he shall provide necessary arrangement at his own cost including ensuring proper drainage of area to prevent water logging as per direction of the Engineer-in- charge. Steel shall also be protected, by applying a coat of neat cement slurry over the bars for which no extra payment shall be made. Test certificates for each consignment of steel shall be furnished and further tests shall be got carried out from the authorized laboratory as per the directions of Engineer-in-charge, before incorporating the materials in the work

6.2.2. The contractor shall procure TMT bars of Fe415/Fe415D/Fe500/Fe550/Fe550D grade (the grade as per BOQ) from manufacturers as per list of approved makes.

6.2.3. The grade of the steel such as Fe 415/Fe 415D/Fe 500/Fe500 D/Fe 550 / Fe 550 D or other grade (the grade as per BOQ) to be procured is to be specified as per BIS 1786-2008. The TMT bars procured from Primary producers shall conform to manufacturer's specifications.

6.2.4. The contractor shall have to obtain and furnish test certificates to the Engineer-in-charge in respect of all supplies of steel brought by him to the site of work.

6.2.5. Samples shall also be taken and got tested by the Engineer-in-Charge as per the provisions in this regard in relevant BIS codes such as IS 1786: 2008. In case the test results indicate that the steel arranged by the contractor does not conform to the specifications as defined above, the same shall stand rejected, and it shall be removed from the site of work by the contractor at his cost within a week time or written orders of the Engineer-in-Charge to do so.

6.2.6. The steel reinforcement bars of each diameter shall be brought to the site in bulk supply of 10 tonnes or more, or as decided by the Engineer-in-charge.

6.2.7. The steel reinforcement bars shall be stored by the contractor at site of work in such a way as to prevent their distortion and corrosion, and nothing extra shall be paid on this account. Bars of different sizes and lengths shall be stored separately to facilitate easy counting and checking.

6.2.8. For checking nominal mass, tensile strength, bend test, re-bend test etc. specimens of sufficient length shall be cut from each size of the bar at random, and at frequency not less than that specified below:

Size of bar	For consignment below 100 tonnes	For consignment above 100 tonnes

Under10mmdiabars	One sample for each 25 tonnes or part thereof	Onesampleforeach40tonnes or part thereof
10mmto16mm dia bars	One sample for each 35 tonnes or part thereof	Onesampleforeach45tonnes or part thereof
Over16mmdiabars	One sample for each 45 tonnes or part thereof	Onesampleforeach50tonnes or part thereof

6.2.9. The contractor shall supply free of charge the steel required for testing including its transportation to testing laboratories. The cost of tests shall be borne by the contractor.

6.2.10. The actual issue and consumption of steel on work shall be regulated and proper accounts maintained as provided in Clause 10 of the General Conditions of Contract. The theoretical consumption of steel shall be worked out as per procedure prescribed in Clause 42 of the General Conditions of Contract and shall be governed by conditions laid therein. In case the consumption is less than theoretical consumption including permissible variations recovery at the rate so prescribed shall be made. In case of excess consumption, no adjustment need to be made.

6.2.11. The steel brought to site and the steel remaining unused shall not be removed from site without the written permission of the Engineer-incharge.

6.2.12. Coefficient of weight i.e. the weight per unit length of the steel procured by the contractor shall be ascertained at site before using it and certified by the Engineer-In-Charge. In case weight per unit length is beyond the rolling margin as laid down in the BIS: 1786, the steel will be rejected and shall be removed from the site of work within; a weeks' time from written order of the Engineer-in-Charge to do so. In case weight per unit length is more than the standard coefficient of weight for the diameter, but is within the rolling margin, then the payment shall be made as per the standard weight per unit length, and, where the weight per unit length is lesser than the standard coefficient of weight for the diameter, but is within the rolling margin, the payment shall be restricted with respect to the actual weight per unit length of the diameter.

6.3. The actual issue and consumption of steel and Cement on the work shall be regulated and proper accounts maintained as provided in the Clause 10 of the General Conditions of Contract. The theoretical consumption of steel and cement shall be worked out as per procedure prescribed in Clause 42 of the General Conditions of Contract and shall be governed by conditions laid therein. In case the consumption is less than theoretical consumption including permissible variations recovery at the rate so prescribed shall be made. In case of excess consumption no adjustment need to be made

6.4. Steel and Cement brought to site and remaining unused shall not be removed from site without the written permission of the Engineer-In-Charge.

6.5. No payment shall be made to the contractor for any damage caused during the execution of work because of cause(s) not covered under Clause 43 of the Contract.

The damage to work will be made good by the contractor at his own cost, and no claim on this account shall be entertained.

6.6. The Contractor shall maintain safe custody of materials brought to the site. The Contractor shall also employ necessary watch and ward establishment for the work and other purposes as required at his own cost.

6.7. For Cement and Steel and other materials, as prescribed, the quantities brought at site shall be entered in the respective material at site accounts and shall be treated as issued for maintenance of daily consumption.

6.8.Records of Consumption of Cement & Steel –

a. For the purpose of keeping a record of cement and steel received at site and consumed in works, the contractor shall maintain a properly bound register in the form approved by the Engineer-in-charge, showing columns like quantity received and used in work and balance in hand etc. The contractor's representative shall sign this register daily.

b. The register of cement & steel shall be kept at site in the safe custody of Engineer-in-charge during progress of the work. This provision will not, however, absolve the contractor from the quality of the final product.

7. Conformity with Statutory Acts, Rules and Standards

7.1. The installation shall be in conformity with the Bye-laws Regulations and Standards of the local authorities applicable to the installations. But if the specifications and drawings call for a higher standard of materials and/or workmanship than those required by any of the above regulations and those required by any of the above regulations and standards, then the specifications and drawings shall take precedence over the said Regulations and Standards.

7.2. However, if the drawings or specifications required something, which violates the Byelaws and Regulations, then the Bye-laws and Regulations shall govern the requirement of such installation/drawings.

7.3. Indian Standards: The System / Components shall conform to relevant Indian standards wherever they exist and to the National Building Code Amended up to date.

7.4. Nothing in these Specifications shall be construed to relieve the contractor of his responsibility for the design, Manufacture and installation of equipment with all its accessories in accordance with applicable statutory regulations and safety codes in force.

8. Manufacturer's Instructions

Where manufacturers have furnished specific instructions relating to the materials and equipment used, covering points not specifically mentioned in these documents, manufacturer's instructions shall be followed with the approval of Engineer-in-charge.

9. Training and Operating Instructions

9.1.1. If required by the Engineer-in-charge, the Contractor shall at his cost, train members of the maintenance staff either at his or the subcontractor's workshop or at such other place or places as may be considered suitable by the Engineer-incharge.

9.1.2. Upon completion of all work and all tests, the Contractor shall furnish the necessary skilled labour and helpers for operating the entire installation for a period of fifteen (15) working days. During this period, the Contractor shall instruct and train the Engineer-in-charge/ HLL's representative(s) in operation, adjustments and maintenance of the equipment installed.

9.1.3. The Contractor shall submit to the Engineer-in-charge draft comprehensive operating instructions and maintenance schedule for all systems and equipment included in this Contract. This shall be supplemented, not substituted, by manufacturer's operating and maintenance manuals. Upon approval of the draft, the Contractor shall submit to the Engineer-in-charge four (4) complete bound sets of operating and maintenance schedules along with manufacturers printed literature.

10. Inspection and Testing

10.1. The Engineer-in-charge reserves the right to request inspection and testing at manufacturer's Works at all reasonable times during manufacture of items for this Contract.

10.2. The Engineer-in-charge or his authorized representative shall have full power to inspect the materials and workmanship at the Contractor's Works or at any place from which the materials or equipment is obtained. Approval by the Engineer-incharge of any material or equipment shall in no way relieve the Contractor of his responsibility for meeting the requirements of the specifications. All incident expenditure like travelling, boarding and lodging etc. shall be borne by the contractor.

10.3. Routine and typical tests for the various items of equipment shall be performed at the Manufacturer's/ Contractor's Workshop in the presence of Engineer-in-charge or his authorized representative, results recorded and test certificates issued.

10.4. After installation has been virtually completed, the Contractor shall carry out under the direction and in the presence of the representative of the Engineer-incharge such tests and inspections as have been specified, or as considered necessary to determine whether or not the requirements of the item, drawings and specifications have been fulfilled. In case the work does not meet the full intent of the drawings and specifications and further tests after making require changes and as considered necessary shall be done again, the Contractor shall carry them out and bear the expenses thereof. If tests fail to demonstrate the satisfactory nature of the installation or any part thereof, then no claims for the extra cost of modifications, replacement or retesting will be considered. The decision of the Engineer –in-charge shall be regarded as final as to what constitutes a satisfactory test.

10.5. The above general requirements as to testing shall be read in conjunction with any particular requirements specified elsewhere

10.6. The Contractor shall provide all necessary instruments such as Theodolite, Dumpy level, steel tapes, weighing machine, plumb bobs, spirit levels, hammers, micro-meters, thermometers, hydraulic cube testing machine, smoke test machine and labour, etc. for conducting tests. All such equipment shall be tested for calibration by an approved laboratory. The Contractor shall make adequate records of the test procedures, readings and results to be maintained by the Engineer-in-charge who shall issue test certificates signed by the person authorized by him.

11. Test Certificates

The contractor shall submit test certificates for all the materials / systems issued by government recognized inspection / office / manufacturer certifying the Equipment / Materials / installation and its function are in agreement with the requirements of relevant specifications and accepted standards.

12. Performance Guarantee for firefighting System & Equipment

It is clearly understood that the specifications, drawings, schedule of quantities for firefighting system are for bidder's guidance only. The bidder shall carry out necessary calculations and provide alternative equipment required to achieve the specified level of firefighting required for human safety. Complete sets of Architectural Drawings shall be available at site in the Engineer-in-charge office and reference may be made to these drawings as required for calculations or for other details. The contractor shall also guarantee that performance of various equipments, individually, shall not be less than, the specified ratings.

13. Quiet Operation and Vibration

All equipments shall operate under all conditions of designed load without any sound or vibration, which is considered objectionable by the Engineer-in-charge. Such conditions shall be corrected by the Contractor at his own expense. Decision of the Engineer-incharge shall be final in this regard.

14. Accessibility

The Contractor shall locate all equipments, which require servicing, operation or regular maintenance in fully accessible positions. The exact location and size of access panels, required for each valve or other devices requiring attendance, shall be finalised and communicated to Engineer - in- Charge well in time, to facilitate working by other agencies, failing this, the Contractor shall make all the necessary repairs and changes at his own expense.

15. Licenses and Permits

i. The Contractor or the approved specialized agency engaged by them shall hold a valid plumbing, electrical, ELV, lift, license issued by the Competent Authority under whose jurisdiction the work falls.

ii. If the bidder is associating a specialized agency or firm for the electrical work, valid copy of license (depending upon grade of work(LT/HT)) issued by Electrical licensing board should be submitted to HLL Electrical Engineering authority before commencing the work.

iii. If the bidder is associating a specialized agency to handle the electrical work (HT & LT), the bidder retains sole responsibility for ensuring the quality, safety and compliance of that work.

iv. The contractor must employ Licensed supervisors and skilled workers having valid permits as per the Regulation of Indian Electricity rules and Local Electrical Inspectorate requirements. (Copy of the Supervisors license and workers permit should submit to HLL Electrical Engineering authority before commencing the work.)

v. The contractor has to take all the approvals of local bodies for all the addition/deletion over the approved building plans which are to be given by the Engineer-in-charge. The documents/drawings to be prepared and submitted in the manner desired by them after the same is approved by Engineer-in-charge. Contractor has to take approvals of entire/Part works if required before start of works. Contractor will be responsible for any work at site carried out without approval of municipal or local bodies.

vi. Contractor shall keep constant liaison with the competent Municipal or other authority and obtain approvals for all drainage and water supply works carried out by him.

vii. Contractor shall obtain from the competent Municipal Authority completion certificates with respect to his work as required for occupation of the building.

viii. Any fees in connection with obtaining the approvals on behalf of the HLL from the statutory bodies/Corporations/Government departments, etc. shall be paid by the Contractor and the same shall be reimbursed on production of original vouchers. Necessary endorsement/ application if required shall be arranged from the Engineer-in-charge /HLL.

ix. Before undertaking of works for Electrical, Anti Termite Treatment, Water proofing, Fire Fighting, HVAC system, ELV systems etc., the contractor must take approval from HLL Engineer-in-charge.

16. Operation and Running of Entire System

The contractor shall ensure smooth operation & running of entire sanitary, plumbing and firefighting system including pumps and RO plant etc. for a minimum period of one month after satisfactory completion of work as desired by Engineer-in-charge. Cost of such operation & running of entire system including required material e.g. fuel, consumables, tools & tackles, requisite manpower etc. shall be borne by the contractor & deemed to be included in the contract price , nothing shall be paid on this account.

17. Training of Personnel

The Contractor shall arrange to train the Client/ HLL's personnel to ensure smooth operation & running of entire works including sanitary, plumbing and firefighting system including pumps and RO plant, ELV systems, other systems etc. prior to provisional takeover of the works.

18. Handing over & Taking over process

For handing over & taking over process, in addition to clauses specified elsewhere, following services / works have to be complied with by the main contractor:

a. Submission of Guarantees in stamp paper, of appropriate value, (format approved by Engineer-in-charge) for all water proofing treatment and Anti termite treatment executed in the works for a period of ten years. If any defects noticed within 10 years from completion of defect liability period the main contractor shall be sole responsible for the defects and same shall be rectified by the main contractor as per information from Client/HLL within a period of 10 days from the notice.

b. Rectification of all defects shall be carried out by the main contractor before Handing over/ Taking over process.

c. As built drawings :- 3 (Three) sets for Architectural, Structural, Plumbing, Electrical, ELV system (CCTV, PA, Fire Alarm, token systems, Audio video systems), HVAC, firefighting, etc. Specialized services and other required drawings as approved by Engineer-incharge shall be submitted by the main contractor before handing over & taking over process.

d. All services/equipments are to be run and checked before handing over & taking over process as per requirements of Engineer-in-charge.

e. Contractor has to arrange water, electricity, fuel, consumables and manpower at their own cost for the purpose of testing of services and equipments. Contractor has to bear the electricity charges till taking over of works. No amount shall be payable on this account.

f. Main contractor shall submit catalogues, brochures, operation manual, manufacturer test certificate, Guaranty/ Warranty papers, license etc for all equipments /materials before handing over & taking over process.

(B) RELATING TO CIVIL WORKS

i. All concrete work will be strictly done by automatic computerized batching plant of suitable capacity installed at site or RMC as per approval of Engineerin-Charge/ HLL. No concrete work will be permitted without automatic batching plant unless specifically approved in writing by Engineer-in-Charge / HLL. Transportation of the mix concrete shall be done through transit mixers and concrete pumped through suitable concrete pumps and pipes arrangement and vibrated by vibration machines, materials lifts shall also be provided at site as and where required.

ii. All operation required for continuing concreting work at the construction joints for better bond are deemed to be included in the rates of the relevant items and nothing extra shall be payable on this account.

iii. Mix Design of Concrete:- The contractor shall carry out the mix design for the relevant item of concrete from reputed institution/ laboratories as approved by Engineer-in-charge at his own expenses within 15 days from Letter of acceptance. Samples of materials (i.e. Cement, Coarse, fine aggregates& admixtures) shall be jointly sealed by Engineer-in-charge and contractor

before sending the same for Mix design. The design mix may be with or without admixtures as per specifications /requirements at site.

iv. Ready Mixed Concrete

a. The rate for the item of Ready Mixed Concrete shall be inclusive of all the ingredients including admixtures if required, labour, machine T&P etc. (except shuttering which will be measured & paid for separately) required for design mix concrete of required strength and workability.

b. The rate quoted by the agency shall be net & nothing extra shall be payable on account of change in quantities of concrete ingredients like cement and aggregates and admixtures etc. in the approved mix design.

v. Marine plywood only or steel plates of minimum thickness as approved by Engineer-in-charge shall be used for formwork. All shuttering material to be used at site will be new/ just like new as approved by Engineer-in-charge. The shuttering plates shall be cleaned and oiled after every repetition and shall be used only after obtaining approval of Engineer-in-charge's representative at site. The number of repetitions allowed for plywood and steel shuttering shall be at the discretion of Engineer-in- charge depending upon the condition of shuttering surface after each use and the decision of Engineer-in-charge in this regard shall be final and binding on the contractor. No claim whatsoever on this account shall be admissible.

vi. Anti-termite treatment & waterproofing treatment:-

a. The treatment for water-proofing of basement, roofs, water retaining areas and termite infestation shall be of type and specifications as given in the schedule of quantities and remain fully effective for a period of not less than 10 (Ten) years to be reckoned from the date of expiring of the Defect Liability period, prescribed in the contract. At any time during the said guarantee period if the HLL/ Engineer-in-charge or his representative finds any defects in the said treatment or any evidence of re-infestation, dampness, leakage in any part of buildings or structure and notifies the contractor of the same, the contractor shall be liable to rectify the defect or give re-treatment and shall commence the work or such rectification or retreatment within seven days from the date of issue of such letter to him. If the contractor fails to commence such work within the stipulated period, the HLL/ Engineer-in-charge or his representative may get the same done by another agency at the Contractor's cost and risk and the decision of the HLL/ Engineer-in-charge for the cost payable by the contractor shall be final and binding upon him. Re-treatment if required shall be attended to and carried out by the Contractor within seven days of the notice from the HLL or his representative.

b. Water proofing and anti-termite treatment shall be got done through approved specialized agencies only with prior approval of the Engineer-incharge or his representative. During the execution of work, if any damage shall occur to the treatment already done, either due to rain or

any other circumstances, the same shall be rectified and made good to the entire satisfaction of the HLL or his representative by the contractor at his costs and risks.

c. The contractor shall submit a guarantee bond for the water proofing and anti-termite work executed under the contract in a format specified in the GCC. Further a security deposit amounting to 10% of the cost of these items as executed shall be retained for a period of 10 years with effect from actual date of actual completion of the work. 50% of the security deposit shall be released on successful completion of 5 years period and the balance shall be released on completion of 10 years.

C) RELATING TO ELECTRICAL WORKS, ELV & INSTALLATIONS

1 General

i. The electrical & ELV installations shall be in total conformity with the control wiring drawings prepared by the Contractor and approved by the Engineer-in-charge & shall be connected and tested in the presence of an authorized representative of the Contractor and of the Engineer - in- Charge.

ii. The responsibility for the sufficiency, adequacy and conformity to the Contract requirements of the electrical installation work lies solely with the Contractor.

iii. Lighting for the building shall be designed as per the specification of National Electric code (NEC), national building code (NBC) and Bureau of Indian standards (BIS) and by referring the design guidelines.

2 Regulations and Standards

The installations shall conform in all respects to Indian Standard Code of Practice for Electrical Wiring Installation IS: 732-2019 and as per latest CPWD General Specifications for Electrical Works, latest NBC guidelines, State electrical inspectorate guidelines, state electricity board regulations, state pollution control board as mentioned in Schedule "F" of General Conditions of Contract. It shall also be in conformity with the current Indian Electricity Rules and regulations in so far as these are applicable to the installations. Wherever these Additional Specific Conditions call for a higher standard of material and/or workmanship than those required by any of the above regulations, then this Additional Specific Conditions shall take precedence over the said Regulation and Standards.

Fire detection & alarm system and Public address system works to be done as per latest CPWD/ NFPA / NBC specifications & BIS codes.

3 Completeness of Bid

All sundry fittings, assemblies, accessories, hardware items, foundation bolts, termination lugs for electrical connections as required, and all other sundry items which are useful and necessary for proper assembly and efficient working of the various components of the work shall be deemed to have been included in the Bid rates and prices, whether such items are specifically mentioned in the Bid documents or not.

4 Eligibility criteria of sub-contractor for ELV services

The specialized agency appointed by the Contractor to carryout ELV services shall possess authorization letter from OEM (original equipment manufacturer) to carry out the specializes systems (CCTV, fire alarm & detection, Public address, Telephone, Data, EPABX, token systems, Audio video systems).

Original equipment manufacturer for above mentioned systems must submit details of similar executed works (value and volume) for a minimum period of 5 years. The OEM must have a service support office located within the region/district, where the project is being executed.

Main contractor shall submit above mentioned credentials of specialized agency to be engaged for ELV works to Engineer in charge after signing of agreement.

If required main contractor shall arrange site visit to the engineer in charge at his cost in projects executed by the proposed OEM. Main contractor shall send his representative also for the site visit. Engagement of specialized agency shall be confirmed after fulfilling above mentioned points.

5 Works to be done by the Contractor :-

Unless and otherwise mentioned in the Bid documents, the following works shall be done by the Contractor, and their cost shall be deemed to be included in the contract price:

i. Foundations for equipment and components where required, including foundation bolts

ii. Cutting and making good all damages caused during installation and restoring the same to their original finish

iii. Sealing of all floor openings provided for pipes and cables, from fire safety point of view, after laying of the same

iv. Painting at site of all exposed metal surfaces of the installation other than prepainted items like fittings, fans, switchgear/ distribution gear items, cubicle switch board etc. damages during erection, shall however be rectified by the contractor.

v. Testing and commissioning of complete installation.

6 Completion Certificate by the licensed supervisor

i. On completion of the installation, a certificate shall be submitted to the Engineer-incharge by the Contractor which shall be countersigned by the licensed supervisor/agency under whose direct supervision the installation was carried out. This certificate shall be in the prescribed form as required by the local authority. On the basis of this certificate, the Contractor shall arrange for inspection of installation by the concerned local authorities.

ii. The Contractor shall be responsible at his own cost for getting the installation duly approved by the authorities concerned.

iii. The contractor has to do liasoning works and obtain statutory approval from Electricity Board, Electrical inspectorate, Pollution Control Board and any another body for the successful energization of electrical supply to the building. No charges will be paid to the contractor in this regard and successful commissioning and operation of the DG set. No charges will be paid to the contractor in this regard. However, statutory fees if any, will be paid by Client on production of valid and certified receipts. All necessary drawings and documents required for the same has to be prepared and submitted by the Contractor with the concurrence/approval of the engineer in charge.

iv. First fill of Lubrication oil, coolant & the contractor's scope includes providing diesel for testing and commissioning the DG set, ensuring a minimum runtime of 8 hours under full load conditions.

v. Power supply for the testing and commissioning of equipments like transformer, HT& LT panels, DG set, UPS, Bus duct, rising main etc. has to be arranged by the contractor at his own cost.

vi. Before availing permanent power supply, contractor must get the details of contract demand from client with the concurrence of engineer in charge.

vii. Any changes in CT/PT rating suggested by electrical inspectorate/electricity board shall be incorporated by the contractor without claiming additional cost.

viii. The agreement between local electricity authority and client shall be prepared by the contractor on client's behalf.

ix. Contractor shall continuously follow up with electricity board in getting permanent power supply at the earliest.

x. On availing permanent power supply in the project, electricity charges till handing over the project shall be paid by the contractor

<u>Contractor should submit the following details before starting the HT works:</u>

a) General arrangement drawing of HT panel, RMU, transformers, DG set, Diesel tank (if required), LT panels, UPS with battery racks.

b) Hume pipe details - to be laid for cable entry to substation, DG room or electrical room in the main building including quantity, location and dimensions),

c) Cable trench details in substation and main building

d) Pedestal details (including structural details)

e) Cut out details required for the installation of cables, cable trays, cable ladders, bus riser, bus duct, rising mains,

f) Cable trench cover plate details etc.

xi. GA drawing shall include dimensional details (height, length, width) and weight of electrical equipment.

Above details shall be forwarded to the engineer-in-charge in order to initiate the construction of substation, DG room and for any other construction works related to installation of electrical equipment in the main building.

x. Contractor/specialized agency shall prepare electrical scheme for the HT works. The scheme shall include electrical service drawings for the main building to be carried out by the contractor. The defects if any noticed by the electrical inspectorate shall be rectified by the contractor.

xi. Contractor shall prepare layouts of substation, Electrical room, UPS room and DG room mentioning cable trench details, Hume pipe details, cable entry cut out details, pedestal details necessary for the installation of electrical equipment to be located in these rooms.

xii. Necessary supervision during installation, site testing & commissioning for the transformer, DG sets, HT& LT panels, electrical protection relays, UPS, bus duct, rising main etc. has to be done by the technical expert from manufacturer. Commissioning reports of equipments/relay settings of electrical panels etc. shall be recorded during testing and commissioning of these equipments. The reports shall be attached and handed over to the engineer in charge before handing over the project. On completion of installation of electrical and mechanical equipments, fine tuning in equipment setting (current setting, trip setting, time setting etc.) has to be carried out. The final set values shall be recorded and forwarded to client before handing over of the project.

xiii. Before taking over of the entire electrical installation all necessary O&M manuals, as built drawing - 3 sets of hard copies (minimum A2 size) & 2 set DVD (Drawings in AutoCAD format), guarantee certificates from OEMs, room wise Inventory list as required by engineer in charge etc shall be submitted. Necessary training on the operation and maintenance of electrical systems shall be provided to the client. 3 copies of standard operation & maintenance procedures for all the major equipments & systems shall be included in the O & M manual.

7 Completion Drawings

On completion of the work, the Contractor shall at his own cost submit to the Engineerin-charge 4 (four) sets of layout drawings drawn at the approved scale indicating the installations. These drawings shall clearly indicate the complete plant layouts, and piping layouts, location wiring, exact location of all the concealed piping, valves, controls, wiring and other services. The Contractor shall also submit 4 (four) sets of consolidated control diagrams, technical literature on all automatic controls and complete technical literature on all equipment and materials. The Contractor shall mount a set of all consolidated control diagrams and all piping diagrams in a frame with glass, and display in the plant room.

8 Interrelationship of Services

The Contractor shall keep a check at all stages and supervise at the point of connection the associated civil, electrical and plumbing works like underground and overhead tanks, power supply and installation of makeup water connection, drain connection in the firefighting tanks and vicinity of plant room etc. In case of any discrepancy the same should be brought into the knowledge of Engineer-in-charge in writing, all rectifications etc, required in future as a result of failure on the part of the contractor to do so, shall be carried out by the Contractor at his own expenses.

9 Check List

The Contractor shall provide to the Engineer-in-charge, 4 (four) copies of a comprehensive maintenance checklist and shall place a copy of it in the Substations &Plant Room. The checklist shall be a list of each piece of equipment in this Contract,

and shall provide a space for each of the next fifty-two weeks to record the maintenance results and status of various equipments during the maintenance period. This list shall be updated every month at the time of inspection. The Contractor shall certify on this check list that he has examined each piece of equipment and that; it is operating as intended in the contract/by the manufacturer, and that all necessary tests have been performed.

10 Repairs

All equipment that requires repairing shall be immediately serviced and repaired during the maintenance period. All spares/parts and labours shall be furnished by the contractor free of cost.

11 Control System

During the Defect Liability Period/ Maintenance Period, the Contractor shall monthly check all controls in various areas to ensure that these are functioning satisfactorily. This shall apply to all pressure switches and pressure gauges, contacts, relays, controller switches, high and low pressure cut-outs etc.

12 Reference Points

Contractor shall provide permanent bench marks, flag tops and other reference points in consultation with Engineer-in-charge for the proper execution of work and these shall be preserved till the completion of the work.

13 Cutting of structural members

No structural member shall be chased or cut without the written permission of the Engineer-in- Charge.

14 Regulations and Standards

The installations shall conform in all respects to Indian Standard Code of Practice for Electrical Wiring Installation IS: 732-2019 and as per latest CPWD General Specifications for Electrical Works, latest NBC & NEC guidelines, State electrical inspectorate guidelines, state electricity board regulations, state pollution control board as mentioned in Schedule "F" of General Conditions of Contract. It shall also be in conformity with the current Indian Electricity Rules and regulations in so far as these are applicable to the installations. Wherever these Additional Specific Conditions call for a higher standard of material and/or workmanship than those required by any of the above regulations, then these Additional Specific Conditions shall take precedence over the said Regulation and Standards. Fire detection & alarm system and public address system works to be done as per latest CPWD/ NFPA / NBC specifications & BIS codes.

15 Tools for Handling and Erection

All tools and tackles required for handling of equipments and materials at Site of work as well as for their assembly and erection and also necessary test instruments shall be the responsibility of the Contractor.

16 Drawings

The drawings indicate the extent and general arrangements of the fixtures, controlling switches, wiring system etc. and are essentially diagrammatic explanation. The drawings indicate the points of termination of conduit runs and broadly suggest the routes to be followed. The Contractor shall submit six sets of working electrical drawings based

on tender drawing including reflected ceiling plan coordinating other essential building services for the Engineer-in-charge 's approval. Contractor has to make necessary changes if any as per comments given by Engineer-in-charge before execution. The work shall be executed as indicated in the approved drawings, however any minor changes found essential to co-ordinate the installation of this work with the other trades shall be made in consultation with the Engineer-in-charge.

The drawings are for guidance of the contractor and exact locations, distance and levels shall be governed by the building. The Contractor shall examine all architectural, structural, plumbing and sanitary & electrical drawings before startingthe work. Any discrepancies noticed shall be reported to the Engineer-in-charge for clarification. In case of failure to do so Contractor shall not be entitled to any cost for omissions or defects in electrical drawings due to any conflict with other services work.

