

**CONSTRUCTION OF 4(FOUR) SUPER SPECIALITY HOSPITALS
UNDER BRGF AT METIABURZ AND KAKDWIP IN SOUTH
24 PARGANAS, AT SAGARDIGHI IN MURSHIDABAD
AND AT BOLPUR IN BIRBHUM**

PACKAGE - 1

TENDER DOCUMENTS

(NIP NO. HRBC/PL. & DN./06 of 2013-2014, dt: 31.08.2013)

BOOK -2

HOOGHLY RIVER BRIDGE COMMISSIONERS

(A Statutory Organisation under Government of West Bengal)

TRANSPORT DEPARTMENT

MUNSHI PREMCHAND SARANI

(ST. GEORGE'S GATE ROAD)

KOLKATA 700 021

NOVEMBER 2013

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BOOK – 2

GENERAL CONTENTS

BOOK - 1

Volume I

- Section 1** Invitation for Bids
- Section 2** Instructions to Bidders
- Section 3**
 - Section 3A Form of Agreement
 - Section 3B Form of Performance B.G
 - Section 3C Form of B.G for Advance Payment
 - Section 3D Form of Bid Security (Bank Guarantee)
 - Section 3E Declaration
- Section 4** General Conditions of Contract

Volume II Technical Specification

Volume III Contract Drawings

BOOK - 2 (Separate volume)

Volume IV

- Section 1**
 - Section 1A Form of Bid
 - Section 1B Appendix to Bid
- Section 2** Bill of Quantities

BOOK - 3 (Separate volume)

Volume V Technical Submission
(To be furnished by Contractor)

VOLUME IV

SECTION 1

SECTION 1A FORM OF BID

SECTION 1B APPENDIX TO BID

SECTION 2 BILL OF QUANTITY

Tenderer's Signature and Stamp

Vol. IV Section 1A FORM OF BID

Name of Work : Construction of 4(four) Super Speciality Hospitals under BRGF at Metiaburz and Kakdwip in South 24 Parganas, at Sagardighi in Murshidabad and at Bolpur in Birbhum : Package - 1

To

The Vice Chairman,
Hooghly River Bridge Commissioners,
HRBC Bhawan,
St George's Gate Road,
(Munshi Prem Chand Sarani),
Kolkata – 700 021
West Bengal, India

Gentlemen,

1. In accordance with the Conditions of Contract, Specifications, Drawings and Bill of Quantities etc. for execution of the above named Works, we the undersigned offer to construct and install such Works and remedy any defect therein in conformity with the aforesaid contract documents at the rates quoted by us in the Summary Sheet of Bill of Quantities and in the detailed Bill of Quantities of Part B. After application of Contractual Percentage in Part A Bill of Quantities and at the rates quoted in the detailed Bill of Quantities of Part B and taking into consideration the factor of discount as applicable in our case but excluding the amount of Provisional Sums for item (l) escalation and item (m) supplementary works, the total amount of Priced Bill of Quantities being the Contract Price comes to Rs.....
(Rupees..... only).
2. We acknowledge that the Appendix to Bid forms part of the tender.
3. We undertake, if our tender is accepted, to commence the Works as stipulated in cl 34 of Instructions to Bidders after the receipt of the notice to commence work and to complete the whole of the Works comprised in the Contract within the time stated in sub-clause 27.1 of General Condition of Contract.
4. We agree to abide by this Bid and it shall remain binding upon us and may be accepted at any time before the expiration of validity as per sub-clause 14.1 of Instructions to Bidders.
5. Unless and until a formal Agreement is prepared and executed, this Bid, together with your written acceptance thereof, shall constitute a binding Contract between us.
6. We understand that you are not bound to accept the lowest or any bid you may receive.

Dated this day of201...

Signature..... in the capacity of
..... duly authorized to sign bids for and on behalf of
.....

(in block letters or typed)

Address.....

Witness.....

Address.....

Occupation.....