17 Conduit/ Trunking Layout

Prior to the laying of the conduits and trunking, the Contractor shall examine/ study drawings and report to Engineer-in-charge. If the Contractor desires to make any changes, then he shall submit proposed conduit layout plan to Engineer-in-charge and before execution, he shall get the same approved from Engineer-in-charge.

18 Shop Drawings

The Contractor shall prepare and submit to the Engineer-in-charge for his approval detail shop drawings for Main & Sub Panels / Distribution Boards, special pull boxes, light & fan switch boards, telephone distribution boards, FDA system and lightning protection system and other equipment to be procured/ fabricated by the Contractor before 15 days of placing of the orders with manufacturers/suppliers.

Contractor shall submit shop drawings of Electrical & ELV services in the following manner:

- Floor layouts (where furniture & false ceiling must be inserted) indicating light fixtures, switches, small power layouts (Raw & UPS) etc. All items must be numbered and separate identification marks must be given for raw & UPS power services.
- Distribution board schedule mentioning circuit number, wire size of circuit, quantity of items, room/location of circuit being fed, connected load of circuit, DB location, incoming cable size, total connected load details, incoming & outgoing circuit breaker details etc.
- For lighting & small power, separate layouts shall be submitted.
- Conduit layout shall be submitted separately for each services.
- Mounting heights of all items must be clearly indicated in the layouts.
- Cable route & size, cable tray route & dimensions etc. between DBs & panel boards shall be marked for each services in the layout.
- Position of floor electrical panels shall be marked in the layouts.
- Single line diagram of electrical system shall be submitted. SLD shall provide arrangement of power intake, details of connected load, details of HT panel, transformers, DG set, Electrical panels, UPS, Cable size, etc.

- Site plan of external electrical services showing location of Substation, DG set, FP/DP structure, HT cable route, street lights, LT cable route etc. shall be clearly marked in the layout. Trench dimensions, dimensions of equipments, clearance between equipments/wall etc.
- Earthing protection system layout showing position of earth pits, earth conductor route
- Lightning protection system layout showing position of air terminal, horizontal conductor, down conductor, earth pit location etc.
- Floor layouts indicating position of ELV items CCTV cameras, speakers, Fire alarm devices, telephone outlets, data outlets, etc.
- Riser diagrams of CCTV, Public address, Fire alarm, telephone system, data system, TV system(wiring only), Token system, AV system etc.
- Coordination drawing shall be prepared by the contractor. All services above & below false ceiling must be inserted in the latest false ceiling layout. The layout shall clearly indicate all dimensional details of various equipments/services. Sectional details must be prepared where all services coincide at many places.
- Coordination drawing shall be prepared for external services also by inserting electrical, HVAC, water supply, drainage, firefighting, landscaping, internal roads in the site plan. Sectional details must be prepared to provide dimensional details.

Installation work shall commence only after the approval of above mentioned drawing by engineer in charge.

19 Manufacturer's Instruction

Manufacturer's instructions for approved products shall be followed in consultation with Engineer-in-charge.

20 Materials & Equipment

All materials and equipment shall be ISI marked and shall be of the make and design approved by the Engineer-in-charge . Unless otherwise called for, only the best Grade of materials and equipment shall be used. The Contractor shall be responsible for the safe custody of all materials and equipments till these are taken over by Client/HLL and shall insure them against theft, damage by fire, earth quake etc. A list of items of materials and equipment, together with a sample of each shall be submitted to the Engineer-in-charge for his approval and shall be kept in the sample box.

20.1.Factory Acceptance Test

Following equipments are to be tested at their factory/works before delivery to the site:

- HT panel
- Transformers
- LT/AMF/Other electrical panels
- Bus duct & rising mains
- DG set
- UPS (including battery)

- FAT format for each equipment shall be submitted to engineer in charge for approval prior to visit.
- Contractor shall comply factory acceptance test formalities as per relevant clause in GCC.

Material without factory acceptance test certificates shall not be permitted to install at site

21 Scale

All drawings shall be prepared to the scale as required for proper explanation and shall indicate the size and location of all equipments and accessories therein. The Contractor shall follow all dimensions of approved architectural drawings for the work or part concerned and check proposed drawings for any interference with the building structure or other equipment or services.

22 Brochures and Data

The Contractor shall submit the number of copies, as required, of all brochures / manufacturer's description data, operation manuals with internal complete circuit diagrams and other similar literature while obtaining the approval of product from Engineer-in-charge.

23 Approval of Shop Drawings

The approval of shop drawings, schedule, brochures etc. by Engineer-in-charge /shall be an approval of general details and arrangements only and shall not relieve the Contractor from responsibility for any deviation from drawings or specifications unless he has in writing informed by Engineer-in-charge of such deviations at the time of submission of the drawings nor shall it relieve the Contractor from any responsibility for errors or omissions of any kind in the shop drawings.

24 Samples & Catalogues

Contractor shall submit the samples & catalogue of the material, which are proposed to be used at Site as per the approved makes for obtaining approval of the Engineer-incharge.

25 Approval of Materials

All materials used on the Works shall be new and of the approved quality, conforming to the relevant specifications. Prior approval shall be obtained in writing from the Engineer-in-charge for all materials proposed and when approved, sample shall be duly identified and labeled, it shall be deposited with the by Engineer-in-charge/ and shall be kept in the sample room at Site.

26 Inspection, Testing and Inspection Certificate

i. The Engineer-in-charge and their authorised representative shall have at all reasonable times access to the Contractor's premises or Works and shall be at liberty to inspect and examine the materials and workmanship during its manufacture or erection even when they are being manufactured or assembled at other premises.

ii. The Contractor shall arrange all the materials and labour required for inspection of equipment or for any testing to be carried out at his/ manufacturer's

works or at Site. Notice for such inspection/ presence for testing shall be given to the Engineer-in-charge by the Contractor at least fifteen (15) days in advance together with the routine test certificates of the equipments/ materials given by the manufacturer.

iii. Notwithstanding approval of tests or equipment by the by Engineer-in-charge, the Contractor shall be required to perform site tests and prove the correctness of ratings and performance of equipment/ machinery and materials supplied and installed by the Contractor as per the Contract specifications and conditions. The Engineer-in-charge shall also have the power to order the material or work to be tested by an independent agency at the Contractor's expense in order to prove soundness & adequacy.

27 Schedule & Manner of Operation

Time being the essence of this Contract, Contractor shall arrange for all required labour& material in sufficient quantities and at appropriate time, execute as per schedule for execution of work to meet the contract period requirement and so manage the operations that the work shall be completed in time as provided in the contract.

28 Conformity with Statutory Acts, Rules and Standards

i. All installations shall be in conformity with the Bye-laws, Regulations and Standards of the local authorities applicable. But if the specifications and drawings call for a higher standard of material and/or workmanship than those required by any of the above Regulations and Standards, then the specifications and drawings provided in the contract shall take precedence over the said regulations and standards as per the directions of the Engineer-in-charge.

ii. However, if the drawings or specifications required something which violates the Bye-laws and Regulations, then the Bye-laws and Regulations shall govern the requirement of this installation as per the directions of the Engineer-in-charge.

iii. Indian Electricity Act and Rules: All electrical works in connection with installations of the system shall be carried out in accordance with the provision of the Indian Electricity Act, 2003 and the Indian Electricity Rules 1956, both amended up to date.

iv. CPWD Specifications: as at Schedule "F" of GCC.

v. Indian Standards: The system / components shall conform to relevant BIS wherever they exist and to the National Building Code-2016 with latest amendments / addendums.

vi. Nothing in these specifications shall be construed to relieve the Contractor of his responsibility for the design, manufacture and installation of the equipment with all its accessories in accordance with applicable Statutory Regulations and safety codes in force.

29 Completion Drawings (As Built Drawings)

i. On completion of the work and before issue of certificate of virtual completion, the Contractor shall submit to the HLL/ Engineer-in-charge, completion

drawings/details drawn to a scale in the manner decided by him including the under mentioned details alongwith one set of computer CD containing the data.

30 Electrical services

a. Run and size of conduits, inspection boxes, junction boxes and pull boxes

b. Number of circuits in each conduit

c. Location and rating of sockets and switches controlling the light and power outlets

d. Location and details of main & sub distribution boards, distribution boards indicating the circuit number controlled by them

e. Type of fitting viz. fluorescent, pendants, brackets, bulkhead etc., including their rating & type of lamp, fans and exhaust fans

f. A complete wiring diagram as installed and schematic drawing showing all connections for the complete electrical system

g. Location of telephone & data outlets, junction boxes and sizes of various conduits and number & sizes of wire drawn

h. Layout of telephone & data cables

i. Location of all earthing stations, route and size of all earthing conductors, manholes etc.

j. Layout and particulars of cables & sub mains.

k. Schematic drawing for telephone & data system

l. Layout of conduits for computer outlet points

m. Layout and details of lightning protection system.

n. Insulation tests and earth test results

o. PA System drawings

p. TV system layouts

q. Equipment drawings

r. Cable route layout of HT, LT & other cables

s. External lighting drawing with road layout

t. distribution board schedule in the format approved by engineer in charge

u. Any other drawings/details as per requirements and directions of Engineer-in-charge

<u>ELV services</u>

a. CCTV system layout

b. Fire alarm & detection system layout

c. Public address system layout

d. token system layout

e. Telephone system

f. Data system

g. TV system

h. Audio video system

i. Riser diagram of above mentioned systems

31 Checking of BOQ Quantities

All quantities indicated in BOQ are tentative which may vary as per site conditions. Contractor has to verify quantities before procuring the materials. No payment shall be payable for quantity brought to site but not used.

32 Training of Personnel

The Contractor shall arrange for training of the Client's personnel prior to provisional takeover of the project for the following:

a. HT side equipments(FP/DP structure, HT panel, Transformers)

b. DG set

c. UPS

d. LT panels/AMF panels/ other electrical panel boards

e. Fire alarm system

f. CCCTV system

g. Public address system

h. Telephone Exchange

i. Token system

j. Audio Video system

k. Adjustment of setting for controls and protective devices

l. Operation of all electrical panels including their interconnectivity and interlocking scheme

m. Any other specialized system as executed under this contract

n. Any other specialized system as executed under this contract

33 Safe Custody and Storage

Safe custody of all machinery and equipment dismantled, shifted & supplied by the Contractor shall be his own responsibility till the final taking over by the Client/HLL/ Engineer-in-charge. The Contractor should, therefore, employ sufficient staff for watch and ward at his own expenses. Client/HLL/ Engineer-in-charge may, however, allow the Contractor to use the building space for temporary storage of such equipment, if such space is available.

34 Testing and Commissioning

The Contractor shall pay for and arrange without any cost to the Engineer-in-charge, all necessary balancing and testing equipment, instruments, materials, accessories, power, water, fuel and the requisite labour for testing. Any defects in materials and/

or in workmanship detected in the course of testing shall be rectified by the Contractor entirely at his own cost, to the satisfaction of the Engineer-in-charge. The installation shall be retested after rectification of defects and shall be commissioned only after approval by the Engineer-in-charge. All tests shall be carried out in the presence of the Engineer-in-charge or his representative.

35 Operation and Running of entire system

The contractor shall pay for and arrange for operation & running of entire electrical system and other equipment for a minimum period of one month after satisfactory completion of work as desired by Engineer-in-charge. Cost of operation & running of entire system including required material e.g. Water, electricity consumables, tools & tackles, requisite manpower etc. shall be deemed to be included in the contract price and nothing extra shall be paid.

36 Layout of all services, operating and maintenance instructions. DO's and Don'ts's etc for all the plant rooms, pump room, control panels etc must be equipped with coloured layout of services for the each floor. Operation and maintenance manual of the respective services, Do's and don'ts's for all the plants, machinery & services to be installed with every individual units.

37 The name, designation, and contact details of the designated Site Engineer/Project Engineer for the concerned project should be shared with HLL Site In charge before the commencement of the work.

PART V

FORMS AND DECLARATIONS

1. PERFORMANCE DECLARATION FORM

(To be submitted in official letterhead of the firm, including complete company name, physical address, telephone numbers, and other relevant contact details.)

Details of all works of similar class completed during the last seven years ending last day of the Month of October 2026

SN	Name of work with brief description	Work order number with date	Work order amount (Excl. GST)	Gross amount of work completed (Excl. GST)	Actual Date of completion
1					
2					
3					

Note: Copies of Work orders and Completion certificates issued by the Client/Authority concerned shall be submitted as proof of the same. Completion certificates for works issued by private parties shall be supported by TDS certificates.

Signature and seal of the bidder

2. FINANCIAL STATEMENT

Name & Address of bidder:

Financial Analysis: Details to be furnished duly supported by figures in balance sheet/profit & loss account for the last three years duly as submitted by the applicant to the Income tax Department (Copies to be attached) and duly certified by the Chartered Accountant mentioning the membership number issued by ICAI along with full address.

i. Gross Annual Turnover for the last three years

Financial Year	**Annual Turnover as per audited balance sheet (In Rs.)**
Total annual turnover for the **last three** financial years	
Average annual turnover for the **last three** financial years	

ii. Profit/Loss for last three years

SN	**Financial Information in Rs. Equivalent**	**2022-23**	**2023-24**	**2024-25**
1.	Total Assets			
2.	Current Assets			
3.	Total Liabilities			
4.	Current Liabilities			
5.	Profit before Tax			
6.	Profit After Tax			
7.	Net Worth			

Enclose audited balance sheets, profit & loss statement and IT return for the above period duly certified by a Chartered Accountant as proof.

We hereby declare that the above Turnover figures are based on the audited financial statements of the firm.

Signature and stamp of Chartered Accountant

FRN:

UDIN:

Signature and stamp of the bidder

3. ACCEPTANCE FORM

(To be submitted in the letter pad of the firm indicating full name and address, telephone & E-mail etc.)

From

To

Deputy Vice President (P&S)
Hi-care Division,
HLL Lifecare Limited (A Government of India Enterprise)
Corporate Head Office, Poojappura. P.O,
Thiruvananthapuram – 695012,
Kerala, India
Ph: 0471- 2354949, 2775651
E-mail: pskerala@lifecarehll.com

Name of Work:

Dear Sir,

I / We, hereby offer to design / fabricate / supply / install / testing / validate / commission as detailed in schedule hereto or such portion thereof as you may specify in the acceptance of Bid at the price given in the price bid and agree to hold this offer open for **120 days** from the date of bid opening prescribed by the Purchaser. I / We have understood the terms and conditions mentioned in the invitation for bid and Conditions of Contract furnished by you and have thoroughly examined the specifications quoted in the bid document hereto and are fully aware of the nature of the scope of work required and my/our offer is to comply strictly in accordance with the requirement and the terms and conditions mentioned above.

We are hereby attesting all the pages of the tender document & submitting the same in proof of our acceptance of the terms of the tender.

Yours faithfully,

SIGNATURE OF THE BIDDER WITH SEAL

4. SELF-DECLARATION NON-BLACK LISTED

(In company letterhead with sign & seal)

To,

Deputy Vice President (P&S)
Hi-Care Division,
HLL Lifecare Limited (A Government of India Enterprise)
Corporate Head Office, Poojappura. P.O,
Thiruvananthapuram – 695012,
Kerala, India
Ph: 0471- 2354949, 2775651
E-mail: pskerala@lifecarehll.com

Dear Sir, this is to certify that our company_____ has not been Black Listed /debarred or found guilty of malpractice /misconduct either by State Government or Government of India in connection with manufacture and supply of any of the product(s) quoted during the last 5 years' period.

SIGNATURE OF THE BIDDER WITH SEAL

5. COMPLETION PERIOD

(To be submitted in the letter pad of the firm indicating full name and address, telephone no. & E-mail etc.)

_____(Name of the Work) as per the Schedule shall be completed within a period of **_____ days** from the date of PO/Site clearance irrespective of the no of sites awarded.

SIGNATURE OF THE BIDDER WITH SEAL

6. REQUISITION FORM FOR E-PAYMENT

Certified that I am having a Savings / Current Account in <Name of Bank> ----------
---------- at <Name of Branch>----------
-- with <IFSC Code> _____

The Account Number is: _____

I wish to receive all payments in this account through NEFT and RTGS systems, as the case may be, for all payments relating to this work.

Name of Bidder

Place: _____

Date: _____

(Attach Scanned copy of Cancelled cheque of above bank)

7. NO DEVIATION CERTIFICATE

(To be submitted in the letter pad of the firm indicating full name and address, telephone & E-mail etc.)

To
Deputy Vice President (P&S)
Hi-care Division,
HLL Lifecare Limited (A Government of India Enterprise)
Corporate Head Office, Poojappura. P.O,
Thiruvananthapuram – 695012,
Kerala, India
Ph: 0471- 2354949, 2775651
E-mail: pskerala@lifecarehll.com

Subject: No Deviation Certificate for_____ (Name of the work)

Tender Ref No.

Dear Sir,

With reference to above this is to confirm that as per Tender conditions we have visited site before submission of our Offer and noted the job content and site condition etc. We also confirm that we have not changed/modified the above tender document and in case of observance of the same at any stage it shall be treated as null and void.

We hereby also confirm that we have not taken any deviation from Tender Clause together with other reference as enumerated in the above referred Notice Inviting Tender and we hereby convey our unconditional acceptance to all terms & conditions as stipulated in the Tender Document.

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null and void.

Yours faithfully,

Date:

(Signature, name and designation
of the Authorized signatory)

Name and seal of Bidder

Note:

In case of Association, the Associate Bidder shall also submit the Form

8. BANKER'S CERTIFICATE

(To be issued by a Nationalized Schedule Bank only)

To

HLL LIFECARE LIMITED

This is to certify that to the best of our knowledge and information that M/s.……having marginally noted address, a Customer of our bank are/is respectable and is having a Credit Limit of Rs. ……. (Rupees……).

This certificate is issued without any guarantee or responsibility on the bank or any of the officers.

Signature Name Designation

Email for Confirmation of Credit Limit:

Address of Bank for Confirmation:

BANK'S SEAL

NOTE:

1) Banker's certificates should be on letter head of the Bank, addressed to tendering authority issued after invitation of bid.

2) In case of partnership firm, certificate should include names of all partners as recorded with the bank.

9. SOLVENCY CERTIFICATE

(To be issued by a Nationalized Schedule Bank only)

Reference No. Dated:

TO WHOMSOEVER IT MAY CONCERN

This is to certify that M/s. _____ having their office at _____ are a regular customer of our bank. They are solvent to an extent of Rs. _____ (Rupees_____ only). The conduct of their Account is good.

It is certified that this certificate is issued without any risk and responsibility on the part of this Bank or any of it's officials in any respect whatsoever, more particularly either as guarantor or otherwise. This certificate is issued at the specific request of the customer.

(Signature, Name & Designation of issuing authority with Seal)

10. STRUCTURE & ORGANTSATION

(To be submitted in the letter pad of the firm indicating full name and address, telephone & E-mail etc.)

SN	Particulars	Details Submitted by Bidder
1.	Name & address of the bidder	
2.	Telephone no./Telex no./Fax no.	
3.	Legal status of the bidder (attach copies of original document defining the legal status) (a) An Individual (b) A proprietary firm (c) A firm in partnership (d) A limited company or Corporation	
4.	Particulars of registration with various Government Bodies (attach attested photocopy)	
	Organization/ Place of Registration 1. 2. 3.	Registration No.
5.	Names and titles of Directors & Officers with designation to be concerned with this work.	
6.	Designation of individuals authorized to act for the organization.	
7.	Has the bidder, or any constituent partner in case of partnership firm, Limited Company or Consortium, ever been convicted by the court of Iaw? if so, give details.	
8.	Any other information considered necessary but not included above.	

SIGNATURE OF THE BIDDER

11. DETAILS OF TECHINCAL ADMINISTRATIVE PERSONNEL TO BE EMPLOYED FOR THE WORK

(To be submitted in the letter pad of the firm indicating full name and address, telephone & E-mail etc.)

SN	Designation	Total Number	Number available for this work	Name	Qualification	Professional experience and details of work carried out	How these would be Involved in this work	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

SIGNATURE OF THE BIDDER

12. FORMAT FOR UNDERSTANDING THE PROJECT SITE

(To be submitted in the letter pad of the firm indicating full name and address, telephone & E-mail etc.)

To
Deputy Vice President (P&S)
Hi-care Division,
HLL Lifecare Limited
Ph: 0471- 2354949, 2775651
E-mail: pskerala@lifecarehll.com

Subject: Undertaking of the Site Visit for_____ (Name of the work/ project)

Sir,

l/we hereby certify that l/we have examined & inspected the site & its surrounding satisfactorily, where the project is to be executed as per the scope of works. I/ We are well aware about the following

- Location of the proposed building and its allied works.
- Site clearance and no cutting off the matured trees.
- Topography and contouring of the land where the project is to be executed to understand the cutting & filling during the construction and about depth of column/ foundation below the plinth beam.
- Nature of the ground & sub-soil of the site and accessibility to the site.
- Existing surrounding road level to finalize plinth beam level as per standard norms.
- Location of Existing Sewer line & Water pipe line network to connect the proposed building and allied works to make the building functional.
- Location of existing Electric Sub-Station to supply the electricity for the proposed building and allied works to make the building functional.

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 Since it is item rate Contract. I / We hereby confirm that no extra/additional cost shall be claimed on above aspects.

Yours faithfully,

(Signature, name and designation
of the Authorized signatory)
Name and seal of Bidder

13. FORMAT OF SITE VISIT CERTIFICATE

Date:

SITE VISIT CERTIFICATE

This is to certify that _____, having its office at _____has conducted a site visit at the project location:

The visit was carried out on _____in connection with the following e-tender:

- Name of Work:
- Tender ID:

This certificate is issued upon request of the bidder

Udaya Kumar R S
Assistant Manager
Hi-Care Division (P&S)

14. BID FORM

Date_____

To

HLL Lifecare Limited

……
Ref. Tender Document No. _____dated _____

We, the undersigned have examined the above mentioned tender document, including its amendment/corrigendum (if any), the receipt of which is hereby confirmed.

If our BID is accepted, we undertake to perform the work, in accordance with this tender document.

We further confirm that, if our BID is accepted, we shall provide you with a performance security of required amount in an acceptable form in terms of GCC clause for due performance of the contract.

We agree to keep our BID valid for acceptance as required in the GIT clause or for subsequently extended period, if any, agreed to by us. We also accordingly confirm to abide by this BID up to the aforesaid period and this BID may be accepted any time before the expiry of the aforesaid period.

We further confirm that, until a formal contract is executed, this tender read with your written acceptance thereof within the aforesaid period shall constitute a binding contract between us.

We further understand that you are not bound to accept the lowest or any BID you may receive against your above-referred tender enquiry.

We confirm that we do not stand deregistered/banned/blacklisted by any Govt. Authorities.

We confirm that we fully agree to the terms and conditions specified in above mentioned tender document, including amendment/ corrigendum if any

(Signature with date)
(Name and designation)
Duly authorised to sign BID for and on behalf of

PART VI

LIST OF APPROVED MAKES

(In company letter head)

LIST OF APPROVED MAKES FOR CIVIL AND ELECTRICAL WORK

(To be submitted in the letter pad of the firm indicating full name and address, telephone & fax numbers etc.)

TECHNICAL SPECIFICATIONS

1. All the measurements shall be as per the latest edition of B.I.S.
2. The Technical specifications, code of practice etc. shall be referred in accordance with CPWD Specifications and work shall be executed accordingly for all works.
3. Items which are not covered under CPWD Specification shall be carried out as per relevant Indian Standard Specifications of BIS/ NBC/ IRC/ BS/ ASTM/ DIN as directed by the Engineer-in-charge.
4. The detailed specifications for electrical works shall be in accordance with CPWD – General Specifications for Electrical Works Part I (Internal) 2013.

TECHNICAL SPECIFICATION & CONDITIONS – CIVIL WORKS

1. **EARTH WORK**: As per relevant CPWD specifications.

   A. Irrespective of the stipulations in the relevant CPWD Specifications or elsewhere in the Contract, the excavated earth shall be disposed of by the contractor at his own cost to the place as directed by Engineer – in-charge and/or permitted by the local authority after obtaining written permission of the Engineer – in-charge and no payment will be made by the HLL for disposal of this excavated earth.

   B. The Contractor shall, at his own expense and without extra charges, make provision for all shoring, pumping, dredging or bailing out water, encountered from any sources such as rain, floods, springs, subsoil water table being high or due to any other cause whatsoever.

   C. Filling in plinth shall be consolidated with water and compacted with pneumatic rammers, to achieve 90% relative density on testing. One test is to be carried out for 1000 sq.ms. of compacted area.

2. PLAIN CEMENT CONCRETE AND REINFORCED CEMENT CONCRETE WORK:

A. STONE AGGREGATE:

i. Stone aggregate used in the work shall be of hard broken stone to be obtained from approved source and shall conform to relevant provision in the Latest CPWD Specifications for works.

B. SAND

i. Sand to be used for the work shall be of as specified in CPWD Specifications 2019. Sand shall be obtained from the source to be got approved by the Engineer in charge and washed if required, with appropriate equipment to bring down the chemical, inorganic and organic

impurities within the permissible limits as per the direction of the Engineer in charge. The same shall consist of hard siliceous materials. Note: Where only one variety of sand is available the sand will be sieved for use in finishing work as directed by the Engineer – in – charge in order to obtain smooth surface and nothing extra will be paid on this account.

ii. Nothing extra shall be paid for screening or washing the sand as prescribed above.

C. CEMENT

i. The contractor shall procure 43/ 53 grade ordinary Portland cement [grade as per design/ decision of Engineer-in-charge] conforming to IS 8112/Portland Pozzolana Cement conforming to IS:1489 (Part-I) as required in the work, from approved manufacturers of cement having a production capacity not less than one million tonnes per annum as approved by the Engineer –in -charge. The tenderers may also submit a list of names of cement manufacturers which they propose to use in the work. The tender accepting authority reserves right to accept or reject name(s) of cement manufacturer(s) which the tenderer proposes to use in the work. No change in the tendered rates will be accepted if the tender accepting authority does not accept the list of cement manufacturers, given by the tenderer, fully or partially. The supply of cement shall be taken in 50 kg bags bearing manufacturer's name and ISI marking. Samples of cement arranged by the contractor shall be taken by the Engineer-in-charge and got tested in accordance with provisions of relevant BIS codes. In case the test results indicate that the cement arranged by the contractor does not conform to the BIS codes, the same shall stand rejected, and it shall be removed from the site by the contractor at his own cost within a week's time of written order from the Engineer in-charge to do so. The cement shall be brought at site in bulk supply of approximately 50 tonnes or as decided by the Engineer-in-charge. The cement go down of the capacity to store a minimum of 2000 bags of cement shall be constructed by the contractor at site of work for which no extra payment shall be made.

D. CENTERING SHUTTERING AND SCAFFOLDING:

i. All Scaffolding centering for RCC shall be with properly designed system and brought to site well in advance so that the progress of the work is not hampered for non-availability of the same.
ii. All shuttering for RCC work except soffits of slab shall be in water proof shuttering Ply. Shuttering for slab and soffits shall be in water proof shuttering ply or in good quality mild steel plates free of dents, bends or warping and rusting as approved by the Engineer in charge.
iii. Contractor should deploy complete one set of shuttering materials for minimum one complete floor and the shuttering material for beam bottom shall be minimum for two complete floors.

E. REINFORCEMENT:

i. TMT reinforcement steel shall be used shall be as per design and conforming to IS: 1786 pertaining to Fe 500D OR Fe 550D grade of steel.
ii. TMT steel bars manufactured by main producers, as per list of makes, shall be allowed in the work. Contractor shall produce manufacturer Test Report for each dia and each lot Tests. Nothing extra will be paid for “straightening of bars” received from market in coils or with

bends. All incidental charges of any kind whatsoever including cartage, storage, safe custody of materials, cutting and wastage etc. shall be borne by the contractor.

iii. The actual average sectional weight for dia up to 10 mm shall be arrived at from one meter long samples (minimum 3 from each dia) taken from each lot of steel. The discretion of the Engineer – in – charge shall be final for the procedure to be followed for determining the average sectional weight of each lot. Quantity of each diameter of steel received at site of work each day will constitute the single lot for this purpose.

iv. The weight of each lot of a particular diameter of 10mm and below shall be reckoned as the weight as per actual issue multiplied by a factor equal to the standard sectional weight of the particular diameter divided by the average sectional weight of the particular dia in a particular lot worked out as per above para. Adjustment for the steel shall be effected on the basis of the weight as modified above for quantity payable.

v. Measurement of all diameters of steel be on linear basis and will be converted into weight on the basis of standard sectional weight coefficients given in relevant CPWD specifications mentioned in schedule 'F' of General Conditions of Contract.

vi. Measurement of reinforcement shall be as per procedure described in the relevant CPWD specifications mentioned in schedule 'F' of General Conditions of Contract

F. CONCRETE MIX DESIGN

The mix design shall be for MODERATE exposure and GOOD degree of quality control, unless otherwise specified.

3. BRICK WORK

A. BRICK WORK

a. Bricks used in the work shall be obtained from kilns to be got approved from the Engineer in charge and shall be best quality well burnt ground moulded bricks as available in the vicinity. They shall have a compressive strength of not less than 75 Kgs/sq.cm and an absorption percentage of not more than 15 (Fifteen) % of its dry weight when immersed in water for 24 hours. In all other respects they shall conform to the provision in Latest CPWD Specifications for works.

b. Both the face of wall of thickness more than 23cm shall be kept in the proper plane. Walls of half brick thickness or less shall be measured separately and paid in sqm.

c. Bricks wall beyond half brick thickness shall be measured in multiple of half brick (i.e. more than 115mm or equivalent) which shall be deemed to be inclusive of mortar joints. In all other respects they shall conform to the provision in relevant specifications of the work.

d. For mortar, use of PP Cement shall be preferred.

B. SOLID/HOLLOW BLOCK WORK

a. Precast CC blocks shall be procured from approved manufactures or manufactured at site. Nothing extra shall be payable on account of adding any admixture for making pre- cast blocks or for steam curing.

b. The Solid CC blocks shall have nominal size of 400mm x 200mm x 200mm for 200mm thick masonry wall& Hollow blocks of nominal size 400mm x 200mm x 100mm for 100mm thick masonry wall and shall confirm to IS 2185.

c. The samples of CC blocks (each sample consisting of 6 specimens) shall be chosen randomly from the lot and tested for various parameters specified below. One samples shall be tested for every 100 cum or part thereof.

d. Following parameters shall be tested.
   - Compressive strength.
   - Water absorption
   - Density
   - Dimensional Tolerances
   - The material shall meet following parameters :
   - Compressive strength shall be no less than 5.0 N/sq. mm.
   - Water absorption shall not be more than 5%.
   - Density shall be not less than 1500 kg/cum.
   - Dimensional tolerance in the size shall be not more than + 5mm for length and + 3mm for height and width.

e. Top course of all plinth, parapets, steps and top of walls below floor and roofs shall be laid with solid blocks, properly radiated and keyed into position to form cut (meru) corner. Where blocks cannot be cut to meru corners, cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) equal to thickness of the coarse shall be provided in lieu of cut blocks. No additional payment shall be made on this account.

f. Nothing extra shall be payable on account of chasing the CC block masonry work for embedding pipes, electrical boards/ boxes etc. and also filling the chases with cement mortar 1:4 (1 Cement : 4 Coarse sand). The chasing shall however be carried out using machine cutters so as not to disturb the joints in the masonry and without any cracks being developed in the masonry.

g. All other specifications for 100 mm thick and 200mm thick hollow/solid block work shall be as described for full brick and half brick masonry work respectively.

h. For unsupported lengths of 100 mm thick walls exceeding 3.5 m, 100 x 200 mm wide R.C. mullions shall be provided at 3.5 m centre, tied to the lintels at door height. Similarly, continuous R.C. beam of size 100 x 150 mm shall be provided at door height for 100 mm thick wall. Such RC mullion/ bands shall be measured and paid separately.

4. **CEMENT PLASTER: -**

The use of PP Cement shall be preferred.

The joints in the brick work, concrete blocks, shall be raked to a depth of 15 mm while the masonry is green. Concrete surfaces to receive plaster shall be suitably roughened. All walls shall be washed with water and kept damp for 10 hours before plastering. The plaster unless specified otherwise shall be average of 12 mm thick on walls. The finished texture shall be as approved by the HLL. The mix for plaster unless otherwise specified, shall be one-part cement and four parts sand, to walls. All plaster work shall be kept continuously wet for seven days.

5. STEEL GRILL WORK:

a. All steel grills shall be according to the detailed drawings and obtained from approved suppliers. These shall conform to Latest CPWD Specifications for works.

b. In case of grills an approved quality priming coat of zinc chromate shall be applied over and above a shop coat of primer. Nothing extra shall be payable for providing shop coat primer, but the zinc chromate primer, if additionally required, will be paid for separately.

6. PAINTING

i. MATERIAL

This paint shall be brought to the site of work by the contractor in its original containers in sealed condition. The material shall be brought in at a time in adequate quantities to suffice for the whole work or at least a fortnight's work. The materials shall be kept in the joint custody of the contractor and the Engineer-in- Charge. The empty containers shall not be removed from the site of work till the relevant item of work has been completed and permission obtained from the Engineer-in-Charge

ii. SCAFFOLDING

Scaffolding as required for the proper execution of the work shall be erected. If work can be done safely with the ladder or jhoola these will be permitted in place of scaffolding.

iii. PREPARATION OF SURFACE

The surface shall be thoroughly cleaned off all mortar dropping, dirt dust, algae, fungus or moth, grease and other foreign matter of brushing and washing, pitting in plaster shall make good, surface imperfections such as cracks, holes etc. should be repaired using white cement. The prepared surface shall have received the approval of the Engineer in charge after inspection before painting is commenced.

iv. APPLICATION

Before pouring into smaller containers for use, the paint shall be stirred thoroughly in its container, when applying also the paint shall be continuously stirred in the smaller containers so that its consistency is kept uniform. The lids of paint drums shall be kept tightly closed when not in use as by exposure to atmosphere the paint may thicken and also be kept safe from dust. Paint shall be applied with a brush on the cleaned and smooth surface. Horizontal strokes shall be given, First and vertical strokes shall be applied immediately afterwards. This entire operation will constitute one coat. The surface shall be finished as uniformly as possible leaving no brush marks.

v. BRUSHES & CONTAINERS

After work, the brushes shall be completely cleaned of Paint and linseed oil by rinsing with turpentine. A brush in which Paint has dried up is ruined and shall on no account be used for painting work. The containers when not in use, shall be kept closed and free from air so that Paint does not thicken and also shall be kept safe from dust. When the Paint has been used, the containers shall be washed with turpentine and wiped dry with soft clean cloth, so that they are clean, and can be used again.

7. ALUMINIUM WORK \UPVC

a. The scope of the work is the fabrication, supply and erection at site of all types of Aluminium/ UPVC glazed doors, windows and ventilators in accordance with the drawings and specifications.

b. The supply and erection will include all parts such as but not restricted to frames, tracks, guides, mullions, styles, rails, couplers, transoms, rails, plates glazing bars, glass, hinges, arrangement, spring catches, cord and pulley arrangements, spring catches, cord and pulley arrangements door closers floor springs etc., required for the whole work whether the parts/

items are individually and specifically referred to in the schedules/ specifications/drawings or not provided that the supply and installation of such parts can be inferred there from and are necessary to make the work complete, unless separate provision is made in the bills of quantities for supply to such parts/items.

c. The doors, windows, ventilators, will be fabricated to suit the finished clear openings in the building/structure which the tenderer will himself measure.

d. Materials:-

i. The members will be made out of aluminum alloy corresponding to IS:733 and will consist of extruded sections and of other shapes, and to sized gauges as shown in the drawings/ described in accordance with the relevant IS codes. The members shall be chosen to provide strength/ stability and maximum resistance to wear and tear.

ii. UPVC members shall be made of PVC material conforming to IS: 10151.

iii. The Sections will be as per approved makes, extruded sections. As indicated in the drawings the tenderer should specifically mention which sections he is using.

iv. The weight of sections and the corresponding catalogue numbers are mentioned.

v. The weight of sections and the corresponding catalogue numbers are mentioned. The IS specifications are to be strictly adhered.

vi. The extruder using recycled materials may be preferred.

vii. The alloy of extruded aluminum should be BS or IS old HE9, Alcon 50 SWP. to this effect test certificate has to be provided for the extruder.

FINISHING

e. The extruded aluminum section has to be mechanically finished to remove all scratches; extrusion marks etc and subsequently thoroughly cleared in all alkali baths prior to anodizing.

f. The polyester powder coating, as required, as per item of work, shall be of desired shade with minimum average thickness to 50 microns or other shades as required and to this effect the tenderer must have to produce test certificate from authorized institutions Bureau of Indian Standard.

g. The polyester powder coated material should be properly wrapped in gummed tape before fabrication to avoid scratches during fabricated and erection shall be kept protected till handing over.

FABRICATION:

a. Before commencing the fabrication the contractor shall submit to the Engineer – in - charge for their approval detailed shop drawings, based on the Architectural drawings and corresponding specification showing junctions, fittings, accessories such as hinges flush bolts, locks, latches, latching arrangements, peg stays, rotor arms, anodize pivots gaskets rubber packing door felts, mastic, sealant etc., including fixing and sealing arrangements . Type and method of scaffolding he intends to use, Fabrication is to be taken up only after approval by the Engineer – in
- charge and in accordance with the approved drawings. Sections for fabrication of door/ window/ventilators etc shall be as per architectural drawings or as approved by the Engineer – in - charge.

b. A sample of finished door / windows/ ventilator railing etc. shall be fabricated as per the shop drawings approved by the Engineer – in - charge for final approval before under taking mass production/ fabrication,

c. The doors, window, ventilators and partitions shall be as per thickness given in the approved shop drawings, Polyester Powder coating shall be as specified in the item specifications.
d. All materials shall conform to relevant IS. Codes and in the absence of IS code, they should correspond to the best engineering practice; decision of the Engineer – in - Charge shall be final and binding on the contractor.
e. Fabrication shall be done true to the drawing/ sample approved and in correspondence to the finished openings at the site. All joints shall be mitered at the corners, true right angles, and joints to be finished neatly to hairlines, with concealed fasteners, wherever possible joints shall be made in concealed locations.
f. Site installation shall be with concealed screws, self-tapping or other approved fasteners or may be by welding, due precautions shall be taken to avoid any distortion/ discoloration /damage to the finished items.
g. Wood work faces /parts coming in contact with masonry shall before shifting to the site be given a heavy coat of alkali resistance bitumen paint. Steel items coming in contact with other incompatible materials shall be given a thick coat of zinc chromate primer.

GLAZING:

Glazing shall be done with flawless sheet glass of best approved quality without waviness, distortion, coloration / discoloration, of specified thickness in sizes as shown in the drawings, fixed as required with special glazing clips, putty, neoprene/PVC gaskets. All glass shall be cleaned thoroughly before they are fixed in position. Unless otherwise specified the minimum thickness shall be 5 mm thick.

8. FALSE CEILING

a. False ceiling items in general are carried out as per the description of the item in the Bill of quantities and also as per the manufacturer's specifications / as directed by the Engineer – in – Charge. 10
b. Location of particular type of false ceiling shall be as per relevant drawing, in its absence written approval of the Engineer – in - charge shall be obtained.
c. The false ceiling tiles from manufacturers using recycled materials shall be preferred.

9. FLOORING:

a. The flooring in the building shall be as per the approved floor finish drawings and laid in such a way that limits in floor levels would not exceed the limits provided in the latest CPWD specifications or manufactures specifications.
b. Wherever Vitrified Tile flooring is done, it shall be with multy grade/range 1st Quality tiles.
c. Slope in floors shall be provided as per architectural drawings, else the levels at any place when checked over a distance of one meters in any direction should not show variation in floor level more than 3 mm.
d. Rate for the items of flooring is inclusive of provision of sunken flooring and finishing edges of the same in bath kitchen, toilets, cutting holes for traps/ pipes etc., and nothing extra shall be paid on this account unless otherwise specified.
e. Protective layer to be provided of any type of flooring and nothing extra shall be paid on this account.10.

10. STAINLESS STEEL RAILINGS

a. The scope of the work includes preparation of the shop drawings (based on the architectural drawings), fabrication, supply, installation and protection of the stainless steel railing till completion and handing over of the work.
b. The stainless steel work shall be got executed through specialized fabricator having experience of similar works. The Contractor shall submit the credentials of the fabricator for the approval of the Engineer-in-Charge.
c. The Contractor shall submit shop drawings, for approval of the Engineer-in-Charge, for fabricating stainless steel railing with detailing of M.S. stiffener frame work backing along with the fixing details of the M.S. frame work to the R.C.C columns. The details of the joints in the stainless steel railing including location, etc. shall also be shown in the shop drawings.
d. The Contractor shall procure and submit to the Engineer-in-Charge, samples of various materials for the railing work, for approval. After approval of samples, the Contractor shall prepare a mock up for approval of Engineer-in-Charge/ HLL. The material shall be procured and the mass work taken up only after the approval of the mock up by the Engineer-in-Charge/ HLL. The mock-up shall be dismantled and removed by the contractor as per the directions of the Engineer-in-Charge. Nothing extra shall be payable on this account.
e. The stainless steel shall be of grade 316 with brushed steel satin finish and procured from the approved manufacturer. It shall be without any dents, waviness, scratches, stains etc.
f. The required joints in the railing provided as per the architectural drawings, shall be welded in a workmanlike manner including grinding, polishing, buffing etc. all complete and compacted. The temporary clamps provided and fixed to hold the stainless steel railing, in position shall be removed after the concrete has set properly. The junction of the flooring and the cladding shall be neatly filled with weather silicone sealant of approved colour and shade. Nothing extra shall be payable on this account.
g. One test (three specimens) for each lot shall be conducted for the stainless steel pipe in the approved laboratory. Therefore, the material shall preferably be procured in one lot from one manufacturer.
h. The finished surface shall be free of any defects like dents, waviness, scratches, stains etc. and shall have uniform brushed be rejected and redone by the Contractor at his own cost. The finished surface shall therefore be protected using protective tape which shall be removed at the time of completion of the work. The surface shall then be suitably cleaned using nonabrasive approved cleaner for the material. Nothing extra shall be payable on this account.
i. The item includes the cost of all inputs of labour, materials (including stainless steel pipes, welding, brazing, concrete, protective film, weather silicone sealant etc including cost of providing and fixing M.S. frames), T & P other incidental charges, wastages etc. The items also included providing and fixing stainless steel anchor fasteners for fixing railing.
j. The railing shall be fixed in position using stainless steel pipes, stainless steel posts of required diameters and thickness as shown on drawing and polished to satin finish including cutting, welding, grinding, bending to required profile and shape, hoisting, butting, polishing etc.
k. The item includes the cost of all inputs of labour, materials, T&P, other incidental charges, wastage etc. The entire work shall be carried out to the satisfaction of Engineer-In-Charge.

11. GLASS:

a. All glass and glazing material shall be verified and coordinate with the applicable Performance requirement.
b. All glass shall be cut to require size and ready for glazing. All glass shall be accurate sizes with clear undamaged edges and surfaces which are not disfigured. Any panel which does not fit any section of the curtain wall and shop front will be rejected and a replacement made at the Contractor's expense.
c. Glass shall conform to the quality, thickness and dimensional requirement specified in Bill of Quantities/ CPWD Specification.
d. Heat strengthened glass shall not deviate in surface flatness by more than 0.23 mm with in 260mm of leading or trailing edge, or 0.076 mm in centre. Direction of ripple shall be consistent and is acceptable to Engineer-in-charge. Distortion of glass shall be controlled as much as possible during heat strengthening. Sag distortion shall be unidirectional and surface compression shall be in the range of 320-450 Kg/cm². All glass shall be delivered to site with the manufacturer's label of identification attached.
e. The glass glazed panel/ structural glazing frames for the structural glazing system shall be designed to withstand lateral imposed loads and comply with requirement of local building codes.
f. Glass shall be free from defect or impurities detrimental to its performance. Defects such as bubbles, waves, spots scratches, spalls, discoloration, visibly imperfect coating, chipping, and bubbles delaminating of opacifier film shall be limited in accordance with the Manufacturer's / trade guidelines. The glass is to be produced in such a way that the rollers will be parallel to what will be the horizontal position of the glass. Glass should be consistent in colour.
g. Double glazed units shall be procured only from approved manufacturer. Quality control tests shall be performed for mixing, curing, adhesion and dew point. The unit shall be guaranteed against condensation and dirt between the panes, failure of seal and damage to internal coating.
h. All glass breakage caused by the Contractor or his sub-contractor because of negligence or caused by the installation of faulty work by him shall be replaced by the Contractor at his own expense without delay to the project completion.

12. WATER PROOFING TREATMENT:

All the items for water proofing treatment with cement based water proofing treatment for roof slab and sunken portion in schedule of quantities shall be guaranteed for TEN YEARS the case of cement based treatment by the contractor as per Performa prescribed. The water proofing treatment work should be got done through specialized agency approved by EIC.

13. WATER PROOFING TREATMENT FOR ROOF /SUNKEN FLOORS OF W.C`S ETC.

a. Water proofing treatment for roof/ sunken floor has to carried out as per the respective Bill of Quantities/ CPWD Specification.
b. The finished surface after water proofing treatment shall have required slope.
c. While treatment of sunken floors is done it shall be ensured that the 'S' or 'P' traps as the case may be have been fixed/ eased and rounded off properly the work shall be carried out as per relevant CPWD specifications.

d. GURANTEE: The above water proofing, treatment shall be guaranteed for TEN YEARS against any leakage etc. the contractor shall have to execute a bond, 10 % of cost of items executed for water proofing shall be retained for 10 years as security (Refer GCC provisions).

14. ANTIBACTERIAL PAINT

a. The Antibacterial Paint shall be able to provide anti-Microbial Protection:
b. The scope of work includes providing & applying approved makes anti-Microbial Paint on wall surfaces as per manufacturer's specifications complete in all respect & as directed by Engineer-in-charge. Following are the desired characteristic of the paint:
   i. Protection: The product hygiene coatings to start the biocidal action as soon as the microorganism land on the surface, and prevents the growth of mould, bacteria and yeasts for at least 5 years.
   ii. Lily Cycle Savings: The unparalleled durability of hygiene coatings should help to extend the maintenance cycle and to minimize all related material, labour and shut down costs.
   iii. Chemical Persistence: The hygiene coatings should be highly resistant to abrasives, detergents and weak acids and alkalis used in cleaning

15. CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPES

CPVC pipes & fittings used in hot & cold potable water distribution system shall conform to requirement of IS 15778. The material from which the pipe is produced shall consist of chlorinated polyvinyl chlorides. The polymer from which the pipe compounds are to be manufactured shall have chlorine content not less than 66.5%. The internal and external surfaces of the pipe shall be smooth, clean and free from grooving and other defects. The pipes shall not have any detrimental effect on the composition of the water flowing through it.

LIST OF APPROVED MAKES (CIVIL WORKS)

SN	Material	Approved Make/Manufacturers
1	Plywood /Block board /Ply board	Duro/ Greenply/ Century/ Kitply/ National/ Archiply/ Merino/equivalent
2	Pre-laminated particle board / Veneered particle board	Novapan /Century /Green Ply /AK Plywood/ Merino/equivalent
3	PVC door/shutter	Rajshri/ Plasopan/ Synkapolywood/ Polyline Sintex/ Polyex/equivalent
4	Clear Glass / Clear Float Glass / Toughened Glass/ Mirror/ Structural Glazing	Modiguard/ Saint Gobian (SG)/ TATA Continental/ Asahi India Safety Glass Ltd/equivalent
5	Glass Wool / Insulation Boards	Rockwool/ UP Twiga/ Lioyd Insulation/ equivalent
6	Aluminum building hardware	IPSA/ Everite/ EBCO/ ECIE/ Hardwyn Traders/equivalent
7	Aluminium Sections	Jindal/ Hindalco/ Indal/equivalent
8	UPVC Doors & Windows & Partitions	Fenesta/ Lingel/ CASSA/ Evolution/ Kommerling/ NCL Wintec/ Duroplast/AparnaVenster/equivalent
9	UPVC Toilet Doors	AMD Overseas/ Fenesta/ Lingel/ CASSA/ Evolution/ Kommerling/ NCL Wintec/ Duroplast/AparnaVenster/equivalent

SN	Material	Approved Make/Manufacturers
10	Locks/Latches	Godrej/ Harrison/ Hettichplaza/ yale/ link/equivalent
11	Door Hardware	Dorma/ Kich/ Classic/ Haffle/ Ozone/ Geze/equivalent
12	Hydraulic Door Closer/Floor Spring	Godrej/ Hardwyn/ Dorma/ Everite/equivalent
13	Adhesive for tiles	Cico / Pidilite / ArdexEndura / Sikka / Fosroc / BASF/ MYK Laticrete
14	Adhesive for Wood Work	Fevicol/ Pidilite/ ArelditeCico/ Vamicol/ Dunlop/equivalent
15	Fastener	Fisher/ Hilti/ Canon/ Bosch/equivalent
16	Fire Sealant	Hilti/ Promat/ Birla/ 3M/equivalent
17	Silicon sealants /Weather Sealant / Structural Glazing Sealant/ Additives	Asian paints/ Foscroc/ Pidilite/ GE- Silicon/ Pidilite/ CICO/ Sikka/ MYK Arment
18	Cement	ACC/ Coromandel / Ultra tech/ JK Cement/ Ambuja/ India Cement/ Ramco/ Dalmia/ Malabar Cement/ Birla/ Chettinad/ Cement Corporation of India/ Bharati/equivalent
19	Concrete Additive	Sikka/ CICO/ Pidilite/ Fosroc/ Fairmate/ MC Bauchemie / BASF/ MYK Arment
20	Concrete Admixture	Fosroc/ Pidilite/ MYK Arment
21	AAC blocks	Xtralite from Ultratech/ Aerocon from HIL/ Siporex India Limited/equivalent
22	Damp proof material	Impermo/ Duraseal/ ACCO-proof/
23	Gypsum Board / Gypsum False Ceiling/ Gypsum Partitions	India Gypsum/ SaintGobain/ Lafarge/ Boral Gypsum/ Armstrong/equivalent
24	Calcium Silicate Boards & Tiles False Ceiling	India Gypsum/ Aerolite/ RAMCO (Hilux)/ Saint Gobain (Gyproc)/equivalent
25	Metal false Ceiling	Armstrong/ Hunter-Douglas/ USG/ Unimet/ equivalent
26	Mineral fibre false Ceiling	Armstrong/ Decosonic/ USG/ AMF/ Saint Gobain (Gyproc)/equivalent
27	Ceramic Tiles	Kajaria/ Somany / H & R Johnson/ Orient - Bell NITCO/ RAK/equivalent
28	Vitrified Tiles (Double/ Fully Charged)/ Gem Free	Kajaria/ Somany / H & R Johnson/ Orient- Bell/ NITCO /RAK/equivalent
29	Epoxy Flooring	CIPY/ FOSROC/ ArdexEndura/ Dr. Beck/ Flamaflor/ BASF/ MYK Arment
30	PVC Flooring	LG Floors / Gerflor / Premier Vinyl flooring / Armstrong/equivalent
31	Cement Concrete Paver Tiles/ Drain cover/ Kerb Stone	K.K/ HPL/ TUFFTECH/ NITCO/ Modern/ Dalal Tiles/ CICO/ Bharat Concrete Products/ Ashokaa/ Uni Stone Products (India) Pvt. Ltd/ Hindustan Tiles/equivalent

SN	Material	Approved Make/Manufacturers
32	Antistatic Floor Coating	INARCO/ PVC WONDER FLOOR/ ARMSTRON/ MYK Arment
33	Water proofing compound	Dr.Fix/ FOSROC/ SIKA/ CICO/ Pidilite/ Impermo by Snowcem/ MYK Arment
34	Water proofing Materials (Bitumenistic)	BASF/ Fosroc/ Sikka/ CICO/ Pidilite/ STP/ ArdexEndura/ MYK Arment
35	White Cement	Birla White/ JK White/equivalent
36	Wall putty	JK Wall Putty/ Birla Putty / Nippon/equivalent
37	Synthetic Enamel Paint	Asian (Premium Apcolite Gloss)/ Berger (LuxolHigloss)/ Nerolax/ ICI (Dulux Gloss)/ Nerolac / Jotun/equivalent
38	Oil Bound Distemper	Nerolac/ Berger(BisonAcrylic)/ Asianpaints/
39	Dry Distemper	Berger(Castle)/equivalent
40	Emulsion Paint	Nerolac/ Berger/ Asian paints/ ICI/ Jotun/equivalent
41	Steel/ wood primer	Nerolac/ Berger/ Asian paints/ ICI / Jotun/equivalent
42	Texture Paint	Spectrum/ Unilite Heritage/ Asian/ Berger/ Jotun/ equivalent
43	Epoxy Paint	ICI Dulux/ Nerolac/ Cico/ Sikka/ BASF/ Berger/ Pidilite/ MYK Arment
44	OT: Anti -Fungal Paint	ArdexEndura/ Sikka by Liquid Plastic/ Viesmann/ SSK/ TRILUX/ MYK Arment
45	Water proofing cement paint	Snowcem/ Asian/equivalent
46	Pre –coated galvanized steel Profile sheet & accessories	TATA Bluescope/ DynaRoof/ ESSAR Steel/ JINDAL/ Llyod Insulations India Ltd / S.R Metals/equivalent
47	Steel section windows, Pressed Steel door frame	San HarvicSteelman Industries/ AGEW/ BHAWANI-STEEL/equivalent
48	Structural Steel Sections/ Rolled Sections & Tubeless Sections	SAIL, TATA (TISCO), RINL, Jindal/ RANA/ Capital/ Kamdhanu/ Prithivi/ Prakashsurya/ Appolo&Hitech/equivalent
49	Reinforcement Steel	SAIL/ TATA(TISCO)/ RINL/ JSW/ JINDAL/equivalent
50	Pre-coated Galvanized Steel Sheet	Tata BlueScope / Llyod Insulations India Ltd / S.R.Metals/equivalent
51	Polycarbonate Sheets	Galina/ GE Plastic / Skyarch/ Polytechno/ Tuflite/equivalent
52	PUF/ Sandwich Panels	Llyod Insulations India Ltd / Jindal / T K E S P Ltd. Isocab Sandwich Panels/equivalent
53	Vitreous china sanitary ware	Jaquar/ Kohler/ Cera/Hindware/ Parryware / Kerovit/equivalent

SN	Material	Approved Make/Manufacturers
54	Plastic WC cover	Hindustan Saitary ware, Commander, DIPLOMAT/equivalent
55	Stainless Steel sink	Hindware/ Neelkanth/ Nirali/ Jayna/ Anupam/equivalent
56	G.I pipes	Jindal Hissar/ TATA/ BST/equivalent
57	G.I fittings	Unik/ ZOLOTOM/ DRP-M/ Kent/ equivalent
58	C.PVC pipe	Astral/ Ashirwad/ SFMC/ Finolex/ Ashirwad/equivalent
59	Rainwater & PVC pipes & fittings	Prince/ Supreme/ Finolex/ SFMC/ Astral/equivalent
60	Gun metal valves	Leader/ Sant/ Zoloto/ Kriloskar/ Cera/ Jaquar/equivalent
61	CPVC pipes & fittings	Supreme/ Finolex/ SFMC/ Astral/ Prince/equivalent
62	C.l covers & Manhole covers	RIF/ NICO/ SKF/equivalent
63	SS Gratings/ Soap Dish/ Towel Rail and other SS fitting	Camry/ Glacier/ Gem/ Jaquar/ Grohe/equivalent
64	CP Brass Fittings	Jaquar/ Hindware/ Crome/ Cera/equivalent
65	Floor Drain Fixture & Channel Gratings	Chilly/ Neer/ ACO/equivalent
66	C.P .Grating for Floor Trap	Chilly/ CockroachTrap/ GMGR/equivalent
67	Cast Iron Pipes & Fittings Manhole covers and frames	Electro Steel Calcutta/ Kesoram Calcutta/ NECO/ R.I.F./ B.I.C./ Hepco/ SKF/ Kajeco/equivalent
68	PVC Storage Tanks	Sintex/ Rotoplast/ Electroplast/ Fusion/ Polycon / Prince/equivalent
69	Anticorrosive Tape for Pipe Protection	PYPKOTE/equivalent
70	Pressure Gauge	HGuru/ Fiebig/ Dwyer/equivalent
71	PTMT Fittings	Prayag/ Jaquar/ Cera/ Prayag/ Polytuf/equivalent

Note:

1. The Engineer-in-charge is at liberty to select any of the brands indicated above. The contractor obtains prior approval from Engineer-in-charge before placing the order listed above.
2. Change of any make of material in case of its non-availability or any other such reason shall be at the discretion of the Engineer-in-charge. The Contractor shall not be allowed to change the makes without their prior permission.
3. Equivalent make of any item may be added with the approval of Engineer in charge, wherever makes have not been specified for certain items, the same shall be as per BIS and as per approval of Engineer.
4. In case of items for which approved make is not given above, the Contractor shall place the order with the prior approval of the Engineer-in-charge.

5. In case of Contradiction between the approved makes/brands specified above and mentioned in the Specifications /Bill of quantities. The decision of the Engineer-in-Charge shall be final and binding on the Contractor.
6. All materials should confirm to relevant standard and codes of BIS and shall have ISI mark.

TECHNICAL SPECIFICATION & CONDITIONS – ELECTRICAL & MECHANICAL SERVICES

1.1. SCOPE OF WORK

The bidder shall supply, install and commission along with requisite spare, maintenance tools and tackles the following equipment and system in the Project. The scope also covers the detailed engineering and calculations of the various equipment/system mentioned hereunder and the same shall be approved by the HLL/Engineer-in-charge prior to execution of the job.

• Light fixtures – internal
• Wiring devices – switches &sockets
• Earthing.
• Laying and termination of L.T. cables.
• Distribution Boards / Sub-Distribution Board.
• Providing power supply to equipment's
• Complete internal building wiring as per specification.
• Safety to personnel and equipment during both operation and maintenance.
• Ease of maintenance and convenience of operation.
• Electrical supply to equipment and machinery with in the design operating limits.
• Adequate provision for future expansion and modification.
• Maximum interchange ability of equipment.
• Fail-safe feature.
• Suitability for applicable environmental factors.
• All the necessary Approvals & Liasoning for Load enhancement from present approved load to the required load shall be in the scope of the contractor.