Tenderer's Signature and Stamp

Vol. IV - Section 1B APPENDIX TO BID

Both the Employer and the Contractor are required to sign each page of Appendix to agreement.		
Heading	General Conditions of Contract sub-clause reference	Description
Definitions	1.9	The Employer is :- The Vice Chairman, Hooghly River Bridge Commissioners.
	1.11	The Engineer is :- The Chief Project Manager, Hooghly River Bridge Commissioners.
Contract Price (Indian Rupees)	1.4	As defined in sub-clause 1.4 of General Conditions of Contract.
Amount of Bid Security	Cl. 15 of Instructions to Bidders	Rs. 3.50 crore
Performance Security	6.0	Bank Guarantee for Seven point Five (7.5) percent of the Contract Price .
Period of validity of the performance guarantee	6.1	The Bank Guarantee shall be valid up to a period of one month beyond the stipulated period of completion or the extended period.
Retention money	8.0	Ten (10) percent of the Interim Payment Certificates subject to maximum of 5 % of the contract price.
Maximum amount of Advance Payment	10.0	10% of the contract price interest free against unconditional bank guarantee to be disbursed in 2(two) instalments.
Payment mode of 1 st instalment of Advance Payment	10.0	5% of the Contract Price after adequate mobilization of men, materials, machineries and setting up of labour camp at the project sites.
Monthly Recovery of 1 st instalment of Advance Payment	10.0	@ 17 % of monthly interim payment certificate of the month during the period of payment to contractor of bill amounting to 10% and 40% of the Contract Price.
Payment mode of 2 nd instalment of Advance Payment	10.0	5% of the Contract Price after completion of Milestone – 1 (MS -1)
Monthly Recovery of 2 nd instalment of Advance Payment	10.0	@ 12.5 % of monthly interim payment certificate of the month during the period of payment to contractor of bill amounting to 40% and 80% of the Contract Price.
Work Program to be submitted	15.0	Within Ten days (10) after issue of the notice to commence work
Cash flow estimate to be submitted	16.0	Within Ten days (10) after issue of the notice to commence work
Time for Completion of Work	27.1	18 (Eighteen) months from the date of issue of the notice to commence work.
Liquidated Damages	28.0	1% percent of the contract price per week.
Limit of liquidated damages	29.0	10% of the contract price.
Engineer's authority to issue Supplementary Tender	36.0	5% of the contract price.
Defects Liability period	45.0	12(Twelve) months from date of issue of taking over certificate

Tenderer's Signature and Stamp

Vol. IV - Section 1B APPENDIX TO BID (CONTD.)

Heading	General Conditions of Contract sub- clause reference	Description
Minimum amount of Interim payment certificates	56.0	1% of the Contract Price generally. Engineer may reduce the percentage limit under valid circumstances.
Time of Payment	59.1	75% Payment within 7 days and the remaining payment within 45 days after the contractor's monthly statement is certified by the Engineer.
Number of copies of Statement at Completion and final Statement	61.0 & 62.0	Six
Arbitration	39.0	To refer to the Arbitral Panel of three Arbitrators.

Contd....

Tenderer's Signature and Stamp

Vol. IV - Section 1B APPENDIX TO BID (CONTD.)

Heading	General Conditions of Contract sub- clause referenc	Description
Notice to Employer, Contractor and Engineers	1.1 ,1.9 & 1.11	<p>The Employer's Address is : The Vice Chairman, Hooghly River Bridge Commissioners, HRBC Bhawan St. George's Gate Road, Kolkata – 700 021, West Bengal, India. Tel : +91 + 33 2248-6587 Fax: +91 + 33 2248-7754 Email: vc.hrbc@yahoo.com</p> <p>.....</p> <p>The Contractor's Address is : </p> <p>Telephone : Fax : Email :</p> <p>The Engineer's Address is : The Chief Project Manager, Hooghly River Bridge Commissioners, HRBC Bhawan St. George's Gate Road, Kolkata – 700 021, West Bengal, India. Tel : +91 + 33 2248-5178 Fax: +91 + 33 2248-5178 Email: cpm.hrbc@yahoo.com</p>

Tenderer's Signature and Stamp

VOLUME IV : SECTION 2

BILL OF QUANTITIES

CONTENTS

1. Preamble
2. Summary Sheet of Bill of Quantities
3. Bill of Quantities (Part A : Priced BOQ)
4. Bill of Quantities (Part B : Non-Priced BOQ)

Tenderer's Signature and Stamp

Bill of Quantities

A. Preamble

A.1 General

- A.1.1 This Preamble shall be read in conjunction with the Instructions to Bidders, the General Conditions of Contract, the Technical Specification, and Contract Drawings etc.
- A.1.2 The quantities given in the Bill of Quantities are estimated and provisional, and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer/ Engineer's Representatives and valued at the rates and prices in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of the Contract.
- A.1.3 The whole cost of complying with the provisions of the Contract shall be included in the items provided in the priced Bill of Quantities.
- A.1.4 General directions and descriptions of Work and materials are not necessarily repeated nor summarised in the Bill of Quantities. References to the relevant technical specification as given in Vol. II of Book 1 shall be made before entering prices against each item in the priced Bill of Quantities.
- A.1.5 The Bidder shall sign all the pages of this "Bill of Quantities" as well as in "Technical Specification" apart from the pages of other tender documents.
- A.1.6 In the Bill of Quantities brief description of items of works are given. For Technical Specification in regard to each items in BOQ, Volume – II of this Tender Documents shall be referred. For items in Bill of Quantities, specification of which are neither available in this document nor in schedules of PWD (Building and S&P)/PW(Roads) of WB Govt./CPWD, those should be followed in accordance with good engineering practices.
- A.1.7 The contractors shall quote their contract price at item rate basis based on the rates of different items provided in the priced Bill of Quantities for whole cost of complying with provisions of contract comprising Instruction to Bidders, the General Conditions of Contract, the Technical Specifications and other related tender documents.

A.2 Application of Preamble to Additional Work

The Clauses of the preamble shall apply to any additional or varied work which the Contractor may be required to execute under this Contract except specifically prescribed therein.

A.3 Methods of Measurement

Tenderer's Signature and Stamp

- A.3.1 For each item of the Bill of Quantities, the method of measurement will be followed as per PWD Schedule of rates, Govt. of West Bengal. Where the same is not mentioned, the method of measurement will be followed in accordance with good engineering practices as approved by the Engineer.
- A.3.2 Quantities will be computed net from the drawings, unless directed otherwise in the Contract and no allowance will be made for bulking, shrinkage, or waste.
- A.3.3 The works as executed will be measured for payment in accordance with the method adopted in the Schedule of PWD or PW(Roads), Government of West Bengal. The net measurement or weight of the finished work in place will always be taken, except as otherwise specified.
- A.4 Rates and Sums**
- A.4.1 The rates and prices in the priced Bill of Quantities shall, except insofar as it is otherwise provided under the Contract/BOQ, include all Constructional Plant, labour, supervision, materials, erection, maintenance, insurance, profit, overhead, taxes, and duties, together with all general risks, liabilities, and obligations set out or implied in the Contract.

Tenderer's Signature and Stamp

PART C : (Provisional Sums)

I. Escalation	Rs. 10,00,00,000.00
m. Supplementary Works	Rs. 10,00,00,000.00

SUB TOTAL – PART C [I + m]	Rs. 20,00,00,000.00
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.....
Signature of the Contractor with seal

PRICED BILL OF QUANTITIES FOR CIVIL WORK

PART A (a) : (Refer Clause 12 of ITB, Volume I, Section 2)