A. ELECTRICAL ITEMS:

GENERAL:

The contractor shall consider the following details in their scope of works no additional cost shall be paid, wherever required:

- All Switch gears shall conform Ics = 100% Icu as per IEC 61439 part 1 &2
- Proper bonding to earth.
- Supporting rigid steel framework.
- Painting/ lettering on Breakers and distribution boards, the location they serve, providing on each panel its Circuit diagram.
- Providing cable clamps/supports within distribution boards cable alley.
- All MCB's /MCCB shall be of minimum KA breaking capacity as per CPWD General Specification Part-IV
  Substation
- All MCCB's shall be provided with operating mechanism for door interlock.
- All hinged door shall be earthed through 2.5sqmm tinned braided copper wire.
- Tinned copper earth bus shall be provided throughout the length of each board.
- Pad locking of Switch board doors.

- Medium voltage switch boards/distribution boards, the combination of both these and components shall conform to the equipment's of the latest revision including amendments of the following codes and standards.
- All MCB's used for protection of resistive and lightly inductive load shall be type "B" characteristic and inductive (motor) load shall be of type "C" characteristic and discharge lamps and UPS etc. shall be of type D characteristic.
- The drawings, specification and BOQ complement each other and which is shown or called for one shall be interpreted as being called for on both. Material, if any, which may not have been specified but fairly required to make a complete assembly of switch gear as shown on the drawing, specifications shall be construed as being required and no extra charges shall be payable on this account.

WIRING:

- Control and protective wiring shall be done with copper conductor PVC insulated 1100 volts grade multi-stranded flexible wire of 1.5/2.5/4 sq.mm cross section. The colour coding shall be as per latest edition of IS: 375.
- Each wire shall be identified by plastic ferrule. All wire termination shall be made with type connection. Wire shall not be taped or spliced between terminal points.
- Terminal blocks shall preferably by grouped according to circuit function and each terminal block group shall have at least 20% spare capacity.
- Not more than one wire shall be connected to any terminal block. All doorframe of L.T. switchboard shall be earthed with bare braided copper wire.

EARTHING:

All electrical equipment is to be earthed by connecting two earth tapes from the frame of the equipment to a main earthing. The earthing ring will be connected via several earth electrodes. The cable armour will be earthed through cable glands. Earthing shall be in conformity with provision of rules 32, 61, 62, 67&68 of Indian Electricity Rules 1956 and as perIS-3043-1989.

The following shall be earthed:

- All fixtures, sockets outlets, fans, switch boxes and junction boxes etc. shall be earthed with PVC insulated copper wire as specified in item of work. The earth wires ends shall be connected with solder less bottle type copper lugs.
- The resistance between earthing system and the general mass of earth shall not be greater than 1ohm.
- The earth loop resistance to any point in the electrical system shall not be in excess of 1 ohm in order to ensure satisfactory operation of protective devices.
- All earthing conductors shall be of high conductivity copper/ G.I. as per B.O.Q. and shall be protected against mechanical damage. The cross-sectional area of earth conductors shall not be smaller than half that of the largest current carrying conductor.

L.T. CABLES &WIRE:

a) Wires

The design manufacture, testing and supply of single core LEAD FREE FRLS PVC insulated 1.1 KV grade multi-stranded twisted wires under this specification shall comply with latest edition of following standards.

- IS:3961 Current rating for cables.
- IS:5831 PVC insulation and sheath of electric cables.
- IS:694 PVC insulated cables for working voltage up to and including1100volts. IEC:754(i) FRLS PVC insulated cable.
- Copper multi-stranded twisted conductor FRLS PVC insulated wires shall be used in conduit as per item of work.
- The wires shall be colour coded R Y B, for phases, Black for neutral and Green for earth.
- Progressive automatic in line indelible, legible and sequential marking of the length of cable in meters at every one metre shall be provided on the outer sheath of wire.
- Progressive automatic in line indelible, legible and sequential marking of the length of cable in meters at every one metre shall be provided on the outer sheath of wire.
- The material & insulation of wires shall be ROHS compliant (Reduction of Hazardous Substance) and shall comply the following directives:
- EU Directive 2002/95/EC Issued Jan 2003
- EU Directive 94/62/EC and 2004/12/EC (amendment) EU Directive 91/338/EEC
- EU Directive 91/157/EEC & 98/101/EC (amendment)

Summary on related directives

Directive Ref.	**Date**	**Objective**	**Remarks**
2002/95/EC	27Jan03	Restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) and to contribute to the protection of human health and the environmentally sound recovery and disposal of waste EEE.	6 banned materials included Pb (Lead), Hg (mercury), Cr6+ (Hexavalent Chromium), Cd (Cadmium) and Flame Retardants-Polybrominated Biphenyls – PBB 1000ppm &PolybrominatedDiphenyls Esters-PBDE1000ppm. Max. conc. value - 0.1% by weight in homogeneous material for Pb, Hg, Cr6+, PBB/ PBDE Max. conc. value - 0.01% weight in homogenous material for Cd.
94/62/EC	20Dec94	Amending directive 94/62/EC, on Packaging	The targets defined are the following:
2004/12/EC (amendment)	2Nov04	and Packaging Waste is to prevent packaging	Recovery of minimum 60% by weight of the packaging waste

		waste by encouraging packaging re-use and recycling while at the same time avoid distortions in the internal market.	Recycling of at least 55% and a maximum80%byweightofthetotally of packaging materials, with a material-specific minimum recycling rate for plastic of22.5% Max. sum of concentration levels of Pb,

b) Cables

The design, manufacture, testing and supply of the cable under this specification shall comply with latest edition of following standards:

- IS:8130 Conductors for insulated electric cables and flexible cords .IS:7098 XLPE insulation and sheath of electric cables.
- IS:3975 Mild steel wires, strips and tapes for armoring cables. IS:7098 Current rating of cables.
- IS:7098 XLPE insulated (heavy duty) electric cables for working voltage up to and including 1100volts.
- IS:424-1475(F-3) Power cable-flammability test.
- Specification for cross-linked polyethylene insulated XLPE sheathed cable for working voltage up to 1.1 KV.
- Specification for XLPE insulated (heavy duty) electric cables for working voltages up to and including 1100 volts.
- ASTM-D: 2863 Standard method for measuring the minimum oxygen concentration to support candle-like combustion of plastics (Oxygen Index).
- ASTM-D: 2843 Standard test method for measuring the density of smoke from the burning or decomposition.

c) Technical Requirements:

- The cables shall be suitable for laying in racks, ducts, trenches conduits and under-ground buried installation with uncontrolled back fill and chances of flooding by water.
- They shall be designed to withstand all mechanical, electrical and thermal stresses under steady state and transient operating condition.
- The aluminium /copper wires used for manufacturing the cables shall be true circular/sector in shape before stranding and shall be of uniformly good quality, free from defects. The conductor used in manufacture of the cable shall be of H2grade.
- The cable should withstand 25 KA for 0.5 sec with insulation armour insulated at one end. Bidder shall furnish calculation in support of capability to withstand the earth fault currents. The current carrying capacity of armour and screen (as applicable) shall not be less than the earth fault current values and duration.

Laying of Cables:

- The cable drum shall be placed on jacks before unwinding the cable. Great care shall be exercised in laying cables to avoid forming links. At all changes in directions in horizontal & vertical places, the cable shall be bent with a radius of bend not less than 8 times the diameter of cable.
- The cable of 1.1KV grade shall be laid not less than 750mm below ground level in 36
- a 375mm wide trench(throughout), where more than one cable is to be laid in the same trench, the width of the trench shall be increased such that the interaxial spacing between the cables except where otherwise specified shall at least be 150mm minimum or as per site requirements or as approved by the Engineer-in-charge. Where single core cables are used in multiphase systems, the cables shall be installed in trefoil where possible.

INTERNAL ELECTRICAL WORKS:

1) PVC Conduit:

All conduits shall be high impact rigid 2mm thickness PVC heavy duty type and shall comply with I.E.E. regulations for non-metallic conduit 2mm thick as per IS-40 9537/1983 (Part-III). All sections of conduit and relevant boxes shall be properly cleaned and glued by using epoxy resin glue and the proper connecting pieces. Inspection type conduit fittings such as inspection boxes, drawn boxes, fan boxes and outlet boxes shall be M.S. or otherwise mentioned. Conduit shall be terminated with adopter/PVC glands as required.

Accessories:
Conduit accessories such as normal bends, unions, circular junction boxes and pull boxes, locknuts etc. shall be heavy gauge type and approved make. Conduit accessories shall conform in all respects to IS: 3837-1966 with latest amendment. Wherever several conduits are running together, adequately sized adoptable boxes common to all runs shall be used to avoid inserting inspection boxes in the individual run. Where it is necessary to segregate wiring metal filler shall be fixed with in the box.

Separate conduit shall be used for:
1) Normal light, fan call bell
2) 16 A power outlet
3) Emergency Light Point
4) Fire alarm System
5) Computer Outlets
6) P.A System
7) Telephone system
8) TV Network
9) Or any other services not mentioned here.

Wiring for short extensions to outlets in hung ceiling or to vibrating equipments, motors etc. shall be installed inflexible conduits. Flexible conduits shall be formed from a continuous length of spirally wound interlocked wire steel with a fused zinc coating on both sides. The conduit shall be provided with approved type adopter. A separate and accessible earth connection shall bond across the flexible conduit.

Conduit runs on surfaces shall be supported with metal 1.2mm thick saddles, which in turn are properly secured on to GI spacer to the wall or ceiling. Fixing screws shall be with round or cheese head and of rust proof materials. Exposed conduits shall be neatly run parallel or at right angles to the walls of the building and shall be painted in color matching the adjoining area. Unseemly conduit bends and offsets shall be avoided by using better appearance. Cross cover of conduits shall be minimum and entire conduit installation shall be clean and with good appearance. For surface work, the boxes shall be raised back pattern type, designed for use with distances addles to give clearance of 6mm between the back of conduit and the fixing surface.

Wiring:

All the wiring installation shall be as per IS: 732 with latest amendment. PVC insulated copper conductor cables as specified in bills of quantity shall be used for sub-circuit runs from the distribution boards to the points and shall be pulled into conduits. They shall be twisted copper conductors with the thermos-plastic insulations of 660/1100volts grade. Colour Code for wiring shall be followed.

Looping system of wiring shall be used, wires shall not be jointed. Where joints are unavoidable, they shall be made through approved mechanical connectors with prior permission of the HLL. No reduction of strands is permitted at terminations. No wire smaller than1.5sq.mm shall be used and shall be as per B.O.Q. Wherever wiring is run through trunkings or raceways, the wires emerging from individual distributions shall be bunched together with cable straps at required regular intervals. Identification ferrules indicating the circuit and DB number shall be used for submains sub-circuit wiring. The ferrules shall be provided at both end of each submain and sub-circuit.

Where single-phase circuits are supplied from a three phase and a neutral distribution board, no conduit shall contain the wiring fed from more than one phase. In any one room in the premises where all or part of the electrical load consists of lights, fans and/or other single phase current consuming devices, all shall be connected to the same phase of the supply. Circuits fed from distinct sources of supply or from different distribution boards or through switches or MCBs shall not be bunched in one conduit. In large areas and other situations where the load is divided between two or three phase, no two single-phase switches connected to different phase shall be mounted within one box.

Conduit size	20mm		25mm		32mm		40mm		50mm		60mm	
Wire size in sq.mm.	S	B	S	B	S	B	S	B	S	B	S	B
1.50	7	5	12	10	20	14	-	-	-	-	-	-
2.50	6	5	10	8	18	12	-	-	-	-	-	-
4	4	3	7	6	12	10	-	-	-	-	-	-

6	3	2	6	5	10	8	-	-	-	-	-	-
10	2	-	4	3	6	5	8	6	-	-	-	-
16	-	-	2	-	4	3	7	6	-	-	-	-
25	-	-	-	-	3	2	5	4	8	6	9	7

Notes:
The above table shows the maximum capacity of conduits for a simultaneous drawing in of cables.
The columns heads 'S' apply to runs of conduits which have distance not exceeding 4.25 m between draw in boxes and which do not deflect from the straight by an angle of more than 15 degrees. The columns heads 'B' apply to runs of conduit which deflect from the straight by an angle of more than 15 degrees.

The Contractor shall be responsible for:
Detailed co-ordination with other services, shop drawings for various electrical layouts such as equipment layout, lighting layouts, cabling layouts, earthing and lightning protection layouts, including equipment installation and cable termination details etc. prior to start of work.

- Preparation of bill of materials for cabling, lighting, earthing and miscellaneous items etc.
- Cable schedule.
- Lighting/power panel schedule.
- Inter connection drawing.
- Protection co-ordination drawings/tables for complete power system.
- Shop inspection and testing procedures.
- Field testing and commissioning procedures.
- Preparation of as built drawings for all services.

B. ELV (EXTRA LOW VOLTAGE)

GENERAL:
All the material shall must confirm the good working condition as per the local weather/temperature and environmental condition. The work covered under this contract shall include furnishing of all labour, materials, equipments and services required for the Security systems in accordance with the drawings and specifications.

The specifications given here shall be used to identify the requirement for rich and a high standard integrated Fire Alarm system, CCTV System, Public Address System, Access Control System, Passive Security System and Structured Cabling & Active Devices. All systems shall provide satisfactory operations, in the range of 110% and 85% of rated voltage.

Technical specifications & schedule of quantities provided under different headings are as mentioned below:

1. STRUCTURED CABILING AND ACTIVE DEVICES

2. **PUBLIC ADDRESS SYSTEM**
3. **CCTV SYSTEM**
4. **ACCESS CONTROL**
5. **FIRE DETECTION SYSTEM**

1. STRUCTURED CABILING AND ACTIVE DEVICES

Structured Cabling: The cabling design to the department LAN cabling shall be as per the TIA/EIA-T568-A standards/ TIA/EIA-T568-B standards.

Faceplate: Faceplate shall meet the following requirements:

a) Shall have the ability to fit a dust cap or shutter to prevent dust and dirt getting into the outlet for single, dual, Quad or Hexa outlets.
b) Shall have clear label for application identification
c) Shall be able to have 1,2,3,4,6 or 12 outlets
d) Shall have options for vertical style or horizontal style.
e) The faceplate housing the UTP connector modules shall have no visible mounting screws.
f) The faceplate housing the UTP connector modules shall have aperture plugs to cover any unused openings in the faceplate.
g) The faceplate housing the UTP connector modules shall provide flexibility in configuring multimedia workstation outlets that respond to present of future network needs such as audio, video, coaxial and optical fiber application

Modular Jack connector: TIA / EIA-T568-A defines four basic modular jack styles. The 8-position and 8-position keyed modular jacks are commonly referred as RJ45 (Registered Jack) connector and keyed RJ45. The 6-position modular jack is commonly refereed as RJ11. RJ45 is the standard connector for unshielded twisted pair cabling. RJ 45 is a plastic connector with eight pins. It allows insertion in only one way. The jack wiring specification is as per the Universal Service Ordering Codes (USOC).

Patch Cord: The Patch cord shall meet the following requirements:

a) Shall consist of 8 Solid copper conductors terminated with RJ 45 plugs at both ends.
b) Shall meet transmission performance and comply to EIA/TIA 568-B.2 and ISO/IEC 11801- CAT 6 minimum standard for patch cord testing (as per Annex 3)
c) Factory terminated with options for 1.2 meter, up to 12.8 meters with a long flexible boot and in different colors. The boot material should be injected into the plug to retain the position of the conductors. The Boot should be at least 2" long with built-in bend radii maintaining technology. (d) Shall have Characteristics impedance of 100□ +/- 5%@ 100 MHz. (e) The Patch cord sh

Patch Panel: Rack mounted patch panels shall be used for termination of copper cables or rack mount fiber termination unit shall be used for termination of optical fiber cable. 111.2.8.

Patch cords shall be provided for cross-connections to facilitate Moves, Adds and Changes (MACs). They shall be able to support up to Category 6 applications and shall be NEXT compliant. 1.2.8.2 The cross connect module shall be (a) (b) (c) Fire - retardant, molded plastic modules UL 94 VO rate, consisting of horizontal index strips for termination of Cat5 25 pair module to ensure ease of re-termination in case of wrong

pair termination or NEXT compliant RJ 45 Modular jack panel. 10/25 pair disconnection module for incoming voice or 8/10/25 pair disconnection module for all data services.

The UTP copper cables: The UTP copper cables meet the following requirements: (a) Shall be CMR, LSZH, CMP, or MPR rated form. (b) Shall consists of 23-24 AWG, twisted pair copper conductor with UL approved insulator. (c) Fire retardant PVC Sheath shall have improved frictional properties, allowing it to be pulled through conduit without the use of lubricants. (d) The insulation should be made from Polyolefin for ruggedness (e) Available in the form of 25 pairs. - minimum Cat5 UTP cable. (f) The UTP multi pair cable shall meet the following electrical specifications: - i. EIA / TIA 568 A commercial wiring standard. ii. iii. All applications as per annex 4 Mutual capacitance (at) 1Khz: 22 nF / 1000 feet. iv. Dc resistance (Ohms/1000 feet: 28.6 v. Characteristics Impedance: 100 ohms +/- 15 % @ 100Mhz (except 4 Pr)

Optical fiber requirements: Cable must be Armored Single Mode (OM1), Multi-mode(OM1, OM2 or OM3) color coded fibers, jelly filled color coded loose tubes, around the dielectric central strength member, jelly filled, plastic tape, dielectric strength member and outer PE jacket for outdoor use and shall be tight buffered with color-coded PVC for identification for multi-core fiber optic cable (OM1, OM2, OM3 and OS1) for Indoor use

NETWORKING SWITCH: Key considerations for network are – gigabit connectivity to each user from the nearest distribution rack to various users/departments/devices in a topology consisting of core switches at central server room followed by the distribution and edge/access switches.

a. The network shall have a mix of components for supporting PoE+ as well as non-PoE devices.
b. A robust fiber optics based backbone is being provided. It shall be based on ring topology using single mode fiber optics cable. The vendor shall ensure that the networking switches shall be populated with the necessary transceivers for achieving this design objective.
c. Several applications are proposed to run on this network – IP-based voice communications supporting voice-data-video, network based cameras and storage, integrated audio-video, video conferencing, interactive learning, integrated building management systems and important services integration such as fire detection.
d. The integrators shall propose and supply enterprise class networking switches only

1. WALL /FLOOR MOUNTED NETWORK RACK :

a) Construction shall be single section welded robust with ventilation holes on the sides and top
   & bottom covers with provision to mount 2 fans
b) Top/ Bottom covers and side panels shall be of sheet steel, powder coated Vertical 19” metric
   panel mounts and door trims shall be of sheet steel and powder coated

c) The top and bottom covers shall be provided with four cut outs on top and bottom cover for
cable entry and round cuts shall be edge protected with rubber grommets
d) Two pairs of 19" equipment mounting angles with mounting holes conforming to IEC 297-3
e) Toughened glass front lockable door
f) Wall mounted Networking rack shall be available in various heights
g) Cooling shall be achieved with the help of two fans, 90 CFM capacity each, mounted on top
h) Power shall be provided in form 19" rack mountable power strip which shall consist of
minimum four 5/15A power sockets.
i) Cantilever shelf – at least one front mounting 1U cantilever shelf shall be provided with depth
of 250 mm or more
j) 1U vertical cable managers on a/r (as required basis) for dressing of cables for 24 ports patch panel, 24 ports switch Hardware Pack / Rack mounting accessories and hardware – as required Horizontal managers on A/R basis for ensuring neat and aesthetically clean installation

2. PUBLIC ADDRESS SYSTEM

The Public Addressing system shall be as per the IEC 60268-7 (Audio equipment - Part 7: Public address systems), IS 10201 (Audio equipment - General requirements and methods of test), and specific guidelines regarding power supply, noise levels, intelligibility, and safety features depending on the project's requirements and location, with consideration for local regulations and building codes

The scope of work under this shall include designing supplying and installing of Public Address System. The work under this system shall consist of furnishing all materials, equipment's and appliances and labour necessary to install the said system, complete with Speakers, Amplifiers, Mike and Zone Selection Panel.

System Design

The Speakers shall be distributed in the entire floor and shall be configured into multiple zones. The announcement can be made zone wise or to all the speakers simultaneously in ALL CALL mode. Fire Alarm shall be announced immediately on receipt of Fire signal from the panel to all zones.

The PA System shall serve to,
a) Play the music
b) Making general announcement
c) Make announcement in car park
d) Transmit fire tone under fire condition

Amplifier

Amplifier shall be USB/BLUETOOTH player and AM/FM Tuner with World space receiver, with remote control and suitable to for 220-240V AC supply operations.

Speakers

Speakers shall be especially designed for broadcasting high quality, integrated emergency fire alarm signals and voice communications and approved by an appropriate authority for use in such situations.

Speakers shall be ceiling or Column mounted as shown in the schedule of work and shall be completed with mounting brackets accessories etc. Speakers shall be in wooden or metal enclosures.

P A System Wiring

High-quality twisted pair cable designed for connecting speakers and amplifiers in commercial l A/V systems. The speakers in each zone are connected in parallel and are connected to the respective output. The cables from each zone are separately routed and terminated in the Panel.

Testing and commissioning

Entire PA system shall be tested to establish the following.

a) Functionality of the PA system
b) Combined systems shall be tested for the overriding feature for prioritizing fire alarm and life safety requirements.
c) Acceptable audibility of the public address in all spaces and record sound pressure levels of the Public address viz the ambient noise levels.

DOCUMENTATION:

The contractor, upon completion of the commissioning activity, shall hand over the system to the customer. At the time of hand over, the contractor shall provide the customer with the following documentation:

a) Copy of detailed report
b) Component and equipment list
c) Product description sheets
d) System design drawing(s)
e) System schematic diagram(s)
f) System operating manuals

3. CCTV SYSTEM

CCTV cameras and recorders must be registered and manufactured according to IS 13252 (Part 1):2010 under the BIS Compulsory Registration Scheme from the Bureau of Indian Standards (BIS)

The camera shall meet the following networking standards:

- IEEE 802.3af (Power over Ethernet)
- IPv64
- IPv67
- QoS – DiffServ (RFC 2475)

Work includes providing all material, equipment, accessories, hardware, software, licenses, services and tests necessary to complete and make ready for operation by the NETWORK/IP based CCTV System in accordance with the design & specifications given in Technical Specifications of the Security Surveillance System.

System should be programmed such that operator's intervention if required shall be minimal and the system should provide features like guard tours, preset positions and the preset positions will be linked to perimeter protection system/intrusion system in future. The NVR/DVR should allow for recording of events both continuous and motion triggered as per requirement and recordings should be able to create evidences and support post event analysis.

GENERAL REQUIREMENTS

- The camera shall be of manufacturer's official product line, designed for commercial/industrial 24/7/540 use.
- The camera shall be based upon standard components and proven technology using open and published protocols.

QUALITY ASSURANCE

- All camera installation, configuration, setup, program and related work shall be performed by electronic technicians thoroughly trained by the manufacturer in the installation and service of the equipment provided.
- All equipment provided shall be backed by a minimum of one-year manufacturer warranty.
- The specified unit shall be manufactured in accordance with ISO 9001 / EN 29001.

CCTV wiring standards

Using RG59 or RG6 cables for video transmission, ethernet cables for IP-based systems, and coaxial cables for analog video transmission. Optical fiber cables are also used for high-speed CCTV.

RG59 and RG6 cables

- RG59 is the industry standard for transmitting video signals.
- RG6 is a thicker gauge cable that can also be used for surveillance cameras.
- These cables are shielded from most video interference.

Ethernet cables

- Ethernet cables (Cat5e, Cat6) are used for IP-based systems.
- They connect IP cameras to the internet and power the cameras.

Coaxial cables

- Coaxial cables are used for analog video transmission.

Optical fiber cables

- These cables use pure glass to transmit data via light.
- They are the fastest option of all the cables mentioned.
- They are expensive, delicate, and require more technical know-how than other cables.

CCTV wiring

A standard practice is to use PVC conduit with a minimum diameter of 20mm (¾ inch), depending on the number of cables being run, with larger diameters needed for multiple cables or long runs; always consult local building codes for specific requirements in your area.

- **Cable type:** The type of CCTV cable (e.g., coaxial, UTP, or fiber optic) will influence the conduit size needed.
- **Number of cables:** More cables require a larger conduit diameter.
- **Environmental factors:** Outdoor installations may require heavier duty conduit with additional protection against weather elements.
-

Common conduit sizes for CCTV:

- **Small installations:** 20mm (¾ inch) conduit for a few cables.
- **Medium installations:** 25mm (1 inch) conduit for moderate cable runs.
- **Large installations:** 32mm (1 ¼ inch) conduit for multiple cable runs or long distances.

b) ACCESS CONTROL

Proposed system should consist of Biometric Finger/Face scan for staff access entry to have extreme security. Offered Reader should be high quality, technologically advanced and high pixel face detection camera. Single door Electromagnetic Locks Capacity of Holding Pressure 300 /600 Lbs should be installed at the entry door for staff entry. Entire system should have Access Server PC along with required Hardware & SQL Database Software.

A. Common Features:
   1. Software to generate time and attendance report
   2. Door Controls:
      a. Door open and close alarm activation
      b. Door lock capabilities with locks
      c. Door Switch
      d. Switch or keypad (internal)
   3. Status control and anti-pass back

4. Flexible (minimum 32) sets of time zone to provide user to set up each time zone with different time districts
5. Self-hardware testing function when equipments are activated
6. Internal battery included during power shortage
7. Battery operation possible when AC power is interrupted
8. Data logging facility for minimum 5,000 Access transaction
9. Capable of communicating with multiple readers to provide online information
10. Add more readers without changing software
11. Communication, information Inquiry / Setting through RS-232/422/485 and Ethernet
12. Remote Web Management Interface or functionality to be accessed from any workstation.
13. Grant or deny access to single or group of employees to a single or all entrances.
14. Back-end Database (industry Standard)

CABLING FOR ACCESS CONTROL

0.5 Sq mm X 8 Core Shielded Flexible FRLS Cable

- Size : 1.5 Sq mm
- Core : 8 Core
- Conductor Type : Flexible Copper
- Insulation : PVC
- Sheathing : FRLS
- Shielding : Foil
- Voltage Grade : 300/500 V

The vendor will be responsible for all the related accessories, software, locks, cables, minor civil work (if required), documentations, configuration and commissioning of the devices at the existing network (Ethernet CAT-5). The cost of items should be inclusive of these services and items.

PANIC / EMERGENCY EXIT SWITCH:

Specification

- Weight : 0.18 kg
- Dimensions (HxWxD) : 93x89x59.5mm
- Operating Temperature : -10 °C to +55 °C
- IP Rating : IP24D

c) FIRE DETECTION SYSTEM

This section of the specification includes the furnishing, installation, connection and testing of the conventional and microprocessor controlled, intelligent reporting fire alarm equipment required to form a complete, operative, coordinated system. It shall include, but not be limited to, alarm initiating devices, alarm notification appliances, Fire Alarm Control Panel (FACP), auxiliary control devices, annunciators, and wiring as shown on the drawings and specified herein.

The fire alarm system shall comply with requirements of NFPA Standard 72/EN54 LPCB for Protected Premises Signaling Systems except as modified and supplemented by this specification. The system shall be electrically supervised and monitor the integrity of all conductors.

The system and its components shall be Underwriters Laboratories or Loss Prevention Certification Board Inc. listed under the appropriate UL/ EN54testing standard as listed herein for fire alarm applications and the installation shall be in compliance with the UL/EN54 listing

38 EQUIPMENT AND MATERIAL

39 General:

All equipment and components shall be new, and the manufacturer's current model. The materials, appliances, equipment and devices shall be tested and listed by a nationally recognized approvals agency for use as part of a protective signaling system, meeting the National Fire Alarm Code.

All equipment and components shall be installed in strict compliance with manufacturers' recommendations. Consult the manufacturer's installation manuals for all wiring diagrams, schematics, physical equipment sizes, etc., before beginning system installation.

All equipment shall be attached to walls and ceiling/floor assemblies and shall be held firmly in place (e.g., detectors shall not be supported solely by suspended ceilings). Fasteners and supports shall be adequate to support the required load.

Where required, all wiring shall be installed in conduit or raceway. Conduit fill shall not exceed 40 percent of interior cross sectional area where three or more cables are contained within a single conduit.

Cable must be separated from any open conductors of power, or Class 1 circuits, and shall not be placed in any conduit, junction box or raceway containing these conductors, per NEC Article 760-29.

Wiring for 24 volt DC control, alarm notification, emergency communication and similar power-limited auxiliary functions may be run in the same conduit as initiating and signaling line circuits. All circuits shall be provided with transient suppression devices and the system shall be designed to permit simultaneous operation of all circuits without interference or loss of signals.

Conduit shall not enter the fire alarm control panel, or any other remotely mounted control panel equipment or back boxes, except where conduit entry is specified by the FACP manufacturer.

Conduit shall be 25mm minimum.

40 Wire:

All wires shall be of FRLS PVC insulated copper conductor as per BOQ

Intelligent thermal or Heat Detectors

Thermal detectors shall be intelligent addressable devices rated at 135 degrees Fahrenheit (58 degrees Celsius) and have a rate-of-rise element rated at 15 degrees F (9.4 degrees C) per minute. It shall connect via two wires to the fire alarm control panel signalling line circuit.

The detector shall be capable to configure and to be addressed manually as well as from software or remote locations also.

Beam Smoke Detectors

Sensing Range: 5 to 50 meters Adjustment Angle: ±10° horizontal and vertical.
Typical sensitivity levels: Level 1 — 25%. Level 2 — 30%. Level 3 — 40%. Level 4 — 50%.]
Fault Condition (trouble): 96% or more obscuration blockage. In alignment mode. Improper initial alignment. Self-compensation limit reached.
Alignment Aid using optical gun sight or integral signal strength indication or Two-digit display.

Addressable manual call box

Addressable manual fire alarm boxes shall on command from the control panel, send data to the panel representing the state of the manual switch and the addressable communication module status. They shall use a key operated test-reset lock, and shall be designed so that after actual emergency operation, they cannot be restored to normal use except by the use of a key.

All operated stations shall have a positive, visual indication of operation and utilize a key type reset. All entrances and stair levels shall be equipped with a pull type manual call point toactivate an alarm. Manual call points shall be located in a manner so as to give aneasy access to occupants in emergency; these shall be at entry/exits and within 30meters distance.

Sounder and strobe:

Shall follow NFPA 72 2013.

1. Electronic sounders shall operate on 24 VDC nominal.
2. Electronic sounders shall be field programmable without the use of special tools, at a sound level of at least 90 dBA measured at 3 meters from the device.

Addressable Control Module (Whether Applicable Separately)

Addressable control modules shall be provided to supervise and control the operation of one conventional NACs of compatible, 24 VDC powered polarized audio/visual notification appliances.

a) Audio/visual power shall be provided by a separate supervised power circuit from the main fire alarm control panel or from a supervised remote power supply from the same OEM

b) . The control module shall be suitable for pilot duty applications and rated for a minimum of 2.0 amps at 24 VDC.

Isolator Module (whether Applicable Separately)

Isolator modules shall be provided to automatically isolate wire-to-wire short circuits on an SLC Class A or branch. The isolator module shall limit the number of modules or detectors that may be rendered inoperative by a short circuit fault on the SLC loop segment or branch. Each loop shall have isolator module after every 20 detectors to protected zone of the building.

a) If a wire-to-wire short occurs, the isolator module shall automatically open-circuit (disconnect) the SLC. When the short circuit condition is corrected, the isolator module shall automatically reconnect the isolated section.
b) The isolator module shall not require address-setting, and its operations shall be totally automatic. It shall not be necessary to replace or reset an isolator module after its normal operation.
c) The isolator module shall provide a single LED that shall flash to indicate that the isolator is operational and shall illuminate steadily to indicate that a short circuit condition has been detected and isolated.

TEST

- The service of a competent, factory-trained engineer or technician authorized by the manufacturer of the fire alarm equipment shall be provided to technically supervise and participate during all of the adjustments and tests for the system. All testing shall be in accordance with NFPA 72

- Before energizing the cables and wires, check for correct connections and test for short circuits, ground faults, continuity, and insulation.
- Open initiating device circuits and verify that the trouble signal actuates.

- Open and short signalling line circuits and verify that the trouble signal actuates. Open and short notification appliance circuits and verify that trouble signal actuates. Ground all circuits and verify response of trouble signals.

- Check presence and audibility of tone at all alarm notification devices.

- Check installation, supervision, and operation of all intelligent smoke detectors using the walk test.

- Each of the alarm conditions that the system is required to detect should be introduced on the system. Verify the proper receipt and the proper processing of the signal at the FACP and the correct activation of the control points.

- When the system is equipped with optional features, the manufacturer's manual shall be consulted to determine the proper testing procedures. This is intended to address such items as verifying controls performed by individually addressed or grouped devices, sensitivity monitoring, verification functionality and similar

FINAL INSPECTION

At the final inspection, a factory-trained representative of the manufacturer of the major equipment shall demonstrate that the system functions properly in every respect

C. FIRE FIGHTING SYSTEM
GENERAL

The scope of work includes the design, engineering, supply, installation, testing, and commissioning of a complete fire-fighting system for the buildings. The system specified in the BOQ must adhere to the tender specifications outlined below. All materials used will comply with the relevant IS specifications, where applicable, and are subject to the approval of the Engineer-in-Charge. The fire-fighting system will be designed and executed in strict accordance with the prevailing norms of NBC-2016, CPWD General Specifications for Electrical Works, Part-V, Wet Riser & Sprinkler System: 2020, and relevant Indian Standards such as IS:13039:2014 (External Hydrant Systems), IS:15105 (Fixed Automatic Sprinkler Fire Extinguishing System), as well as local bye-laws and requirements from the relevant fire inspection authorities. The work will cover the complete process from design and supply to installation, testing, commissioning, and obtaining necessary statutory approvals from fire inspection authorities, including securing the No Objection Certificate (NOC) for the occupation of the buildings.

1.1 **WET RISER AND DOWNCOMER**

The firefighting system's pipeline design must ensure that the pressure at both the hydraulically remote hydrant and the highest hydrant does not fall below 3.5 kgf/cm² and does not exceed 7 kgf/cm². The pipeline should be engineered to allow discharge at any given location. The design parameters include a maximum flow velocity of 2.5 m/s and a maximum friction loss of 5 meters per 100 meters of pipeline run. The number of risers should be determined based on the following criteria: no corner of the building should be more than 30 meters from the nearest riser, the horizontal distance between two risers should not exceed 50 meters, and one riser must be provided for every 1000 sqm of plinth area or part thereof. These specifications are essential for ensuring adequate water flow and pressure for firefighting operations across the building.

However, number of Risers may be suitably increased to meet given situation as per directions of Engineer-In-Charge. The quantity of Sprinkler & Hydrant, Wet Risers etc. and all other allied equipment shall be provided as per norms of NBC-2016 latest as amended.

All down comer pipes shall be inter connected at the terrace level. In case terraces are not interconnected, all building will be treated as individual buildings. Fire service inlet shall be

provided with each Riser/down comer for facilitating pumping of water from fire service tenders.

1.2. **INTERNAL HYDRANTS**

Internal hydrants shall be installed on each floor at the same location and connected to risers. The firefighting hydrants will be placed in the lobby within the firefighting shaft. Hydrants near the fire exit staircase on each floor must be located within 5 meters from the exit door along the exit access. The number and placement of risers will be determined according to the norms specified in the preceding sections. Each building wing should preferably have independent hydrants.

The landing valve will feature an oblique pattern and will include a GI twist release chain and cap. The manufacturer's name, trademark, year of manufacture, size, and type must be clearly marked. Valves will be coated with a primer followed by two coats of red paint (Shade No. 536, as per IS-5), with paint conforming to IS 2932. The hand wheel will be painted black, and the valve will be BIS-approved. Blank caps will be made of gunmetal. A hydrostatic pressure test will be conducted at 21 kg/cm² for 2.5 minutes, and a flow test will be performed at 7 kg/cm² at 900 LPM. The water-tightness seat test will be conducted at 14 kg/cm². In case of any discrepancies between the manufacturer's standards and the specified values, the parameters must comply with the relevant IS codes.

The RRL hose pipe will be of the non-percolating type, ISI marked (IS:8423), with a 63 mm diameter and 15-meter length (2 Nos.), complete with instantaneous type gunmetal 63 mm dia ISI marked Male & Female couplings (IS:903), securely bound and riveted with copper rivets and 1.5 mm copper wire, and a bursting pressure not less than 22 kg/cm². The external hydrant post will include a standard short size 63 mm dia gunmetal branch pipe with a gunmetal nozzle of 20 mm nominal bore outlet, featuring an instantaneous type 63 mm dia coupling, in compliance with IS:903. The internal hydrant will be equipped with a fireman's axe with a heavy rubber handle. A swing-type first aid hose reel in red color will be provided with a 30-meter-long, 20 mm dia heavy-duty rubber water hose, a 20 mm dia globe valve stopcock, terminating with a GM coupling and nozzle with a 5 mm outlet and shut-off valve, confirming to IS:8090-1976. It will come complete with a drum and wall-mounted brackets, bolts, and nuts conforming to IS:884-1969.

A mild steel door made of 16 gauge MS sheet, capable of accommodating the fire hose reel, landing valve, hose pipes, fittings, 1 CO2 fire extinguisher, and 1 dry powder fire extinguisher, along with accessories, shall be provided. The door will feature a 1250 mm high front glass with a lock and key arrangement and will be painted with one coat of primer and two coats of finished stove enamelled post office red color paint.

The internal hydrant will be clearly marked on the front with the inscription "FIRE HOSE CABINET" in letters of 75 mm height and 12 mm width, with a luminous sign. The location of these cabinets will be shown on the floor plan and displayed on the landing of the respective exit fire staircase. Internal hydrants must be easily accessible, with a minimum clearance of 1.5 meters in front for operation. They shall not be placed in a lockable room.

A masonry enclosure will be provided on three sides, with minimum dimensions of 1200 mm wide, 800 mm deep, and 2100 mm high. A 200 mm x 200 mm cutout will be provided in one corner of the slab for the wet riser/down comer pipe, and an additional cutout of the same size will be made for the sprinkler pipe and drain pipe.

1.3 **BUILDING TO BE SPRINKLER PROTECTED**

The sprinkler pipes shall be installed throughout the area to be protected. The structure shall be designed to support sprinkler pipes and the contained water. Inbuilt drainage with slope shall be provided throughout the area so that in the event of operation of sprinkler, water is drained out without spreading to other parts of the building. Storage racks/platforms shall be sufficiently raised above floor. It is essential to make provisions for avoiding water from Sprinkler/hydrant operation entering lifts and electrical rooms.

1.4 **FIRE BRIGADE INLET CONNECTIONS/ DRAW OFF CONNECTION**

One set of 2/4 ways collector head Fire Brigade connection shall be provided at underground tank, Ring Main, Sprinkler system and individual wet risers as specified conforming to IS 904.

The inlet to the wet riser sprinkler header shall be with 150 mm dia butterfly or sluice valve and non-return valve. The scope shall include necessary reducers, tees bends and special fittings as required. Construction of Health Facilities under ECRP-II (PKG-I) Vol-5 Tech Specifications

It should be provided with M.S. enclosure fabricated from 1.5 mm thick M.S. sheet, front glass locking arrangement supported on M.S. structural members, painting with two coats of postal red enamel.

Fire brigade inlet connection (fire department connection) consisting of 4 Nos. 63 mm dia instantaneous inlet arranged on a 50 mm dia header, 1 No. 150 mm diameter sluice valve, with in built Non-return valve and wall mounted box of M.S. construction made out of 16 gauge MS Sheet with glass door to house the above mentioned components.

Fire brigade draw out connection (fire department connection) with suction pipe MS class 'C' 100 mm dia. & 100 mm dia. foot valve & steel chain including wall mounted box M.S. construction made out of 16 gauge MS Sheet with glass door to house the above mentioned components.

Inlet breeching having C.I. body Two-way gun metal 63 mm dia instantaneous inlets conforming to IS 903 fitted with non-return valves, 25 mm dia gun metal drain cock, blank cap, brass chains and 150 mm dia flanges with all accessories suitable for local fire tender complete as required.

2. PORTABLE FIRE EXTINGUISHERS:

2.1) **ABC Powder stored pressure type Fire Extinguishers** of 4 kg capacity IS:15683 & CO2 gas based Fire Extinguisher of 4.5 Kg capacity with IS :15683, IS 2878 is proposed for all floors near internal hydrant locations.

2.2). **4.5 kg Carbon Dioxide Extinguisher,** IS marked shall be complete with high pressure discharge tube, horn, control valve & CCE approved cylinder. It shall be suitable for extinguishing Class B & C fires. It shall be provided with Wheel type /Squeeze grip type with discharge hose & horn. It shall be suitable for operation within the temperature range of -20°C to 55°C. The test pressure shall be 250 Bar. The minimum effective discharge shall be 95 percent.

2.3). The ISI marked extinguishers and their installations shall be in accordance with acceptable standards of NBC 2016. These units shall be mounted at a convenient height & locations to enable quick access at all times. All requirement of fire extinguishers shall be fulfilled as per as per NBC 2016, Part-4, Table -7, other statutory norms and directions of Engineer-In-Charge.

3. FIRE SIGNAGES:

Various types of signage will be provided throughout the building/complex in compliance with NBC-2016, Part-4. On each floor, near the lift landing, a diagram indicating stairways shall be displayed with the instruction: "IN CASE OF FIRE USE STAIRS UNLESS INSTRUCTED OTHERWISE." This signage will be positioned above the call button in the lift lobby. Additionally, floor signage indicating the exit path will be placed on each floor within the staircase. The numerical text on these signs will be in bold type, with a minimum height of 75 mm. Directional signage indicating the fire escape route will be placed in each corridor on every floor. All fire-related signage will be LED-lit with UPS power backup or made using photo luminescent paint to ensure visibility in the event of a power failure. These signs will be printed on Photo luminescent U1000 aluminium sheets (1.0 mm ±10%) or acrylic boards containing Lumigen II as the base chemical, covered with a UV-stabilized coating. The signs will be of the appropriate size and will be securely fixed to walls, doors, or ceilings using proper clamps, hangers, cleats, anchor fasteners, etc. Text will be either double-sided or single-sided, depending on the requirements. Samples of all fire signage must be submitted for prior approval by the Engineer-In-Charge.

The signage will be lightweight yet highly powerful, capable of penetrating even the finest grills and meshes. It will feature an easy snap safety seal that can be broken in seconds. Each fire extinguisher will be equipped with a pressure gauge, discharge mechanism with an easy snap lever lock, and an EPDM rubber hose. It will be capable of fighting Class A, B, and electrically started fires. The extinguisher will have ISO 9001 and CE certifications, and preferably UL listing and FM approval, conforming to ISI standards. It should come with a warranty of at least 5 years. The extinguisher will preferably have a minimum capacity of 4 kg, a discharge time of approximately 8 seconds, and a range of around 2 meters.

4.PIPE WORK

4.1 SCOPE

This chapter covers the requirements of pipe work in firefighting installations.

4.2 PLUMBING DESIGN

Pipe sizes shown in tender documents are purely for contractor's guidance. The contractor shall be responsible for selection of sizes as per detailed engineering to be done by him. Plumbing design to be done by the contractor shall incorporate the following: -

(a) Sluice valves shall be provided at suction and delivery sides of pumps.
(b) External hydrant
(c) Fire service connection/inlet.
(d) Test valve.
(e) Drain connections.

i. For testing the system healthiness and automatic operation on daily basis, one test pipe with sluice valve shall be provided in common discharge header. For avoiding wastage of water, this pipe shall discharge water in the tank.
ii. Non-return valve shall be provided at the delivery of each pump and fire service inlet. This shall be of swing type.
iii. Air release valves with ball valve shall be provided in the piping system for venting trapped air with a size of 25 mm for pipes up to 100 mm and 40 mm for larger pipes.
iv. Plumbing drawings showing the sizes of pipe, valves, layout and other details shall be prepared and shall be got approved from the Engineer-in-Charge before the execution of the plumbing work.

4.3 PIPE MATERIALS

Pipes shall be of the following materials:

a) Mild steel heavy class (C-class) conforming to IS:1239 for sizes up to 150 mm.
b) Welded black steel pipe, Class 2, conforming to IS: 3589, for sizes greater than 150 mm. These pipes shall be factory rolled and fabricated from minimum 6mm thick M.S. Sheet for pipes upto 350 mm diameter and from minimum 7 mm thick M.S. sheet for pipes of 400 mm diameter and above. MS pipes may be allowed for extension of existing systems which are laid with CI pipes.
c) Cast iron double flanged pipe, Class-A conforming to IS 1536 or IS: 1537 (to be provided only in underground application).

Note: For pipe work of Automatic Sprinkler System inside the building, Stainless Steel Pipes and fittings of grade AISI 304 as per JIS standard 3448 are also permitted particularly where replacement of pipes is not easy like areas above false ceiling etc., subject to the condition that these pipes with associated fittings are suitable to safely withstand the system test pressures.

d) (i) GI Pipe Medium Class (B-class) conforming to IS:1239 (For Drain)
(ii) Cadmium plated steel nuts/bolts/washers shall be used.
(iii) Flex drop of stainless steel metallic pipe with mounting accessories, frame for installation on false ceiling.

4.4 PIPE JOINTS

a) Electric welding joints shall be provided in the MS pipe work. Flanged joints shall be provided for connections to valves, pumps, air vessels etc. and also on straight lengths at suitable points to facilitate erection and subsequent maintenance.
b) For connection of C.I. Pipe, fittings shall also be of C. I. heavy grade conforming to IS:1538. The flanges shall be smooth faced and neoprene gasket shall be provided between joints. All bolt holes in flanges shall be drilled. The drilling of each flange shall be in accordance with the relevant Indian Standards. Where un-avoidable and to connect underground pipe with risers, MS pipe may be used in the form of distant pieces. The joint between C.I. and MS pipe shall be flanged type. MS pipe laid at such locations shall be provided anti-corrosive treatment as per Para 7.5.
c) Mild steel flanges shall be in accordance with Table - 17 of IS : 6392 i.e. "Plate Flanges for Welding" and flange thickness shall be as under. Gasket thickness shall not be less than 3 mm.

Pipe diameter	Flange Thickness
200 mm	24 mm
150 mm and 125 mm	22 mm
100 mm and 80 mm	20 mm
65 mm	18 mm
40 mm and below	16 mm

d) Fittings installed underground shall be of cast iron 'heavy' grade conforming to IS 1538 whereas those installed above ground shall normally be of medium grade wrought steel or mild steel conforming to IS 1239 (Part 2) or malleable iron fittings conforming to IS 1879.
e) All hardware items such as Nuts, Bolts, and Washers shall be of appropriate size. Washers shall be used on both sides of the bolt.

4.5 ANTI-CORROSIVE PROTECTION ON UNDER GROUND MS PIPE

Corrosion protection tape shall be wrapped on MS pipes to be buried in ground. This corrosion protection tape shall comprise of coal tar/asphalt component supported on fabric of organic or inorganic fibre and minimum 4 mm thick and conform to requirement of IS:10221-Code of practice for coating and wrapping of underground mild steel pipe line. Before application of corrosion protection tape all foreign matter on pipe shall be removed with the help of wire brush and suitable primer shall be applied over the pipe thereafter. The primer shall be allowed to dry until the solvent evaporates and the surface becomes tacky. Both primer and tape shall be furnished by the same manufacturer. Corrosion protection tape shall then be wound around the pipe in spiral fashion and bounded completely to the pipe. There shall be no air pocket or bubble beneath the tape. The overlaps shall be 15 mm and 250 mm shall be left uncoated on either end of pipe to permit installation and welding. This area shall be coated insitu after the pipe line is installed. The tapes shall be wrapped in accordance with the manufacturer's recommendations. If application is done in cold weather, the surface of the pipe shall be pre- heated until it is warm to touch and traces of moisture are removed and then primer shall be applied and allowed to dry.

Holiday Testing for wrapping and coating is essential. Holiday testing may preferably be carried by flexible and detachable ring probe, which will enable the entire 360o of the surface of the pipe to be scanned.

At least 10 percent of all the welded joints shall be radio graphically tested and half of the joints radio graphed shall be the 'field joints'.

4.6 VALVES

Each pump shall be provided with a non-return valve and a sluice valve on the delivery side, the sluice valve being installed on the upstream side of the non- return valve. A pressure gauge shall also be provided between the pump and the non-return valve. The size of the non-return valve and cut off (sluice) valve shall not be less than the size of the initial delivery pipe and, in no case, less than the delivery outlet of the pump. No butterfly valves shall be installed inside the pump room.

- Sluice valve shall conform to IS: 780.
- Butterfly valve, wherever used, shall conform to IS:13095.
- All valves shall be suitable to with-stand the pressure in the system and rating shall be PN 1.6. All valves shall be right handed (i.e. handle or key shall be rotated clock wise to close the valve), the direction of opening and closing shall be marked and an open/shunt indicator fitted.

a) The material of valves shall be as under:
   Body - Cast iron
   Disc - Cast Bronze or Stainless Steel
   Seat - Either integral or Nitrile rubber
   O-ring - Nitrite/ Silicon
b) Non return valves shall be swing check type in horizontal run and lift check type in vertical run of pipes.
c) Air release valves shall be of gunmetal body.

4.7 ISOLATION VALVES:

(i) Isolation valves shall be provided in the network to enable isolation of any section of the network without affecting the flow in the rest. These valves are distributed according to the general layout of the installation. The isolation valves shall be normally located near the loop junctions. Additional valves shall be provided in the segments where the length of the segment exceeds 300 m.

(ii) Cut-off valves shall conform to IS 780 (PN 1.6 rating)/IS 14846, Class 3.

(iii) Butterfly valves can be accepted subject to the condition that the valves of diameter exceeding 150 mm shall necessary be of gear operated.

(iv) All Cut-off valves shall be of the right-hand type and enclosed in properly constructed surface boxes, at least 1 m2 in area so as to allow for broken joints being easily remade.

The top of the surface box shall be 80 mm above ground level, except where it is located on a road. Valve wheels shall have an arrowhead engraved or cast thereon showing direction for turning open and close.

(v) It is recommended that the position of the surface box be indicated by an iron plate painted fire red with distinct lettering. Such plates shall also show the open and close direction as cast or indicated on the valves and the serial number of the sluice valve.

(vi) Locations where vehicles can pass shall be avoided for provision of valve below ground. (CPWD Specs Para 7.10 (xii))

(vii) In case of installations in earthquake prone zones, flexible couplings shall be used for jointing purposes at required locations.

4.8 Valves in fixed firefighting installations shall have supervisory switch with its signaling to fire alarm panel or to have chain(s), pad lock(s), label and temper-proof security tag(s) with serial number to prevent tempering/unauthorized operation. These valves shall be kept in their intended 'open' position.

4.9 STRAINERS

Stainless steel strainers shall have minimum 1 mm thick screen with 3 mm perforations. Strainers shall be provided with flanges.

4.10 ORIFICE PLATE

Orifice plate shall be made of 6 mm thick stainless steel and shall have an identification tag projecting beyond any flange between which it is clamped. The orifice shall be plain central hole withut burs and diameter not less than one-half of the internal diameter of the pipe to which it is fitted.

4.11 INSTRUMENTS

(i) Pressure gauge of appropriate range and 150 mm diameter size shall be provided.
(ii) The pressure gauge shall be duly calibrated before installation and shall be complete with shut off valve.

4.12 AIR VESSEL

Air vessel shall be provided on top of each riser and shall be fabricated out of 8 mm thick M.S. Sheet. The ends shall be dished. This shall be of 250 mm diameter, 1.2 m high and installed vertically on suitable legs. The legs shall be provided with M.S. Plate of size 75 mm x 75 mm x 5 mm at the bottom so that the legs do not puncture the roof. The legs shall be grouted in CC foundation. Flange connection shall be provided for connection with wet riser pipe. Air release valve and pressure gauge with shut off valve shall be provided. The air vessel shall be tested at 25 kgf/cm2 pressure before installation.

4.13 INSTALLATION

i. The installation work shall be carried out in accordance with the detailed drawings prepared by the contractor and approved by the Engineer-in-charge.

ii. In pipe above ground level, expansion loops or joints shall be provided to take care of expansion or contraction of pipes due to temperature changes.

iii. Tee-off connections shall be through equal or reducing tees, otherwise ferrules welded to the main pipe shall be used. Drilling and tapping of the walls of the main pipe shall not be resorted to.

iv. Open ends of piping shall be blocked as soon as the pipe is installed to avoid entrance of foreign matter.

v. Piping installation shall be supported on or suspended from structure adequately. The contractor shall provide, clamps, hangers etc. Proper lines and levels shall be maintained while installing exposed pipes. Pipe supports in pump house shall be floor mounted and of mild steel/ G. I. Spacing of pipe supports shall not be more than that specified below:

Nominal Pipe Size (mm)	Spacing (m)
20 and 25	2.00
32 to 125	2.50
150 and above	3.00

Extra supports shall be provided at the bends and at heavy fittings like valves to avoid undue stress on the pipes.

vi. Anti-vibration pads, springs or liners of resilient and non-deteriorating material shall be provided at each support, so as to prevent transmission of vibration through the supports.

vii. Pipe sleeves of diameter larger than the pipe by least 50 mm shall be provided wherever pipes pass through walls and the annular spaces shall be filled with felt and finished with retaining rings.

viii. Vertical risers shall be parallel to walls and column lines and shall be straight and in plumb. Risers passing from floor to floor shall be supported at each floor by clamps.

5. AUTOMATIC SPRINKLER SYSTEM

This section covers the general requirement of selection, design, installation, testing, commissioning and maintenance of automatic sprinkler system for firefighting in buildings used for other than industrial, storage purpose, hotels and mercantile buildings.

References: For additional information regarding definitions, planning, design, hydraulic calculations, tables etc. following documents are to be referred to:

i. IS: 15105: Design and Installation and Maintenance of Fixed Automatic Sprinkler Fire Extinguishing Systems- Code of Practice (First Revision).

ii. IS: 9972: Specification for Automatic Sprinkler Heads for Fire Protection Service (First Revision).

5.1 **INTRODUCTION**

Firefighting systems for Wet Risers, Downcomers, and Wet Riser cum Downcomer are designed to be operated manually. Any delay in manual operation due to late detection or response could lead to the rapid spread of fire. In an automatic sprinkler system, sprinkler heads are installed throughout the protected areas at specified locations such as on roofs or ceilings, walls, between racks, and below obstructions. These sprinkler heads are connected to water supply lines that are permanently charged with water at a specified pressure. The sprinklers activate at a predetermined temperature, discharging water over the affected area to provide sufficient coverage for controlling or extinguishing the fire. Only those sprinklers near the fire, which reach the necessary heat level, will activate. The operation of the sprinkler system triggers the flow of water, which in turn initiates the fire alarm. Therefore, sprinklers serve two primary functions: detecting the fire and distributing water to control or extinguish it. Water distribution from the ceiling cools the hot gases forming under the ceiling of the enclosure, helping prevent the fire from spreading to adjacent areas and containing the damage within a limited area.

5.2 CLASSIFICATION OF OCCUPANCIES AND PROVISION OF AUTOMATIC SPRINKLER FIRE SYSTEM

Sprinklers are provided in industrial and non-industrial buildings. The design of sprinkler installation depends upon type of occupancy. For the purpose of designing and installation of automatic sprinkler system, buildings are categorized under the following classes in IS: 15105.

(a) Light hazard class
(b) Moderate/Ordinary hazard class
(c) High hazard class
(d) Storage hazards

For details of classifications, IS:15105 is to be referred. Light Hazard Occupancies shall be understood as those with low fire loads and with materials within having low rates of heat release. Light Hazard Occupancies are of non-industrial type subject to the condition that "No single compartment greater than 210 m2 are allowable within light hazard occupancies and such compartments shall be fire separated by walls having 30 min rating and doors. Otherwise the sprinkler system shall be designed as per Ordinary Hazard Occupancy."

Office buildings (excluding store rooms), education institutions, hospitals (excluding kitchens, stores, utilities), libraries, museums, nursing homes, prisons and residential apartments are classified under light hazard occupancies.

Airport terminal buildings, car parking areas within building or basement, departmental stores/retail shops are classified under ordinary hazard class.

In order to satisfy above conditions, all buildings classified under Light Hazard shall be designed under Ordinary Hazard class. Accordingly, these specifications cover Ordinary Hazard class only.

5.3 PLANNING

Automatic sprinklers shall be installed wherever required in terms of Table 7 of Part-4, Vol-1 of NBC 2016 (amended up to date).
Automatic Sprinklers shall also be installed in false ceiling voids exceeding 800 mm in height. Ramps at all levels shall also be protected with sprinklers. Pressure in the sprinkler installation piping shall not exceed 7 bar and pressure at the most remote sprinkler at any level shall not be less than 0.5 bar and also not more than 5 bar.

5.3.1. **Extent of Sprinkler Protection:** Sprinklers shall be provided, but for following exceptions:

a) Areas, rooms or places where the water discharged from a sprinkler may pose a fire or explosion or toxic hazard. In such areas alternative arrangement shall be made.
b) Stairs, spaces below stair headings (but not rooms above a stair) and lift wells. Any part of the building not provided with sprinkler protection shall be fire separated by walls. Fire doors not less than 1 hour in fire resistance shall be provided in the opening of such walls. Construction of Health Facilities under ECRP-II (PKG-I) Vol-5 Tech Specifications
c) Wash rooms, toilets and WCs (but not cloak rooms) of area less than 5 m2. If area of these rooms exceed 5 m2, these shall be provided with sprinkler protection unless fire separated by walls and all openings in the walls are protected.
d) Sprinklers shall not be required in electrical equipment rooms where all of the following conditions are met:

i. The room is dedicated to electrical equipment only.
ii. Only dry-type electrical equipment is used.
iii. Equipment is installed in a 120 minutes' fire-rated enclosure including protection for penetration in walls.
iv. Cable coating is done in trays or trenches to prevent flame spread.
v. Storage is not permitted in the room.

In addition, for firefighting provisions to be provided for Substation/Transformers, Electrical MV main distribution panel and lift panel Clause 3.4.6.3 and 3.4.6.4, Page-22-23 of NBC 2016, Vol-1, Part-4 may be referred to.

e) Rooms like server room or electrical control room where alternate protection by other automatic extinguishing systems, (for example gas, powder and water spray).
f) In areas having height 17 m or above such as in atria, sprinkler installations may be rendered ineffective and hence may be avoided.

5.3.2. The area to be protected by sprinkler is divided in to various zones. For detecting operation of sprinkler in a zone, flow switches are provided which are wired to an annunciation panel installed in the Fire Control Room. In the event of operation of sprinkler(s) in an affected area. The annunciation panel will give audio-visual alarm and indicate the affected zone. This arrangement will be independent of fire alarm system.