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
		EARTH WORK					
1	2 to 2.4	Carriage of materials by mechanical transport including loading, unloading and stacking					
a)		Earth (for 30 km)	cum	8606	373.65	Rupees Three Hundred Seventy Three and Paise Sixty Five Only	3215631.90
2		Earth work in excavation of foundation trenches or drains, in all sorts of soil (including mixed soil but but excluding laterite or sandstone) including removing, spreading, or stacking the spoils within a lead of 75 m as directed. The item includes necessary trimming the sides of trenches, levelling, dressing, and ramming the bottom, bailing out water as required complete.					
a)		Depth of excavation not exceed 1.5 m.	%cum	21266.00	91.91	Rupees Ninety One and Paise Ninety One Only	1954652.43
b)		Depth of excavation for additional depth beyond 1.5 m and upto 3.0 m but not requiring shoring.	%cum	4964.00	148.36	Rupees One Hundred Forty Eight and Paise Thirty Six Only	736459.66
c)		Depth of excavation for additional depth beyond 3.0 m and upto 4.0 m excluding cost of shoring as necessary	%cum	1224.00	180.93	Rupees One Hundred Eighty and Paise Ninety Three Only	221461.38
3	2.5 to 2.6	Earth work in filling in foundation trenches or plinth with good earth, in layers not exceeding 150 mm including watering and ramming etc. layer by layer complete. (Payment to be made on the basis of measurement of finished quantity of work)					
		(a) With earth obtained from excavation of foundation	%cum	9381.00	59.35	Rupees Fifty Nine and Paise Thirty Four Only	556748.28
4	3 to 3.3	Surface dressing of the ground in any kind of soil including removing vegetation inequalities not exceeding 15 cm depth and disposal of the rubbish within a lead upto 75 m as directed	sqm	68312.00	6.44	Rupees Six and Paise Forty Three Only	439587.72
5	3.4 to 4.11	Supplying chemical emulsion in sealed containers including delivery as specified.					
		Chlorpyrifos/ Lindane emulsifiable concentrate of 20%	litre	2430.00	185.95	Rupees One Hundred Eighty Five and Paise Ninety Five Only	451858.50
6		Diluting and injecting chemical emulsion for POST-CONSTRUCTIONAL anti-termite treatment (excluding the cost of chemical emulsion) :					
		Treatment of soil under existing floors using chemical emulsion @ one litre per hole, 300 mm apart including drilling 12 mm diameter holes and plugging with cement mortar 1 :2 (1 cement : 2 Coarse sand) to match the existing floor :					
		With Chlorpyrifos/Lindane E.C. 20% with 1% concentration.	sqm	9716.00	107.85	Rupees One Hundred Seven and Paise Eighty Five Only	1047870.60
7	5	Filling in foundation or plinth by fine sand in layers not exceeding 150 mm as directed and consolidating the same by thorough saturation with water, ramming complete including the cost of supply of sand. (Payment to be made on measurement of finished quantity)	%cum	4048.00	706.32	Rupees Seven Hundred Six and Paise Thirty One Only	2859174.40
		CONCRETE WORKS					
8	6 to 6.7.5	Cement concrete with graded stone ballast (40mm size excluding shuttering)					
		(A) [Pakur Variety]					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
a)		1:4:8 proportion	cum	1391.20	3730.89	Rupees Three Thousand Seven Hundred Thirty and Paise Eighty Eight Only	5190407.21
9		Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :					
a)		1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size)	cum	408.35	3672.80	Rupees Three Thousand Six Hundred Seventy Two and Paise Eighty Only	1499793.39
10		Making plinth protection 50 mm thick of cement concrete 1:3:6 (1 cement:3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 75mm thick bed of dry brick ballast 40 mm nominal size, well rammed and consolidated and grouted with fine sand, including finishing the top	sqm	1449.30	378.95	Rupees Three Hundred Seventy Eight and Paise Ninety Five Only	549212.24
		FORM WORK					
11	7 to 7.8	Centering and shuttering including strutting, propping etc. and removal of form for :					
a)		Foundations, footings, bases of columns, etc. for mass concrete	sqm	6753.50	186.40	Rupees One Hundred Eighty Six and Paise Forty Only	1258852.40
b)		Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc.	sqm	10778.38	334.50	Rupees Three Hundred Thirty Four and Paise Fifty Only	3605367.44
c)		Suspended floors, roofs, landings, balconies and access platform	sqm	44762.61	371.80	Rupees Three Hundred Seventy One and Paise Eighty Only	16642737.65
d)		Shelves (Cast in situ)	sqm	858.45	371.80	Rupees Three Hundred Seventy One and Paise Eighty Only	319172.51
e)		Lintels, beams, plinth beams, girders, bressumers and cantilevers	sqm	15853.31	309.80	Rupees Three Hundred Nine and Paise Eighty Only	4911356.91