5.3.3. Design, Density and Assumed Maximum Area of Operation (AMAO): - This is different for different hazards classified in Para 13.4. For moderate hazard, water discharge shall be at least 5 litre/min/m2 over an assumed area of operation covering 360 m2.

5.3.4. Sprinkler Spacing, Arrangement, Distribution and Locations: - Sprinkler heads may be installed on ceiling and or side walls. For selection of number of sprinkler and their location in a given area, following factors shall be considered:

i. Maximum Area Coverage per Sprinkler
(a) Ceiling sprinkler: 12 m2
(b) Side Wall sprinkler:

- Combustible ceiling: 7.5 m2
- Non-Combustible ceiling: 9 m2

ii. Maximum Distance between Sprinklers
(a) Ceiling Sprinkler: 3.5 m
(b) Side wall sprinkler

- Combustible ceiling 2.7 m
- Non-combustible ceiling 3 m

iii. Minimum Distance between Sprinklers (for Ceiling as well as Sidewall sprinklers):1.8m
In case of intermediate ceiling suspended sprinklers, protecting commodities in racks, distance lower than 1.8 m may be considered if necessary. Construction of Health Facilities under ECRP-II (PKG-I) Vol-5 Tech Specifications

iv. Maximum distance of sprinklers from end walls (for ceiling & sidewall sprinklers) shall not exceed half of the allowable distance between sprinklers
Note: For ceiling sprinklers:

(a) Where the external walls are combustible or built with metallic or otherwise or open sided; and in case of open joisted ceilings or where the roof has the rafters exposed, the distance between the boundary and the sprinklers shall not exceed 1.5 m.

(b) Distance shall be measured perpendicular to the wall.

vi. Sprinklers shall not be located at a distance less than 100 mm from the wall (for ceiling sprinklers). Sprinklers shall not be located at a distance less than 100 mm from the end wall (for sidewall sprinklers)

vii. While designing sprinklers installation, the recommendation of sprinkler manufacturer shall be considered. Typical layout of side wall sprinklers shall be shown in shop drawings.

5.3.5. **Spacing below Sprinkler Heads**: Clear minimum space of 0.5 m shall be maintained below the deflector of sprinkler head.

6. TESTING

a. **Initial Testing**

i. During laying of pipes, the same shall be subjected to 10 kgf/cm2 hydraulic pressure for a period of 24 hours, in sections.

ii. After completion of the work, all valves/ fittings shall be installed in position and entire system shall be tested for 24 hours at a pressure of 10 kgf/cm2. The drop of pressure up to 0.5 kgf/cm2 shall be accepted.

b. **Final Testing**

i. After completion, all operation checks as per norms in relevant Para shall be carried out for automatic operation of the systems. For this purpose, landing valves may be opened at different locations. The exercise shall be repeated couple of times to ensure trouble free operation of the system.

ii. **Flow Test**: The design flow of pumps shall be checked. The pump shall be operated after opening a number of landing valves at different locations. Design pressure is to be maintained in the pump house. Water discharge is to be measured by drop in level in UG tank for a certain period. All pumps shall be tested one by one. The flow rate shall be not less than as specified while maintaining the design pressure in pump house.

7. **COMMISSIONING**

Before commissioning, the entire firefighting system must be thoroughly flushed to remove any earth or foreign materials that may have entered during installation. This can be done by operating the pump and opening valves at various locations. Once the work is complete, the system shall be commissioned and made ready for use. The need for functioning firefighting installations is crucial, even during the occupancy phase of the building. If only part of the building is occupied, the completed firefighting system must be commissioned by isolating the system serving the under-construction areas. From the moment of commissioning, the firefighting system must be properly maintained and manned. Any defects identified during the warranty period must be promptly addressed by the contractor, ensuring the system is fully operational at all times.

8.TRAINING TO CLIENT'S PERSONNEL

The contractor shall conduct orientation and training sessions on the Fire Fighting System for the client's personnel assigned to this task. Training will cover all aspects of operation, maintenance, and troubleshooting, and will be provided on mutually agreed-upon dates as per the instructions of the Engineer-In-Charge.

D. HVAC SYSTEM

41 <u>GENERAL:</u>

The tender Bill of Quantities (BOQ) may include any combination of Split AC systems, VRV/VRF Systems including indoor units such as Hi-Wall, Cassette, Ductable units, Air Handling Units (AHUs) etc. The specific HVAC system(s) required for this project will be

clearly delineated within the BOQ. Bidders shall base their tender submissions on the system(s) indicated therein. The Contractor is required to follow the detailed specifications outlined in the BOQ, which take precedence and shall be read in conjunction with these general tender specifications. It is the Contractor's responsibility to thoroughly review and understand both this tender specification document and the BOQ in its entirety to ensure accurate and compliant bid preparation and project execution. All systems must comply with relevant Indian standards (IS, BIS, and IEC) and be energy-efficient, reliable, and suitable for the local climate.

1. SPLIT AC SYSTEMS

All Hi-Wall Split AC units shall operate with R-410A refrigerant or an environmentally equivalent alternative. The minimum Indian Seasonal Energy Efficiency Ratio (ISEER) ratings for each unit must correspond to the 3-star or 5-star energy rating specified in the BOQ, in accordance with the most recent standards by the Bureau of Energy Efficiency (BEE). Hi-Wall indoor units shall be equipped with auto-swing functionality and operate with low noise levels. Outdoor units must be weatherproof, corrosion-resistant, and designed for low-noise operation. Cassette-type units shall feature 4-way airflow distribution and a compact design for easy maintenance. Ductable units shall be designed for concealed installation and seamless integration with the building's ductwork system. The power supply requirements are 230V, 50Hz for smaller units and 415V, 50Hz three-phase for larger capacity units.

2. VRV/VRF SYSTEMS

VRV/VRF systems shall be modular and have a scalable capacity range, utilizing R-410A refrigerant. The system must meet the minimum ISEER rating as specified in the BOQ. It should incorporate heat pump functionality appropriate for varying climatic conditions, inverter-driven compressors, and individual zone control. Indoor units should be available in Hi-Wall, Cassette, Ductable, and Ceiling Concealed configurations. Outdoor units must be weatherproof, compact, and designed for low-noise operation. A centralized control system shall enable individual zone temperature adjustment. The system shall operate on a 415V, 50Hz, three-phase power supply.

3. AIR HANDLING UNIT (AHU)

All the AHUs supplied shall be factory-built. The AHU configuration, as detailed in the BOQ, shall be adaptable to either ceiling or floor mounting and shall be either a single-deck or double-deck type, contingent upon the specific requirements of the installation location. The AHUs shall be fully compatible with the intended system type, whether DX, VRF, or CHW. In addition to the specifications detailed herein, all other characteristics including tonnage, CFM, and external static pressure, must comply with the individual AHU requirements as defined in the BOQ. AHUs shall include the following components and features:

- The construction shall consist of double-skinned panels with a minimum thickness of 40 mm, with both inner and outer skins being 0.8 mm thick. The specific material—either pre-coated galvanized stainless steel (GSS) or aluminium sheet—will be as detailed in the Bill of Quantities (BOQ). The panels shall be filled with factory-

injected polyurethane foam (PUF) insulation with a minimum density of 40 kg/m³. Thermal break aluminium extruded profiles shall be provided at all corners and joints to ensure thermal efficiency.

- The AHU shall be equipped with a two- or three-stage filtration system. The MERV rating for each stage, as well as any HEPA filter requirements, shall be as specified in the BOQ.

- Unless otherwise specified the cooling coil shall be a six-row DX cooling coil with aluminium fins and copper tubes for efficient heat transfer.

- A plug fan with a variable frequency drive (VFD) and a suitable IE3 class TEFC drive motor with IP55 protection, designed for 415V ±10%, 50 Hz, three-phase AC supply shall be provided. The fan shall be Eurovent/AMCA certified.

- An 18-gauge stainless steel 304 drain pan with 19 mm NBR insulation and necessary drain connections shall be included.

- UV-C emitters with reflectors shall be mounted on the coil surface using removable extruded aluminum frames. The emitters shall be UL certified, capable of producing 254 nm wavelength radiation, and provide a minimum of 7.5 watts/sq. ft. of coil surface area for uniform distribution.

- Slip-in type tubular heaters with a step controller shall be provided inside the AHU. The heaters shall be arranged in two independently operating banks, one controlled by a humidistat and the other by a thermostat. Safety features such as a safety thermostat, air stat/airflow switch, and interlocking with the fan motor shall be included.

- The AHU shall include essential accessories and components, including a mixing box (if required) for blending fresh and return air, aluminium volume control dampers (VCDs) on air inlets and outlets to regulate airflow, and minimum two-bend GSS/PVC eliminators to prevent water carryover. Vibration isolation arrangements shall minimize noise and vibration. Safety and maintenance features include limit switches on access doors and an inspection lamp. AHU shall be equipped with an expansion valve, drier, complete with DX/VRF AHU kit, and a corded remote controller.

- The AHU shall be Eurovent/AHRI certified.

- The scope of supply shall include all necessary supporting GI hangers, MS angles, channels, nuts, bolts, washers, and other installation materials. All incoming power and control cabling, earthing, and interconnections between the AHU, strip heaters, and control panel shall also be included.

- The Contractor shall submit a comprehensive AHU datasheet for approval, detailing the proposed AHUs' specifications and demonstrating compliance with this tender document.

4. AHU CONTROL PANEL

The AHU control panel shall be a CPRI-approved (IEC 61439-1 and 2), factory-fabricated, wall-mounted unit designed to control the AHU and associated components. The panel shall include the following features:

- Motor Control: The panel shall incorporate a variable frequency drive (VFD) for fan motor control, along with a bypass DOL/star delta starter and a manual changeover switch for transitioning between VFD and DOL/star delta operations.

- Control Elements: The panel shall include contactors, overload relays (OLR), single-phase preventors (SPPR), control switches, and MCBs for AC units. It shall also feature a 24V AC power supply for fire interlock.

- User Interface: The panel shall have an auto/manual selection switch, ON/OFF push buttons, and indicator lamps for ON, OFF, and trip status.

- Heater Control: The panel shall include contactors and breakers for the heater banks, with necessary power and control wiring to maintain the desired temperature and relative humidity (RH%) as per the design conditions. The fan/blower motor shall be interlocked with the heaters to ensure that the heaters are powered only after the blower has reached full designed speed.

- Safety and Monitoring: The panel shall be equipped with a humidistat, thermostat, air stat/airflow switch, and safety thermostat for precise control and safety.

- Wiring and Interconnections: All necessary control and power cabling between the AHU and the panel shall be included in the scope of supply.

- Data Sheets: Contractor shall provide AHU panel drawings & data sheets for prior approval.

5. FANS

All ventilation fans, including inline and cabinet fans, must be AMCA certified for both air and sound performance. The material of construction and the static pressure rating shall conform to the specifications detailed in the BOQ. Installation shall be all-inclusive, incorporating an electronic speed regulator for single-phase fans. Three-phase fans shall utilize VFD-compatible motors and include a VFD starter panel. All related power and control wiring between the power supply and fan speed regulator/panel, a suitable enclosure, a plug top for connecting to the socket, mounting brackets, and all other necessary accessories must be incorporated in the installation.

6. THERMAL INSULATION

- The insulating material shall be a closed-cell elastomeric compound based on Nitrile Butadiene Rubber (NBR). The thermal conductivity of the elastomeric NBR insulation must not exceed 0.035 W/m·K when tested at a mean temperature of 20°C, following the procedures outlined in EN 12667. The insulation material shall have a density ranging from 40 to 60 Kg/m3.

- Prior to insulation, all duct surfaces must be thoroughly cleaned to remove contaminants, including grease, oil, and dirt. Accurate surface measurements should be taken to ensure precise cutting of the closed-cell elastomeric rubber sheets, with sufficient allowance for proper fitting. The insulation material must be installed under compression, without stretching. Apply a thin, uniform layer of adhesive to both the back of the insulation sheet and the prepared metal surface. Allow the adhesive to become tack-dry before carefully positioning the insulation sheet and pressing firmly to achieve a secure bond. All longitudinal and transverse joints shall be sealed in accordance with the insulation manufacturer's recommendations, using only the adhesive specified by the manufacturer.

- For ductwork installations directly exposed to solar radiation, a UV-resistant and mechanically protective coating, as recommended by the insulation manufacturer, shall be applied after allowing the adhesive to cure for 36 hours.

- All refrigerant and condensate drain lines shall be insulated as detailed herein, maintaining a 25 mm air gap between adjacent insulated chilled water or refrigerant surfaces. Prior to applying insulation, all pipes shall be cleaned and brushed to remove any surface contaminants (dirt, dust, mortar, grease, oil, etc.). Only the insulation manufacturer's recommended adhesive should be used for all applications.

7. ACOUSTIC INSULATION

To mitigate noise transmission, specified areas shall incorporate acoustic insulation with the following attributes:

- The acoustic insulation shall be of engineered, open-cell Nitrile Rubber foam. The insulation must demonstrate specific sound absorption capabilities as measured by Random Incidence Sound Absorption Coefficients (RISACs) across a range of octave band frequencies. Testing must adhere to the methodology defined in ISO 354. The insulation material shall be manufactured without the use of fibers. The acoustic insulation must possess a minimum density of 140 Kg/m3. The insulation shall incorporate an integrated anti-microbial agent during the manufacturing process. This agent must provide sustained protection against fungal and bacterial growth. The acoustic insulation shall exhibit a thermal conductivity not exceeding 0.047 W/m·K when tested at a temperature of 20°C. The insulation shall conform to a Class 1 rating for surface spread of flame. Additionally, it must comply with UL 94 (HBF, HF1 & HF2) flammability standards.

- Duct Acoustic Lining: For ductwork designated on the project drawings and listed in the Schedule of Quantities, an internal acoustic lining with a thickness of 10mm shall

be applied. Unless otherwise specified, the lining shall extend for a minimum distance of 6 meters along the duct length or 30% of the total duct length, whichever is greater.

8. DUCT WORK – GENERAL SPECIFICATION

- All ducts shall be fabricated from either Galvanized Sheet Steel (GSS) conforming to IS: 277 or aluminium sheets conforming to IS: 737. The steel sheets shall be hot-dip galvanized with a MAT finish and a coating of minimum 120 grams per square meter (GSM) of zinc. GI sheets shall be lead-free, eco-friendly, and RoHS compliant.

- The thickness of sheets for the fabrication of rectangular ductwork shall be as follows. The thickness required corresponding to the longest side of the rectangular section shall be applicable for all four sides of the ductwork:

Longest Side (mm)	**Minimum Sheet Thickness (GSS)**	**Minimum Sheet Thickness (Aluminum)**
750 mm and below	0.63 mm	0.8 mm
751 mm to 1500 mm	0.8 mm	1.0 mm
1501 mm to 2250 mm	1.0 mm	1.5 mm
2251 mm & above	1.25 mm	1.8 mm

- All sheet metal connections, partitions, and plenums required for the flow of air through the filters, fans, etc., shall be at least 1.25 mm thick galvanized steel sheets in the case of G.I. sheet ducting or 1.8 mm thick aluminum sheets in the case of aluminum sheet ducting and shall be stiffened with 25 mm x 25 mm x 3 mm angle iron braces.

- Aluminum ducting shall normally be used for clean room applications, hospital works, and wherever high cleanliness standards are functional requirements.

8.1 ASSOCIATED ITEMS

- Supply/return air outlets, F.A. (Fresh Air) grilles, and accessories shall be constructed from extruded aluminum sections.

- Flanges for matching duct sections, stiffening angles (braces), and supporting angles shall be of rolled steel sections and shall be of the following sizes:

Application	**Duct Width**	**Angle Size**
Flanges	Up to 1000 mm	35 mm x 35 mm x 3 mm
-do-	1001 mm to 2250 mm	40 mm x 40 mm x 3 mm
-do-	More than 2250 mm	50 mm x 50 mm x 3 mm
Bracings	Up to 1000 mm	25 mm x 25 mm x 3 mm

-do-	More than 1000 mm	40 mm x 40 mm x 3 mm
Support Angles	Up to 1000 mm	40 mm x 40 mm x 3 mm
-do-	1001 mm to 2250 mm	40 mm x 40 mm x 3 mm
-do-	More than 2250 mm	RS section size decided individually

- Hanger rods shall be of mild steel and of at least 10 mm dia for ducts up to 2250 mm size, and 12 mm dia for larger sizes. All nuts, bolts, and washers shall be zinc-plated steel. All rivets shall be galvanized or shall be made of magnesium-aluminum alloy. Self-tapping screws shall not be used.

8.1.2 DUCTWORK FABRICATION AND INSTALLATION STANDARDS

- Ducts shall be fabricated either on-site or factory-fabricated, adhering to IS: 655 "Specifications for Metal Air Ducts," unless otherwise specified. The interior surfaces of the ducting shall be smooth to ensure efficient airflow. Ducts up to 600 mm on the longest side shall be cross-broken between flanges by a single continuous break. Ducts 600 mm and above shall be cross-broken by single continuous breaks between flanges and bracings. Alternatively, beading at 300 mm centers shall be provided for stiffening. Long-radius elbows and gradual changes in shape shall be used to maintain uniform velocity, reduce turbulence, minimize resistance, and lower noise. The ratio of duct size to the radius of the elbow shall not be less than 1:1.5. Flanged joints shall be used at intervals not exceeding 2500 mm. Flanges shall be welded at corners first and then riveted to the duct.

- Stiffening angles shall be fixed to the sides of ducts by riveting at 1.25 meters from joints for ducts 600 mm to 1500 mm, and 0.6 meters from joints for ducts larger than 1500 mm. Diagonal angles may be used as bracings for ducts larger than 1500 mm. Plenums for filters shall include a suitable access door of size 450 mm x 450 mm. Factory-fabricated ducts shall be supplied in L-sections, with lengths not exceeding 1800 mm for ducts with the longest side of 600 mm and above, and 3000 mm for smaller ducts.

8.1.3 AIR OUTLETS AND INLETS (SUPPLY AND RETURN)

- All air outlets and intakes shall be made of extruded aluminum sections, presenting a neat appearance and rigid mechanical joints. Square and rectangular wall outlets shall have a flanged frame with returned or curved edges (5 to 7 mm) and a flexible gasket between the flange and the wall face. Supply air registers shall have adjustable front louvers for vertical deflection (up to 22.5 degrees) and back louvers for horizontal spread (at least 45 degrees). Return air grilles shall have only front louvers. The outer framework shall be made of at least 1.6 mm thick aluminum sheet, with aerofoil-designed louvers of 0.8 mm thickness.

- Square and rectangular ceiling outlets/intakes shall have a flange flush with the ceiling or be of anti-smudge type. The outer shell shall be made of at least 1.6 mm thick extruded aluminum, with a removable diffusing assembly. Linear diffusers shall have

a flanged frame with returned edges (3.5 mm) and adjustable slots. The construction shall use at least 1.6 mm thick extruded aluminum sheet.

- Grilles and diffusers shall have grille bars set straight or deflected, assembled by mechanical interlocking to prevent distortion. Adjustable rear blades shall be provided for deflection. Supply air outlets shall include volume control devices with mill-finish/block-shade blades pivoted on nylon brushes to avoid rusting and noise. Opposed blade dampers shall be used for circular outlets, while radial/shutter-type dampers shall be used for square and rectangular outlets. All products shall be supported by manufacturer performance curves.

8.1.4 FRESH AIR INTAKES

Fresh air intake grilles shall be made of extruded aluminum sections. A bird wire screen of 12 mm mesh in 1.6 mm steel wire shall be fixed to the rear face of the louver frame.

8.1.5 FIRE DAMPERS

- Fire dampers shall be installed in all supply and return air ducts, return air passages, and at floor crossings. Access doors shall be provided before each set of fire dampers. Fire dampers shall be multi-blade louver type, constructed with at least 1.6 mm thick galvanized sheet, and factory-fitted in a 400 mm long sleeve. They shall include a locking device, motorized actuator, and control panel.

- Unless otherwise specified, Fire dampers shall be motorized smoke and fire dampers, equipped with a UL-stamped fusible link to close in case of temperature rise or fire alarm activation. An electric limit switch shall cut off power to the AHU blower motor and strip heaters upon damper closure. Fire dampers shall be CBRI tested and certified for 90 minutes of fire resistance as per UL 555-1995.

- Fire dampers shall be compatible with the building's fire detection system and operate automatically via an electric motor upon receiving a signal from the fire alarm panel. Wiring from the fire alarm panel to the AHU electric panel shall be provided by the department, while wiring from the AHU panel to the fire damper shall be provided by the air conditioning contractor.

8.1.6 INSTALLATION OF METALLIC DUCT

- Fabrication and installation shall be performed in a workmanlike manner. Ductwork shall be rigid and straight, free from kinks. All exposed ducts within the conditioned space shall utilize slip joints. Flanged joints are prohibited in these areas. All joints must be airtight.

- Ducts shall be independently supported from the building structure with adequate support to maintain their true shape. Support spacing shall not exceed 2 meters. In situations where ducts cannot be suspended from the ceiling, wall brackets or

alternative arrangements, as approved by the Engineer-in-Charge, shall be implemented. Neoprene or other vibration isolation packing, with a minimum thickness of 6 mm, shall be provided between the ducts and the angle iron supports/brackets. Vertical ductwork shall be suitably supported at each floor level by steel structural members.

- Where metal ducts or sleeves terminate in woodwork, tight joints shall be achieved using closely fitting heavy flanged collars. Where ducts pass through brick or masonry openings, wooden framework shall be installed within the openings, and the crossing ducts shall be equipped with heavy flanged collars on either side of the wooden framework to ensure a leak-proof duct crossing. Duct connections to the air-handling unit shall be established by inserting a double canvas sleeve, 100 mm in length. The sleeve shall be securely bonded and bolted to both the duct and the unit casing.

- Dampers shall be installed in branch duct connections to facilitate proper volume control and balancing of air quantities within the system, regardless of whether they are indicated in the drawings. Suitable links, levers, and quadrants shall be provided for the proper operation, control, and setting of the dampers. Every damper shall feature an indicating device that clearly displays its position at all times.

- Where electrical heaters are mounted within the duct, they shall be of the low-temperature, totally enclosed type, fitted with radiation fins. A removable panel shall be provided in the duct to allow access to the heaters. Any openings in the duct for electrical wiring must be equipped with suitable bushes to prevent leakage. A 6 mm thick asbestos board lining shall be installed around the inside of the duct for a distance of 30 cm on either side of the electrical heaters. A manually reset thermostatic safety switch shall be positioned near the duct section housing the heaters. Furthermore, the heaters must be interlocked with the connected fan motor of the AHU.

8.1.7 AIR OUTLETS AND INLETS

- The locations of the air outlets and intakes are indicated in the tender drawings. The air conditioning contractor shall provide the necessary openings and wooden framework for fixing the grilles. The location of these outlets/inlets is subject to change, and the approval of the Engineer-in-Charge must be obtained before final fixing of the grilles/diffusers. When installing fresh air intakes, no fixing devices shall be visible from the face of the frame.

- Where louvers are to be fixed in masonry or concrete, they shall be secured using either expanding plugs or raw plugs. Where louvers are to be fixed in steel or wood, non-ferrous screws or bolts shall be used. Supply air outlets and return air intakes shall be anodized/powder-coated aluminum in a color that matches the surrounding wall/ceiling. Fresh air intakes shall be anodized/powder-coated aluminum, subject to the approval of the Engineer-in-Charge. The paint color shall be approved by the Engineer-in-Charge.

- The air-conditioning contractor shall repair any damage to the finish of the structure that occurs during the installation work before handing over the installation to the Department.

8.1.8 AIR BALANCING

Air systems shall be balanced to minimize throttling losses. The entire air distribution system shall be balanced with the help of an anemometer. Measured air quantities at the fan discharge and at the various outlets shall be within + 5 percent of the specified/quoted values. For fans greater than 0.75 KW (1.0 HP), fan adjustments must be made to meet design flow conditions. Branch duct adjustments shall be permanently marked after air balancing is completed to allow for restoration to their correct position if disturbed.

8.1.9 MEASUREMENT

- Duct measurements (for insulated ducts) shall be taken before the application of insulation. Ductwork shall be measured section-wise based on the external surface area, calculated by multiplying the axial length from flange face to flange face for each section by the corresponding duct perimeter at the center of that section length. Uniformly tapering straight sections shall be measured as described above. However, for special pieces like tees, bends, etc., surface area computations shall be performed according to the shape of such pieces.

- The quoted unit rate for external surfaces of ducts shall include all wastage allowances, flanges, gaskets for joints, vibration isolators, bracings, hangers and supports, inspection chambers/access panels, splitter dampers with quadrants and levers for position indication, turning vanes, straightening vanes, and all other accessories required to complete the duct installation per the specifications. These accessories shall not be measured separately.

- Grilles and diffusers (excluding linear diffusers) shall be measured by their cross-sectional areas, perpendicular to the airflow, excluding the flanges. Volume control dampers, where provided, shall not be accounted for separately.

- Linear diffusers shall be measured by linear measurements only, not by cross-sectional areas, and shall exclude flanges for mounting the linear diffusers. The supply air plenum for linear diffusers shall be measured as described above for ducting.

- Fire dampers shall be measured by their cross-sectional area perpendicular to the direction of airflow. Quoted rates shall include the necessary collars and flanges for mounting, inspection pieces with access doors, fusible links/solenoids with wiring, but excluding fire detectors, etc.

LISTOFAPPROVEDMAKES:

Sl.	Item	Makes
1	Steel conduit	BEC/AKG/PRECISION/ATUL
2	PVC Conduit & Accessories	AvonPlast,Atul,Polycab,Precision,Balco,Konseal,Anchor
3	PVC Insulated CU, Conductor FRLS Wires/Cables	RR-KABEL/National/Ralison/Finolex/Polycab/Havells.
4	Modular type Switches and Socket Outlet.	Clipsal/Legrand/Crabtree(Havells)/Wipro/MK
5	Step Type Electronic Regulators	Clipsal/Legrand/Anchor/WIPRO/Havells/Schneider
6	Single Phase Industrial Type Socket Outlet	Legrand/Siemens/ABB/Havells
7	LT Panel/M.V Cubicles Boards	L&T/Siemens/Schneider/Tricolite/Milestone/or CPRI Approved Panel Manufactures.
8	Air Circuit Breakers	L&T/Siemens/ABB/Schneider/GE
9	MCB's/Isolators/RCBO/RCCB	Legrand/C&S/L&T/ABB/Siemens/Schneider/Havells/HPL
10	MCCB	Siemens/ABB/Schneider/L&T/C&S/Legrand/HPL/Havells
11	Protection relays	L&T/ABB/Schneider/C&S/Siemens
12	Fuse Disconnector Switch/SFU/Fuse	L&T/Siemens/ABB/C&S
13	Multifunction meter	Schneider/Siemens/L&T/ELMeasure
14	LT Cables (XLPE)	Polycab/RRKabel/KEI/Bonton/Havells/Finolex
15	Rising Mains/BUS Trunking	Tricolite/L&T /Zeta /C&S
16	Acoustic Enclosure	Jakson/ Sudhir power/SuperNova
17	Anti-Vibration Mountings	Dunlop/Resistoflex
18	Light Fittings	Philips/ Bajaj/Crompton/Havells/Wipro
19	Ceiling fans	Orient/Crompton/Khaitan/Polar/Usha/Havells
20	Motor	Siemens/ABB/Crompton/Kirloskar
21	Exhaust Fan	Havells/Crompton/Anchor by Panasonic/Almonard/Bajaj
22	Servo Stabilizer	Approved ISI Standards
23	Indicating Meters	HPL/L&T/Meco/Rishabh/Universal/ABB
24	kWH, kW Meters/TOD	HPL/L&T/Enercon/Meco/Rishabh/Universal/ABB
25	Capacitor	L&T/Conzerv/SHREEM
26	Earth leakage relay	L&T/ELMEASURE/ABB
27	Battery Chargers	Uptron/VolstatElectronics/StatconAE
28	Change over switch	L&T/C&S/Socomec/ABB
29	Diesel Generators	Cummins/Ashok Leyland/Kirloskar/TATA
30	AMF	Siemens/C&S/Schneider
31	Transformer	ABB/Intrans/Unipower/KEL
32	Cast resin current Transformers:	AE/L&T /Kappa/ Rishab
33	Cable Trays/ Raceways	OBO/Legrand/Anant Power
34	**UPS**	
a	Upto 3 KVA	Microtek/APtech/Luminous/V-guard

Sl.	Item	Makes
b	Above 3 KVA	Microtek/Luminous/Hykon/Eaton/Numeric
c	Battery (150 Ah/160Ah)	Relicell/Exide/Luminous/Amaron/Eveready
35	Lifts/ Dumb Waiters/Escalators	Otis /Kone/ Mitsubishi/ Scheindler/ Thyssenkrupp
	ELV(EXTRA LOW VOLTAGE)	
36	CCTV/ NVR/DVR	Hikvision/CP Plus/Dahuva/Honeywell.
37	CCTV Cable	Polycab/finolex/Hikvision/V-Guard
38	LED TV/SMART TV	Samsung/LG/Panasonic/Sony.
39	Routers	Alcatel/Cisco/TPLINK/NETGEAR/D-Link
40	Cat 6/6a Cable.	Finolex/D-Link/Polycab/V-guard
41	Socket, Keystone Module & Face Plate	Havells/Schnieder/ Honeywell/Indo Asian/Legrand
42	Speaker Wire	Finolex/MX/Polycab/V-guard.
43	Network rack	Legrand / D Link / Netrack / Wal Rack
44	Server PC	DELL / HP / Lenovo
45	Hard Disk	Seagate / Toshiba /WD
46	Network switch/POE switch & Wifi access points	Netgear/Cisco/Alcatel/ D-Link/TPLINK/Hikvision
47	Door Controller, Card Reader, Biometric Reader, Access Control Server Software, Smart card	Honeywell/Siemens /ESSL/ZKTeco/Biomax
48	PA System, Amplifier, PA Speaker, Voice Controller, Paging Station, Microphone	AHUJA/Bosch/ Honeywell/Yamaha
49	PVC Conduits & Raceways	Balco/TOMS/Finolex/Modi's/Precision
50	Video Conferencing System & Secondary Camera	Logitech/Jabra/Polycom/Sony
51	RG-6, RG-11Wire/ Coaxial Cables	Finolex/KEI/Polycab/Havells/DLINK
52	Digital/ANALOG PHONES/ Handsets/IP	Beetel /Panasonic /Alcatel
53	IPABX / EPABX System	CRYSTAL/Alcatel/ Matrix/ Panasonic/Coral
	FIRE ALARM AND DETECTION SYSTEM	
54	Smoke detector/Heat detector	Honeywell /Minimax/Ravel/ADT/Siemens/Agni
55	Fire Alarm control Panel	Honeywell /Minimax/Ravel/ADT/Siemens/Agni
56	Response indicator/Fault isolators/sounder/Manual Call Point/Phone control module	Honeywell /Minimax/Ravel/ADT/Siemens/Agni
57	Talk back unit	Honeywell /Minimax/Ravel/ADT/Siemens/Agni
58	Fire alarm cable	RR-Kabel/Finolex/V-guard/PolyCab/Valuecon

Sl.	Item	Makes
59	Fire Extinguisher	Minimax/New age/Vijay/Cease fire/Superax/Safex
	FIRE FIGHTING SYSTEM	
60	G.I./M.S. Heavy Class Pipe	Jindal-Hissar, TATA , Prakash
61	Gate, Butterfly, Air Release Valve	Leader, Zoloto, Castle, Sant, Crescent, Fouress, Audco, Viking
62	Forged Steel Fittings	True Forge, Sant, Zoloto
63	SS/Brass/Gunmetal Ball Valve (Fullway Check and Globe Valves)	Sant, Zoloto, Leader
64	C.I. Double Flanged Sluice Valve	Zoloto, AIP, Kirloskar
65	Fire Hose Pipes	Newage, Minimax, Safex, Ceasefire, Superex, Safeguard
66	Fire Hydrant Valves	Minimax, Safex, Ceasefire, Newage, Safe Guard, Kanex, , Superex, Agni, AAAG
67	Sprinkler Heads	Tyco, Viking, HD, Grinnel, Life Guard, Getech, Newage
68	Sluice and Non-return/Check Valve	I.V.C., Kilburn, Zoloto, Castle, Sant, KSB, Kirloskar, Leader, Crescent, AIP
69	First Aid Fire Hose Reels	Minimax, Safex, Ceasefire, Newage, Safe Guard, Kanex, Safe Fire, Superex.
70	Horizontal Centrifugal/Fire Pumps	Mather & Platt (WILO), GRUNDFOS, Kirloskar, Beacon
71	Diesel Engine	Cummins, Ashok Leyland, Caterpillar, Kirloskar
72	Electric Motors	GEC, Siemens, ABB, Crompton
73	G.I. Fittings	Unik, K.S., Zoloto
74	Yard Hydrant Stand Post	Eversafe, Safe fire, Minimax, Newage, Safe Guard
75	Pressure Gauge	H.GURU, Fiebig, HD, Manometer, GIC, Emerald, WIKA
76	Flow Switch	Potter, Safex, system sensor, Rapid flow, TRAC, Levcon, Switchgear, Honeywell, Siemens.
77	Pressure Switch	Indfoss, Switcher, Honeywell, Vexma Trafag, Danfoss, H-Guru, Switzer, Waaree
78	Fire Suppression System	KANEX, SVS Buildwel (p) ltd
79	Sprinkler Flexible Drops	VICTAULIC, SMITH COOPER, ANVIL, Tyco, HD, Agni
80	Branch Pipe	New Age, Steelage, Minimax, Superex, Safeguard
81	First Aid Hose Reel Drum	New Age, Minimax, Vijay
82	Alarm Valve & Hydraulic Alarm Motor	HD, Mather & Platt, Central Spray Safe, Grinnel
	HVAC	
83	Split AC Units (Hi Wall / Cassette Units / Ductable Split)	Hitachi, Daikin, Toshiba, Trane, O-General, Mitsubishi Electric, Voltas, Bluestar, Carrier
84	DX Condensing Unit	Hitachi, Daikin, Toshiba, Trane, O-General, Mitsubishi Electric, Voltas, Bluestar, Carrier

Sl.	Item	Makes
85	VRV/VRF	Hitachi, Daikin, Toshiba, Trane, O-General, Mitsubishi Electric, Voltas, Bluestar, Carrier
86	Air Handling Units	Flaktwood, Trane, Systemair, VTS, Edgetech, Zeco, Citizen, Euroclima
87	Circular Inline Fans / Cabinet Fans	Systemair, Greenheck, Kruger, Nicotra, Flakt, Comefri, Ostberg, Airmaster
88	Variable Frequency Drives	Siemens, Danfoss, ABB, Schneider, Yaskawa, Fuji Electric
89	Factory Fabricated Ducting	Zeco, Rollastar, Multiline, Sevenstar, Western Air
90	GI Sheets/Ducting	SAIL, Jindal, TATA
91	Aluminium Sheets/Ducting	SAIL, Jindal, TATA , Hindalco
92	Nitrile Rubber Insulation	Armacell, K Flex, ALP Aeroflex
93	Grilles / Diffusers / Louvers	Systemair, Greenheck, Ruskin, Titus, Dynacraft, Cosmos, Ravistar, Airmaster
94	Fire Dampers / Volume Control Dampers	Systemair, Greenheck, Ruskin, Titus, Dynacraft, Cosmos, Ravistar, Airmaster
95	Drain Pumps	Aspen
96	Electrical Panels	CPRI Approved Make List
97	Laminar Airflow Hood	Thermadyne, AAF, Camfil
98	MERV Filters	Spectrum, Camfil, Pyramid, EMW, AAF, Klenzaids, Thermadyne, Aerofil
99	HEPA Filters	Spectrum, Camfil, Pyramid, EMW, AAF, Klenzaids, Thermadyne, Aerofil
100	Magnehelic Gauges	Dawson, Omicron
101	Stabilizer	V-Guard/V-stab / Microtek
102	Thermostat / Humidistat	Honeywell, Johnson Control, Siemens , Danfoss, Schneider, Omicron, Belimo
103	Copper Piping	Mexflow, Mandev, Rajco, Totaline
104	Drain Piping	Supreme, Astral, Finolex, Prince
105	Communication Cable / Power Cable	Polycab, RR Kabel, KEI, Havells

Note:

1. Change of any make of material in case of its non-availability or any other such reason shall be at the discretion of the Engineer-in-charge. The Contractor shall not be allowed to change the makes without their prior permission.

2. Equivalent make of any item may be added with the approval of Engineer in charge, wherever makes have not been specified for certain items, the same shall be as per BIS and as per approval of Engineer.

3. In case of items for which approved make is not given above, the Contractor shall place the order with the prior approval of the Engineer-in-charge.

4. In case of Contradiction between the approved makes/brands specified above and mentioned in the Specifications /Bill of quantities. The decision of the Engineer-in-Charge shall be final and binding on the Contractor.

5. All materials should confirm to relevant standard and codes of BIS and shall have ISI mark.

SIGNATURE & SEAL OF THE BIDDER

PART – VII

SCHEDULE F

GENERAL RULES & DIRECTIONS:

Officer inviting tender: **Deputy Vice President (P&S)**
Hi-care Division,
HLL Lifecare Limited

Maximum percentage for quantity of items of work to be executed beyond which rates are to be determined in accordance with Clauses 12.2 & 12.3. See below

Definitions:

2(vi) Engineer-in-Charge (EIC) - Officer nominated by HLL
2(viii) Accepting Authority - Competent authority of HLL as per DOP
2(x) Percentage on cost of materials and labour to cover all overheads and profits. 15%
2(x)(a) Standard Schedule of Rates - DSR 2021for Civil work & DSR 2022 for E&M work

Clause 1

i. Time allowed for submission of Performance Guarantee, programme chart (Time and progress) and applicable labour licenses, registration with EPFO, ESIC and BOCW welfare board or proof of applying thereof from the date of issue of letter of acceptance 7 days
ii. Maximum allowable extension with late fee @ 0.1% per day of Performance Guarantee amount beyond the period provided in above 15 days

Clause 2

Authority for fixing compensation under clause 2: Competent authority of HLL as per DOP

Clause 2A

Applicable clause 2/ Clause 2A Yes / No

Clause 5

Number of days from the date of issue of letter of acceptance for Reckoning date of start Mile stone(s) as per table given below:-	First date of handing over of the site or 7th day from the date of issue of Letter of Acceptance (LOA) whichever is later.

SN	Description of Milestone (Physical)	Time Allowed in days (from date of start)	Amount to be with-held in case of non-achievement of milestone
	Milestone shall be submitted by the contractor within 7 days from the date of LOA to the Engineer in charge and it shall be mutually finalized by the Engineer in Charge and the contractor		

Authority to decide:

i. Extension of time: Competent Authority of HLL as per DOP
ii. Rescheduling of mile stone: Competent Authority of HLL as per DOP
iii. Shifting of date of start in case of delay in handing over of site: Competent Authority of HLL as per DOP

Clause 6
Computerised Measure Book (CMB)
(ii) Mode of measurement: CMB

Clause 7

Gross work to be done together with net payment /adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment	Rs.30 Lakhs or as per the direction of EIC.

Clause 7A
Whether clause 7A shall be applicable: Yes

Clause 8A

Authority to decide compensation on account if contractor fails to submit completion plans	Competent authority of HLL as per DOP

Clause 10A
List of testing equipment to be provided by the contractor at site lab

Contractors are advised to provide Field Testing Equipment in required number so that Quality of work does not suffer due to shortage of Equipment. (Refer Annexure-35 of Quality Assurance Manual 2022 of CPWD)

In addition, contractor shall also provide testing equipment as per the requirement & direction of EIC.

Clause 10B(ii)
WhetherClause10B(ii) shall be applicable **- No**

Clause 10 C –Not Applicable

Clause 10 CC –Not Applicable

Clause 11
Specifications to be followed for execution of work

Technical Specifications (Part VI) of the tender documents and CPWD Specifications with up to date correction slips, (up to date floating of tender) / Technical Specifications ((Part VI) of the tender documents /specification approved by Engineer in charge.

Clause 12

Authority to decide deviation up to 1.5 time of tendered amount: Competent authority of HLL as per DOP

12.2 & 12.3

Deviation Limit beyond which clauses12.2 & 12.3 shall apply for building work	: 25%

12.4

(i) Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for foundation work (except items mentioned in earth work subhead in DSR and related items)	: 25%
ii) Deviation Limit for items mentioned in earth work subhead of DSR and related items	: 100%

Clause 16

Competent Authority for deciding reduced rates: **Deputy Vice President (P&S)**

Clause 18

List of mandatory machinery, tools & plants to be deployed by the contractor at site:

As per requirements of Description of work in BOQ and Provisions in Clause in required number so that Quality and progress of work does not suffer due to shortage of machinery, tools and plants. In addition, contractor shall also provide machinery, tools and plants as per the requirement & direction of EIC

Clause 19C Competent authority of HLL as per DOP to decide penalty for each default
Clause 19D Competent authority of HLL as per DOP to decide penalty for each default
Clause 19G Competent authority of HLL as per DOP to decide penalty for each default
Clause 19K Competent authority of HLL as per DOP to decide penalty for each default

Clause 25

i. Conciliator: Competent Authority of HLL
ii. Arbitrator Appointing Authority: Competent Authority of HLL
iii. Place of Arbitration: Corporate Head Office, Poojappura

Clause 32

Requirement of Technical Representative(s) and recovery Rate

SN	Minimum Qualification	Discipline	Minimum Experience in years	Minimum (No.)	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of clause 36(i)	
					Figures (Rs)	Words (Rs)
1	Graduate Engineer or Diploma Engineer	Civil	2 or 5 respectively	1	Rs.15,000/per month per person	Rupees Fifteen Thousand per month per person
2	Graduate Engineer or Diploma Engineer	Electrical	2 or 5 respectively	1	Rs.15,000/per month per person	Rupees Fifteen Thousand per month per person

Note: The personnel above to be in position at site as per requirements at project site or within 15 days of directions of Engineer-in-Charge whichever is earlier

Assistant Engineers retired from Government services that are holding Diploma will be treated at par with Graduate Engineers.

Diploma holder with minimum 10 year relevant experience with a reputed construction co. can be treated at par with Graduate Engineers for the purpose of such deployment subject to the condition that such diploma holders should not exceed 50% of requirement of degree engineers.

Clause 38

(i) (a) Schedule/statement for determining theoretical quantity of cement & bitumen on the basis of Delhi Schedule of Rates 2021 printed by C.P.W.D.

(ii) Variations permissible on theoretical quantities:

(a) Cement

For works with estimated cost put to tender not more than Rs. 25 lakh. : 3% plus/minus.

For works with estimated cost put to tender more than Rs. 25 lakh. : 2% plus/minus.

(b) Bitumen All Works 2.5% plus & only & nil on minus side.

(c) Steel Reinforcement and structural steel sections for each diameter, section and category 2% plus/minus

(d) All other materials Nil

Provision of Independent External Monitors

- Threshold value (Estimated cost put to tender) at and above which Integrity Pact would be applicable Rs. 10 Crore
- Particulars of IEMs appointed by CVC:

SN	Name of IEM	Address
1	Shri. Ravi Dutt Kamboj, IFoS (Retd.),	HLL Bhavan, Poojappura, Thiruvananthapuram, Kerala - 695012

PART VIII

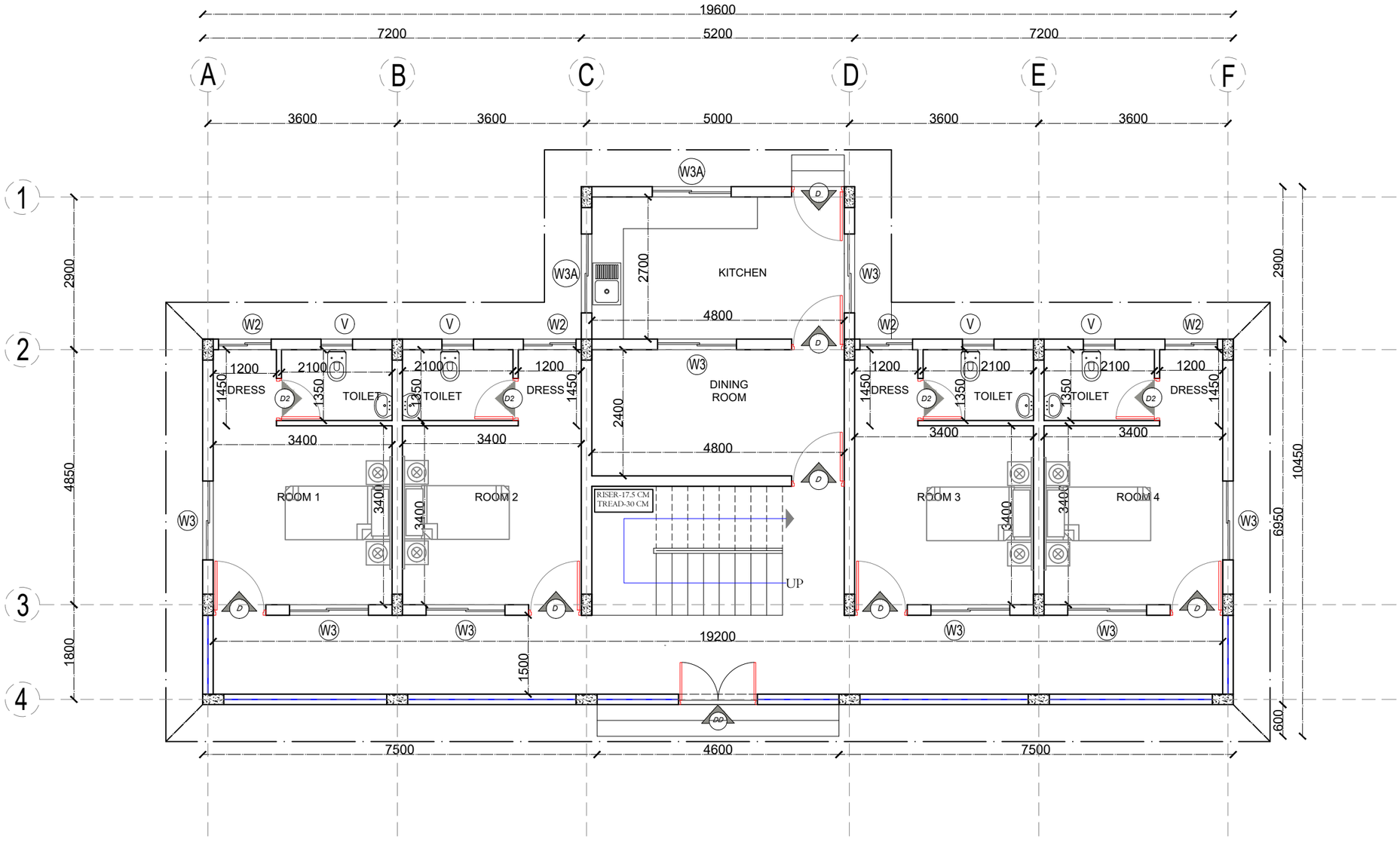
TENTATIVE MILESTONE SCHEDULE

Milestone No.	Milestone Description	Duration (Days)	Cumulative Days
1	Site Mobilization, Approvals, Barricading, Material Procurement & Setting Out	20	20
2	Civil Modifications, Masonry, Structural Repairs & Plastering Works	120	140
3	Plumbing, Drainage, Sanitary & Concealed Pipe Works	35	175
4	Electrical Conduiting, Cabling, Earthing & First Fix Services	40	215
5	Flooring, Wall Finishes, Doors, Windows & Aluminium/Glass Works	45	260
6	Painting, Electrical Fixtures, Plumbing Fixtures & Final Finishes	40	300
7	Testing, Commissioning, Snag Rectification & Quality Inspection	20	320
8	Final Cleaning, Documentation, Client Inspection & Handing Over	10	330

PART – IX

DRAWINGS

CONSTRUCTION OF STAFF BARRACK AT MULLARINGADU RANGE



GROUND FLOOR PLAN

COPY RIGHT

THIS DRAWING IS PROTECTED UNDER COPYRIGHT, NOT TO BE REPRODUCED OR COPIED TO A THIRD PARTY OR USED FOR ANY PURPOSE OTHER THAN THE PROJECT TO WHICH ISSUED WITHOUT THE KNOWLEDGE AND CONSENT OF THE HLL DESIGN OFFICE.

SCHEDULE OF OPENINGS

MARK	SIZE(mm)	TYPE
DD	1500 X 2100	WOODEN DOUBLE DOOR
D	1000X 2100	WOODEN SINGLE DOOR
D2	800X 2100	PVC SINGLE DOOR
W3	1500 X1500	THREE PANEL WINDOW
W2	1000 X1500	TWO PANEL WINDOW
SW3A	1500 X1500	SLIDING WINDOW
V	600X600	VENTILATOR

BUILDING CATEGORY	**GROUP C** INSTITUTIONAL BUILDING
CEILING HEIGHT=3 M	PRESENT HEIGHT OF BUILDING = 6.75 m
FOUNDATION = G+1	MAXIMUM HEIGHT OF BUILDING = 6.75 m
PROJECT NAME	CONSTRUCTION OF STAFF BARRACK AT MULLARINGADU RANGE
NAME OF CLIENT/ OWNER	CONSERVATOR OF FOREST, HIGH RANGE CIRCLE, KOTTAYAM.
DRAWING TITLE	PROPOSED GROUND FLOOR PLAN
DWG NO :	HLL/HCD-P&S/CCFHRC/A1/KMM-15
SHEET NO : 01/03 A3	SCALE 1:100 — ALL DIMENSIONS ARE IN MM
GROUND FLOOR AREA : **151.30 SQM**	PLOT AREA : **SQM**
COVERED AREA : **151.30 SQM**	
TOTAL FLOOR AREA : **237.30 SQM**	

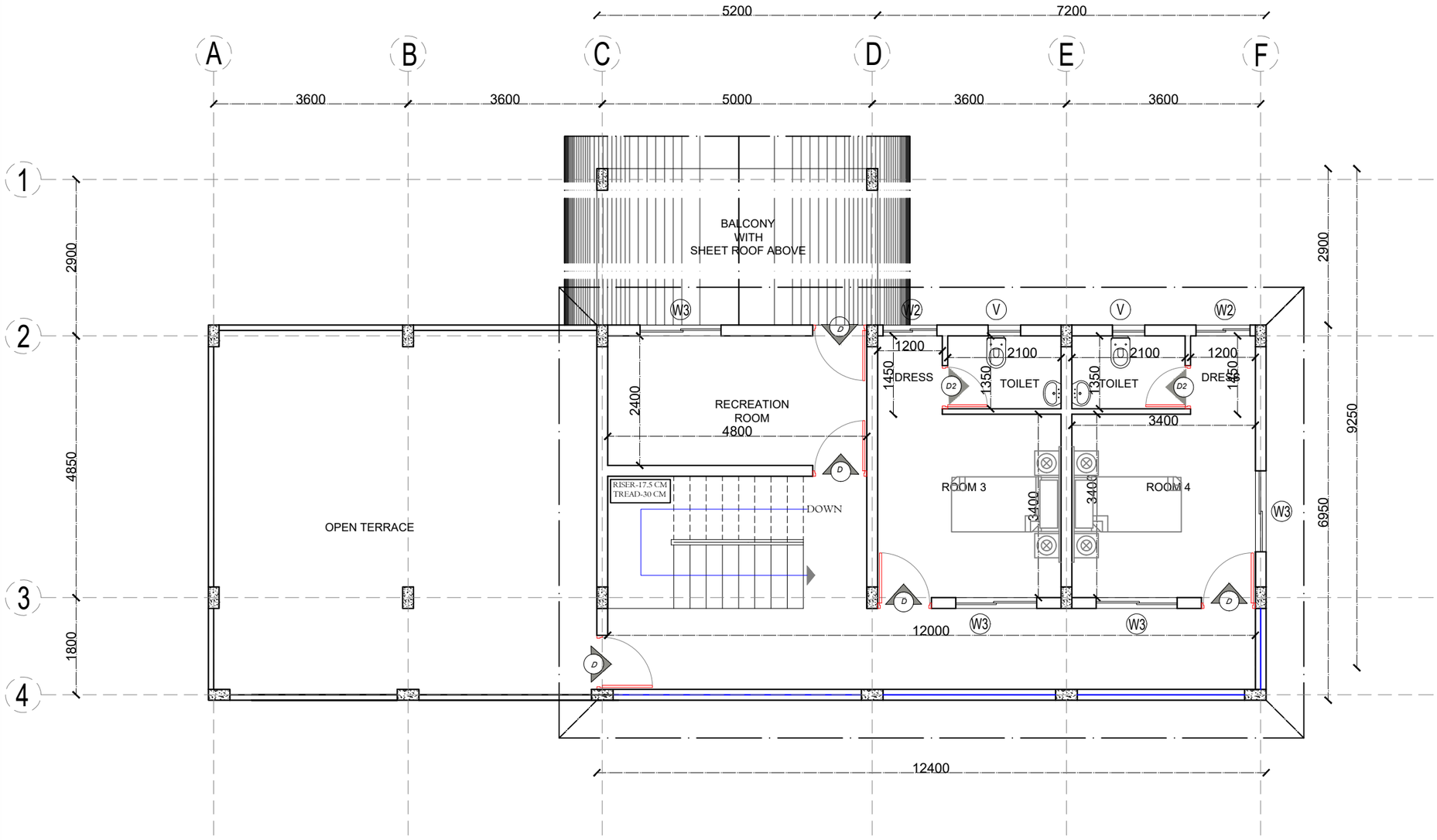
REV NO :	PARTICULARS	DATE
R3		
R2		
R1		
R0		

HLL Lifecare Ltd.
(A Government of India Enterprise)
Mahilamandiram Road , Poojappura
Thiruvanathapuram,Kerala,India

REV: R0 — DATE : 22-04-2026 — SIGN

DRAWN BY	PARVATHY PRAVEEN (Architect)	
CHECKED BY	CLIMINT CJ (Design Incharge)	
	ANOOP S (Dy.Manager Civil)	
APPROVED BY	SAJITH R.C (Manager Civil)	

CONSTRUCTION OF STAFF BARRACK AT MULLARINGADU RANGE



FIRST FLOOR PLAN

COPY RIGHT

THIS DRAWING IS PROTECTED UNDER COPYRIGHT, NOT TO BE REPRODUCED OR COPIED TO A THIRD PARTY OR USED FOR ANY PURPOSE OTHER THAN THE PROJECT TO WHICH ISSUED WITHOUT THE KNOWLEDGE AND CONSENT OF THE HLL DESIGN OFFICE.

SCHEDULE OF OPENINGS

MARK	SIZE(mm)	TYPE
DD	1500 X 2100	WOODEN DOUBLE DOOR
D	1000X 2100	WOODEN SINGLE DOOR
D2	800X 2100	PVC SINGLE DOOR
W3	1500 X1500	THREE PANEL WINDOW
W2	1000 X1500	TWO PANEL WINDOW
SW3A	1500 X1500	SLIDING WINDOW
V	600X600	VENTILATOR

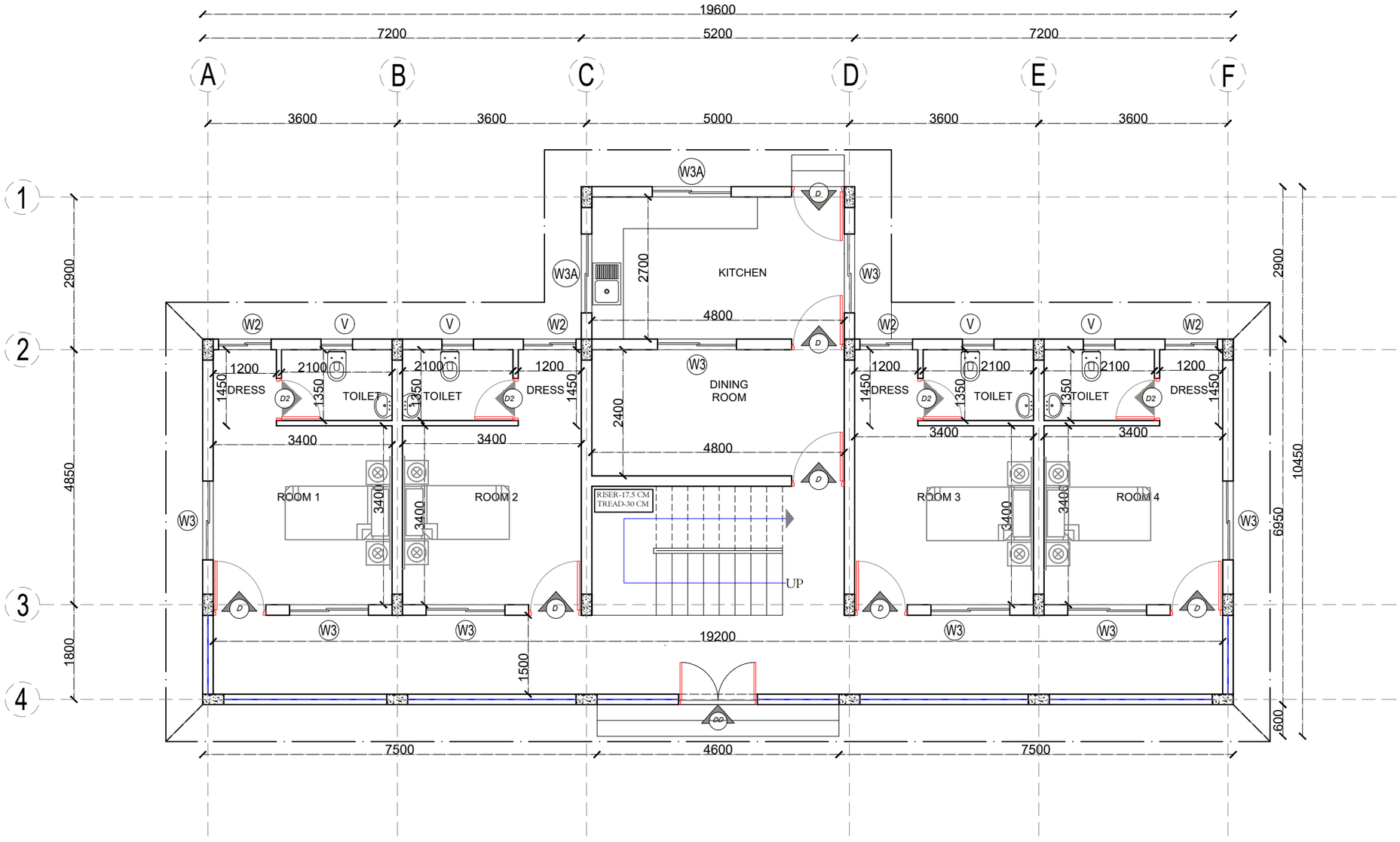
BUILDING CATEGORY	**GROUP C** INSTITUTIONAL BUILDING
CEILING HEIGHT=3 M	PRESENT HEIGHT OF BUILDING = 6.75 m
FOUNDATION = G+1	MAXIMUM HEIGHT OF BUILDING = 6.75 m
PROJECT NAME	CONSTRUCTION OF STAFF BARRACK AT MULLARINGADU RANGE
NAME OF CLIENT/ OWNER	CONSERVATOR OF FOREST, HIGH RANGE CIRCLE, KOTTAYAM.
DRAWING TITLE	PROPOSED FIRST FLOOR PLAN
DWG NO :	HLL/HCD-P&S/CCFHRC/A1/KMM-15
SHEET NO : 02/03 A3	SCALE 1:100 — ALL DIMENSIONS ARE IN MM
FIRST FLOOR AREA : **86.00 SQM**	PLOT AREA : **SQM**
COVERED AREA : **151.30 SQM**	
TOTAL FLOOR AREA : **237.30SQM**	

REV NO :	PARTICULARS	DATE
R3		
R2		
R1		
R0		

HLL Lifecare Ltd.
(A Government of India Enterprise)
Mahilamandiram Road , Poojappura
Thiruvanathapuram,Kerala,India

REV: R0	DATE : 22-04-2026	SIGN
DRAWN BY	PARVATHY PRAVEEN (Architect)	
CHECKED BY	CLIMINT CJ (Design Incharge)	
	ANOOP S (Dy.Manager Civil)	
APPROVED BY	SAJITH R.C (Manager Civil)	

CONSTRUCTION OF STAFF BARRACK AT VELOOR FOREST SECTION



GROUND FLOOR PLAN

COPY RIGHT

THIS DRAWING IS PROTECTED UNDER COPYRIGHT, NOT TO BE REPRODUCED OR COPIED TO A THIRD PARTY OR USED FOR ANY PURPOSE OTHER THAN THE PROJECT TO WHICH ISSUED WITHOUT THE KNOWLEDGE AND CONSENT OF THE HLL DESIGN OFFICE.

SCHEDULE OF OPENINGS

MARK	SIZE(mm)	TYPE
DD	1500 X 2100	WOODEN DOUBLE DOOR
D	1000X 2100	WOODEN SINGLE DOOR
D2	800X 2100	PVC SINGLE DOOR
W3	1500 X1500	THREE PANEL WINDOW
W2	1000 X1500	TWO PANEL WINDOW
SW3A	1500 X1500	SLIDING WINDOW
V	600X600	VENTILATOR

BUILDING CATEGORY	**GROUP C** INSTITUTIONAL BUILDING
CEILING HEIGHT=3 M	PRESENT HEIGHT OF BUILDING = 6.75 m
FOUNDATION = G+1	MAXIMUM HEIGHT OF BUILDING = 6.75 m
PROJECT NAME	CONSTRUCTION OF STAFF BARRACK AT VELOOR FOREST SECTION
NAME OF CLIENT/ OWNER	CONSERVATOR OF FOREST, HIGH RANGE CIRCLE, KOTTAYAM.
DRAWING TITLE	PROPOSED GROUND FLOOR PLAN
DWG NO :	HLL/HCD-P&S/CCFHRC/A1/KMM-15
SHEET NO : 01/03 A3	SCALE 1:100 — ALL DIMENSIONS ARE IN MM
GROUND FLOOR AREA : **151.30 SQM**	PLOT AREA : **SQM**
COVERED AREA : **151.30 SQM**	
TOTAL FLOOR AREA : **237.30 SQM**	

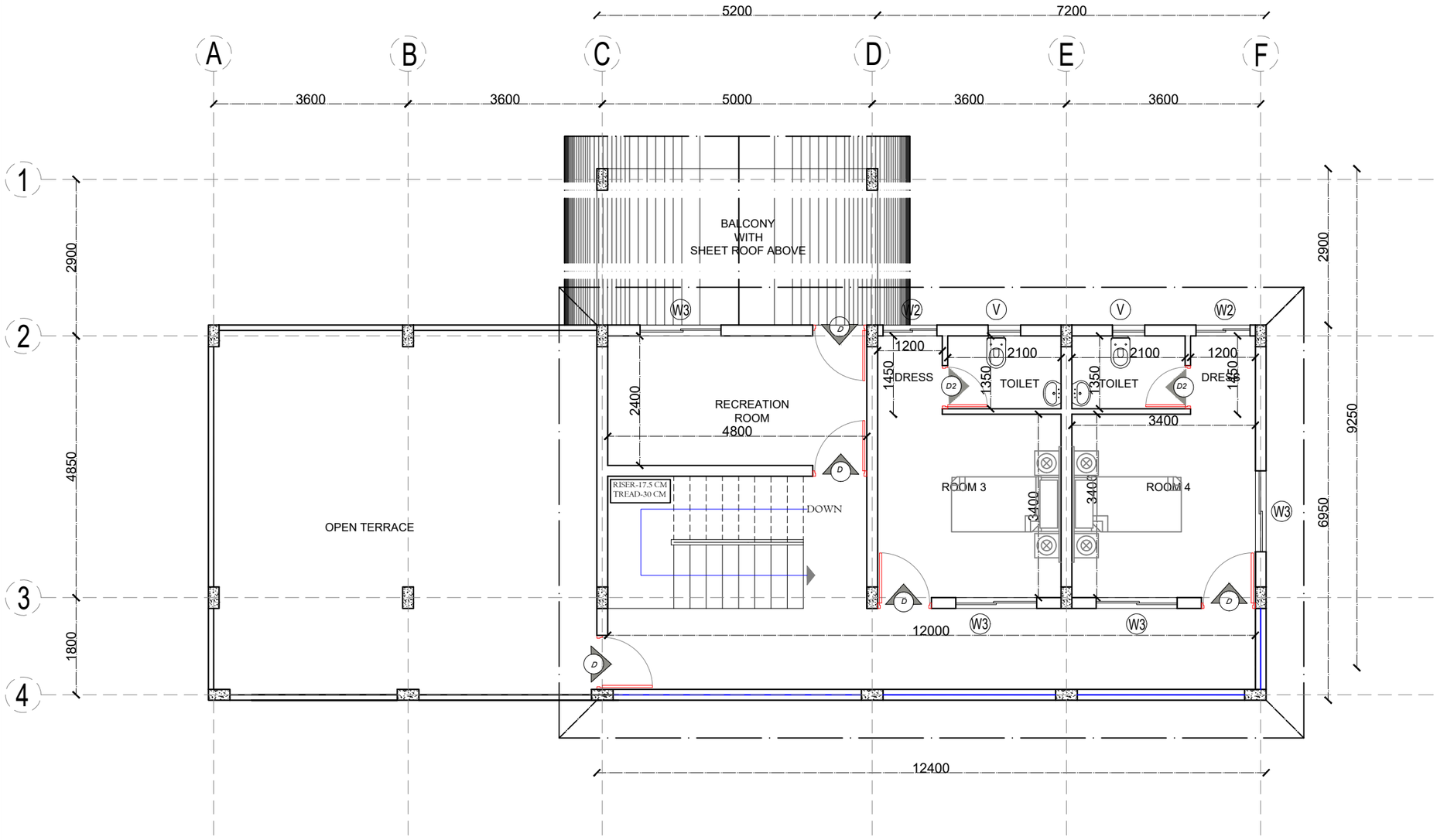
REV NO :	PARTICULARS	DATE
R3		
R2		
R1		
R0		

HLL Lifecare Ltd.
(A Government of India Enterprise)
Mahilamandiram Road , Poojappura
Thiruvanathapuram,Kerala,India

REV: R0 DATE : 22-04-2026 SIGN

DRAWN BY	PARVATHY PRAVEEN (Architect)	
CHECKED BY	CLIMINT CJ (Design Incharge)	
	ANOOP S (Dy.Manager Civil)	
APPROVED BY	SAJITH R.C (Manager Civil)	

CONSTRUCTION OF STAFF BARRACK AT VELOOR FOREST SECTION



FIRST FLOOR PLAN

COPY RIGHT

THIS DRAWING IS PROTECTED UNDER COPYRIGHT, NOT TO BE REPRODUCED OR COPIED TO A THIRD PARTY OR USED FOR ANY PURPOSE OTHER THAN THE PROJECT TO WHICH ISSUED WITHOUT THE KNOWLEDGE AND CONSENT OF THE HLL DESIGN OFFICE.

SCHEDULE OF OPENINGS

MARK	SIZE(mm)	TYPE
DD	1500 X 2100	WOODEN DOUBLE DOOR
D	1000X 2100	WOODEN SINGLE DOOR
D2	800X 2100	PVC SINGLE DOOR
W3	1500 X1500	THREE PANEL WINDOW
W2	1000 X1500	TWO PANEL WINDOW
SW3A	1500 X1500	SLIDING WINDOW
V	600X600	VENTILATOR

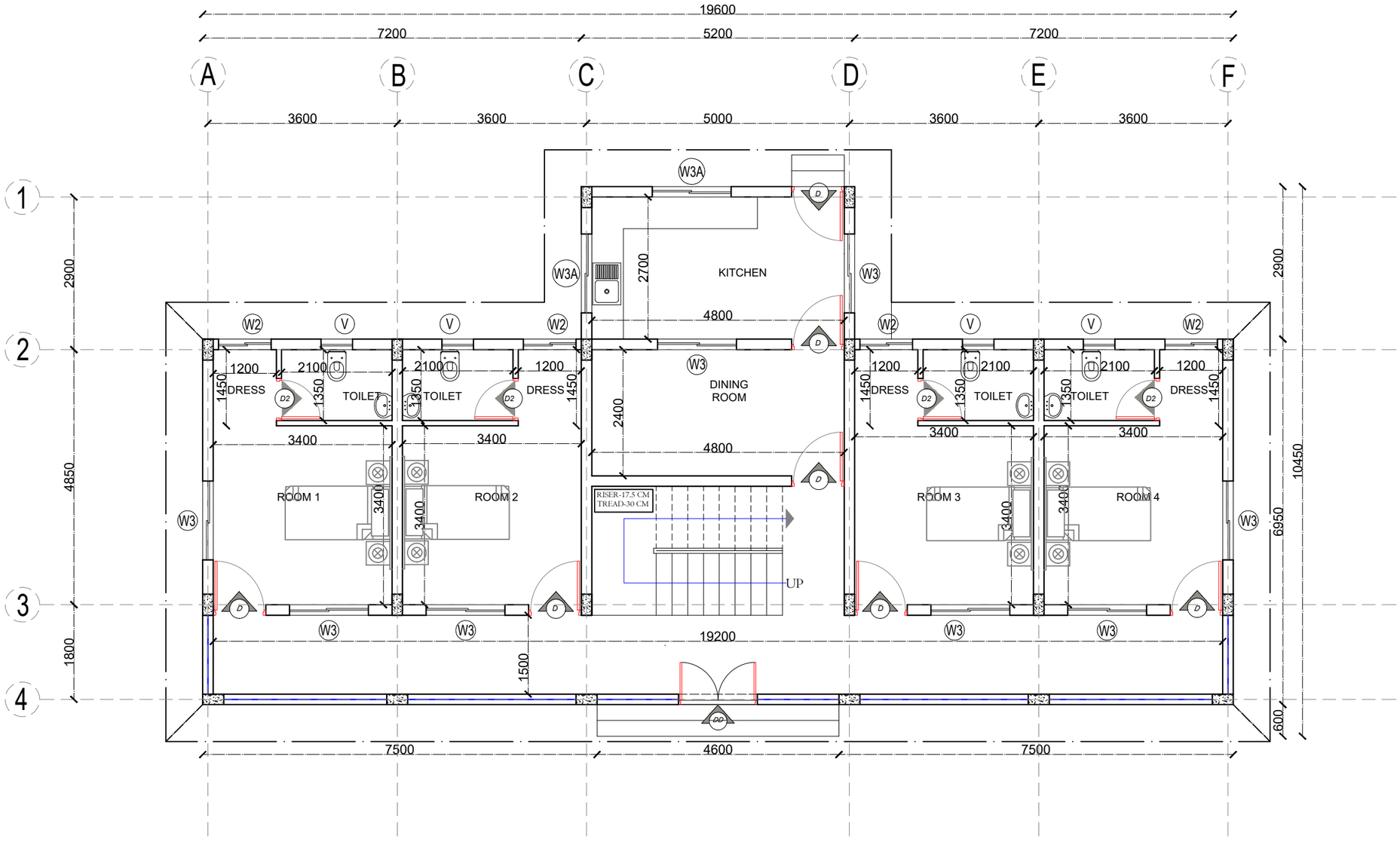
BUILDING CATEGORY	**GROUP C** INSTITUTIONAL BUILDING
CEILING HEIGHT=3 M	PRESENT HEIGHT OF BUILDING = 6.75 m
FOUNDATION = G+1	MAXIMUM HEIGHT OF BUILDING = 6.75 m
PROJECT NAME	CONSTRUCTION OF STAFF BARRACK AT VELOOR FOREST SECTION
NAME OF CLIENT/ OWNER	CONSERVATOR OF FOREST, HIGH RANGE CIRCLE, KOTTAYAM.
DRAWING TITLE	PROPOSED FIRST FLOOR PLAN
DWG NO :	HLL/HCD-P&S/CCFHRC/A1/KMM-15
SHEET NO : 02/03 A3	SCALE 1:100 — ALL DIMENSIONS ARE IN MM
FIRST FLOOR AREA : **86.00 SQM**	PLOT AREA : **SQM**
COVERED AREA : **151.30 SQM**	
TOTAL FLOOR AREA :	**237.30SQM**

REV NO :	PARTICULARS	DATE
R3		
R2		
R1		
R0		

HLL Lifecare Ltd.
(A Government of India Enterprise)
Mahilamandiram Road , Poojappura
Thiruvanathapuram,Kerala,India

REV: R0	DATE : 22-04-2026	SIGN
DRAWN BY	PARVATHY PRAVEEN (Architect)	
CHECKED BY	CLIMINT CJ (Design Incharge)	
	ANOOP S (Dy.Manager Civil)	
APPROVED BY	SAJITH R.C (Manager Civil)	

CONSTRUCTION OF STAFF BARRACK AT ARAKKULAM SECTION



GROUND FLOOR PLAN

COPY RIGHT

THIS DRAWING IS PROTECTED UNDER COPYRIGHT, NOT TO BE REPRODUCED OR COPIED TO A THIRD PARTY OR USED FOR ANY PURPOSE OTHER THAN THE PROJECT TO WHICH ISSUED WITHOUT THE KNOWLEDGE AND CONSENT OF THE HLL DESIGN OFFICE.

SCHEDULE OF OPENINGS

MARK	SIZE(mm)	TYPE
DD	1500 X 2100	WOODEN DOUBLE DOOR
D	1000X 2100	WOODEN SINGLE DOOR
D2	800X 2100	PVC SINGLE DOOR
W3	1500 X1500	THREE PANEL WINDOW
W2	1000 X1500	TWO PANEL WINDOW
SW3A	1500 X1500	SLIDING WINDOW
V	600X600	VENTILATOR

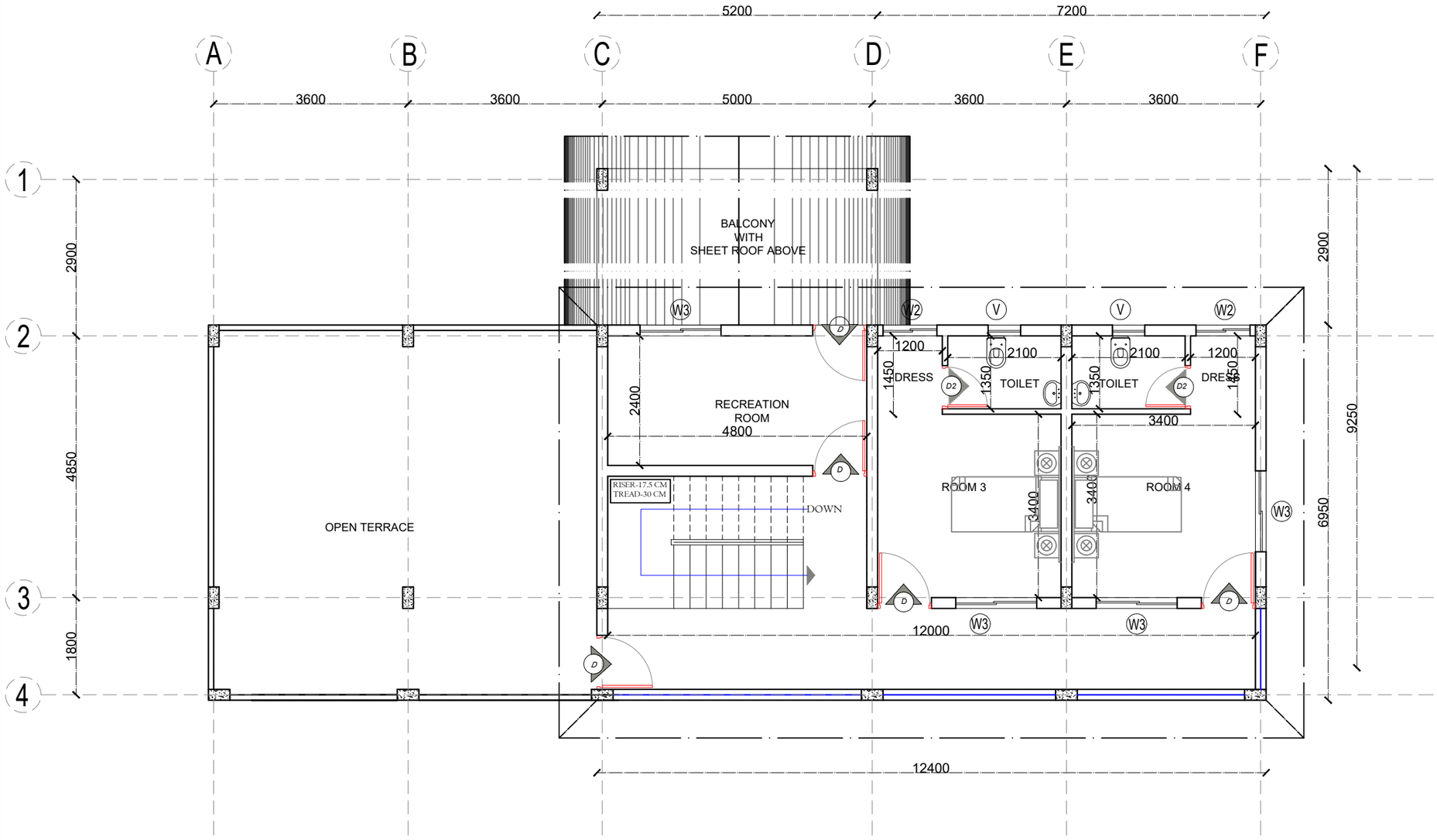
BUILDING CATEGORY	**GROUP C** INSTITUTIONAL BUILDING
CEILING HEIGHT=3 M	PRESENT HEIGHT OF BUILDING = 6.75 m
FOUNDATION = G+1	MAXIMUM HEIGHT OF BUILDING = 6.75 m
PROJECT NAME	CONSTRUCTION OF STAFF BARRACK AT ARAKKULAM SECTION
NAME OF CLIENT/ OWNER	CONSERVATOR OF FOREST, HIGH RANGE CIRCLE, KOTTAYAM.
DRAWING TITLE	PROPOSED GROUND FLOOR PLAN
DWG NO :	HLL/HCD-P&S/CCFHRC/A1/KMM-15
SHEET NO : 01/03 A3	SCALE 1:100 — ALL DIMENSIONS ARE IN MM
GROUND FLOOR AREA : **151.30 SQM**	PLOT AREA : **SQM**
COVERED AREA : **151.30 SQM**	
TOTAL FLOOR AREA : **237.30 SQM**	

REV NO :	PARTICULARS	DATE
R3		
R2		
R1		
R0		

HLL Lifecare Ltd.
(A Government of India Enterprise)
Mahilamandiram Road , Poojappura
Thiruvanathapuram,Kerala,India

REV: R0	DATE : 22-04-2026		SIGN
DRAWN BY	PARVATHY PRAVEEN (Architect)		
CHECKED BY	CLIMINT CJ (Design Incharge)		
	ANOOP S (Dy.Manager Civil)		
APPROVED BY	SAJITH R.C (Manager Civil)		

CONSTRUCTION OF STAFF BARRACK AT ARAKKULAM SECTION



FIRST FLOOR PLAN

COPY RIGHT

THIS DRAWING IS PROTECTED UNDER COPYRIGHT, NOT TO BE REPRODUCED OR COPIED TO A THIRD PARTY OR USED FOR ANY PURPOSE OTHER THAN THE PROJECT TO WHICH ISSUED WITHOUT THE KNOWLEDGE AND CONSENT OF THE HLL DESIGN OFFICE.

SCHEDULE OF OPENINGS

MARK	SIZE(mm)	TYPE
DD	1500 X 2100	WOODEN DOUBLE DOOR
D	1000X 2100	WOODEN SINGLE DOOR
D2	800X 2100	PVC SINGLE DOOR
W3	1500 X1500	THREE PANEL WINDOW
W2	1000 X1500	TWO PANEL WINDOW
SW3A	1500 X1500	SLIDING WINDOW
V	600X600	VENTILATOR

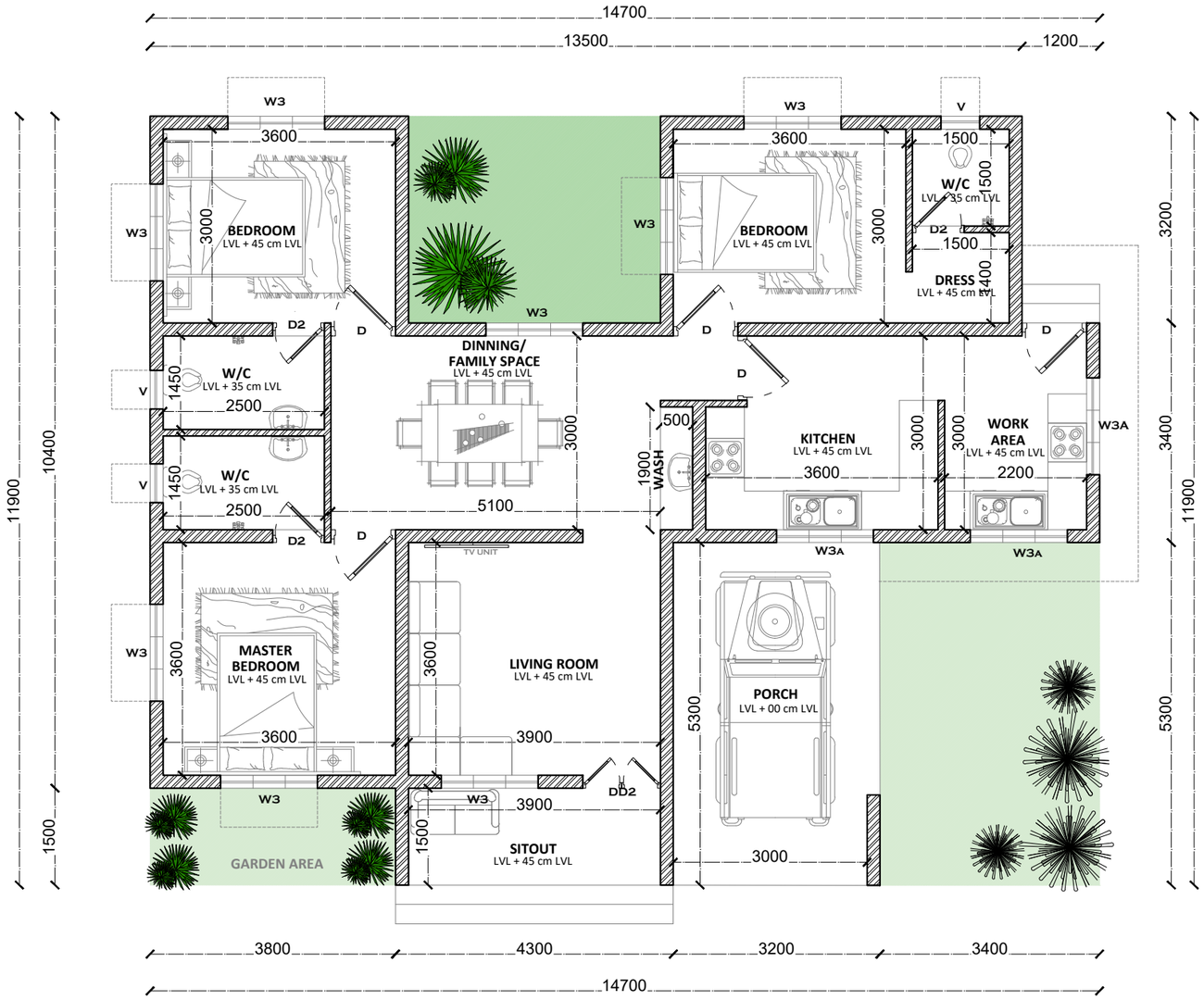
BUILDING CATEGORY	**GROUP C** INSTITUTIONAL BUILDING
CEILING HEIGHT=3 M	PRESENT HEIGHT OF BUILDING = 6.75 m
FOUNDATION = G+1	MAXIMUM HEIGHT OF BUILDING = 6.75 m
PROJECT NAME	CONSTRUCTION OF STAFF BARRACK AT ARAKKULAM SECTION
NAME OF CLIENT/ OWNER	CONSERVATOR OF FOREST, HIGH RANGE CIRCLE, KOTTAYAM.
DRAWING TITLE	PROPOSED FIRST FLOOR PLAN
DWG NO :	HLL/HCD-P&S/CCFHRC/A1/KMM-15
SHEET NO : 02/03 A3	SCALE 1:100 — ALL DIMENSIONS ARE IN MM
FIRST FLOOR AREA : **86.00 SQM**	PLOT AREA : **SQM**
COVERED AREA : **151.30 SQM**	
TOTAL FLOOR AREA : **237.30SQM**	

REV NO :	PARTICULARS	DATE
R3		
R2		
R1		
R0		

HLL Lifecare Ltd.
(A Government of India Enterprise)
Mahilamandiram Road , Poojappura
Thiruvanathapuram,Kerala,India

REV: R0	DATE : 22-04-2026	SIGN
DRAWN BY	PARVATHY PRAVEEN (Architect)	
CHECKED BY	CLIMINT CJ (Design Incharge)	
	ANOOP S (Dy.Manager Civil)	
APPROVED BY	SAJITH R.C (Manager Civil)	

CONSTRUCTION RANGE OFFICER QUARTERS AT KOTHAMANGALAM.



PROPOSED FLOOR PLAN

COPY RIGHT

THIS DRAWING IS PROTECTED UNDER COPYRIGHT, NOT TO BE REPRODUCED OR COPIED TO A THIRD PARTY OR USED FOR ANY PURPOSE OTHER THAN THE PROJECT TO WHICH ISSUED WITHOUT THE KNOWLEDGE AND CONSENT OF THE HLL DESIGN OFFICE.

SCHEDULE OF OPENINGS

MARK	SIZE(mm)	TYPE
DD2	1200 X 2100	WOODEN DOUBLE DOOR
D	1000X 2100	WOODEN SINGLE DOOR
D2	800X 2100	PVC SINGLE DOOR
W3	1500 X1500	THREE PANEL WINDOW
W2	1000 X1500	TWO PANEL WINDOW
W3A	1500 X1200	THREE PANEL WINDOW
V	600X600	VENTILATOR

BUILDING CATEGORY	**GROUP A1** RESIDENTIAL BUILDING
CEILING HEIGHT=3 M	PRESENT HEIGHT OF BUILDING = 3.6 m
FOUNDATION = G	MAXIMUM HEIGHT OF BUILDING = 3.6 m
PROJECT NAME	CONSTRUCTION RANGE OFFICER QUARTERS AT KOTHAMANGALAM.
NAME OF CLIENT/ OWNER	CONSERVATOR OF FOREST, HIGH RANGE CIRCLE, KOTTAYAM.
DRAWING TITLE	PROPOSED GROUND FLOOR PLAN
DWG NO :	HLL/HCD-P&S/CCFHRC/A1/KMM-18
SHEET NO : 01/03 A3	SCALE 1:100 — ALL DIMENSIONS ARE IN MM
GROUND FLOOR AREA : **118.00 SQM**	PLOT AREA : **SQM**
COVERED AREA : **138.20 SQM**	
TOTAL FLOOR AREA : **118.00 SQM**	

REV NO :	PARTICULARS	DATE
R3		
R2		
R1		
R0		

HLL Lifecare Ltd.
(A Government of India Enterprise)
Mahilamandiram Road , Poojappura
Thiruvanathapuram,Kerala,India

REV: R0	DATE : 23-04-2026	SIGN
DRAWN BY	PARVATHY PRAVEEN (Architect)	
CHECKED BY	CLIMINT CJ (Design Incharge)	
	ANOOP S (Dy.Manager Civil)	
APPROVED BY	SAJITH R.C (Manager Civil)	