f)		Columns, Pillars, Piers, Abutments, Posts and Struts	sqm	30367.34	423.00	Rupees Four Hundred Twenty Three and Paise Zero Only	12845384.82
g)		Stairs, (excluding landings) except spiral-staircases	sqm	2368.00	375.65	Rupees Three Hundred Seventy Five and Paise Sixty Five Only	889539.20
h)		Edges of slabs and breaks in floors and walls.					
		Under 20cms wide	metre	6656.52	111.70	Rupees One Hundred Eleven and Paise Seventy Only	743533.46
i)		Weather shade, chajjas, corbels etc. Including edges.	sqm	1875.20	468.20	Rupees Four Hundred Sixty Eight and Paise Twenty Only	877968.64
		STEEL REINFORCEMENT					
12	8 to 8.7	Reinforcement for reinforced concrete work in all sorts of structures including distribution bars, stirrups, binders etc initial straightening and removal of loose rust (if necessary), cutting to requisite length, hooking and bending to correct shape, placing in proper position and binding with 16 gauge black annealed wire at every intersection, complete as per drawing and direction					
		a) For works in foundation, basement and upto roof of ground floor/upto 4 m					
a)		i) TOR Steel/Mild Steel	MT	4250.83	58722.75	Rupees Fifty Eight Thousand Seven Hundred Twenty Two and Paise Seventy Five Only	249620170.58
b)		b) extra for works beyond the roof of ground floor/initial 4 m					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
i)		i) upto 4 th floor roof in each addl. Floor	Qtl.	34658.97	31.84	Rupees Thirty One and Paise Eighty Four Only	1103541.61
ii)		ii) Above 4 th floor roof per addl. Floor/every 4 m	Qtl.	6030.29	37.21	Rupees Thirty Seven and Paise Twenty One Only	224386.95
13.0	8.8	Add for plaster drip course/ groove in plastered surface or moulding to R.C.C. projections.	metre	8956.00	27.85	Rupees Twenty Seven and Paise Eighty Five Only	249424.60
14	9 to 9.11	Batch Mixed concrete of M-25 grade with well graded stone chips of 20 mm nominal size containing designed quantity of cement per cu.M of wet concrete produced in computerised batching plant under controlled condition using approved super plasticizer designing concrete mix following IS 10262 and IS 456 transporting the mix with agitation in transit mixer to work site depositing the mix on a platform erected for the purpose at required level of concreting and then placing the mix in its final location of form work compacting and curing the same complete as per specification and direction of the Engineer-in -charge including hire charges of computerised batching plant. transit mixer with all accessories vibrators etc. inclusive of all other incidental charges in this connection complete but excluding cost of hire charges of platform and its supporting staging which would be paid through separate item. Consumption of cement will not be less than 300 kg of cement per cubic meter of controlled concrete but actual consumption will be determined on the basis of preliminary test and job mix formula.(cement to be supplied by deptt, if cement is supplied by agency then item rate to be deduced as per (Pakur Variety)					
a)		i) Without approved concrete pump.	cum	340.00	5989.92	Rupees Five Thousand Nine Hundred Eighty Nine and Paise Ninety Two Only	2036572.80
b)		ii) With approved concrete pump.	cum	4713.00	6237.00	Rupees Six Thousand Two Hundred Thirty Seven and Paise Zero Only	29394981.00
15	9 to 9.11	Batch Mixed concrete of M-30 grade with well graded stone chips of 20 mm nominal size containing designed quantity of cement per cu.M of wet concrete produced in computerised batching plant under controlled condition using approved super plasticizer designing concrete mix following IS 10262 and IS 456 transporting the mix with agitation in transit mixer to work site depositing the mix on a platform erected for the purpose at required level of concreting and then placing the mix in its final location of form work compacting and curing the same complete as per specification and direction of the Engineer-in -charge including hire charges of computerised batching plant. transit mixer with all accessories vibrators etc. inclusive of all other incidental charges in this connection complete but excluding cost of hire charges of platform and its supporting staging which would be paid through separate item. Consumption of cement will not be less than 300 kg of cement per cubic meter of controlled concrete but actual consumption will be determined on the basis of preliminary test and job mix formula.(cement to be supplied by deptt, if cement is supplied by agency then item rate to be deduced as per (Pakur Variety)					
a)		i) Without approved concrete pump.	cum	6008.00	6182.12	Rupees Six Thousand One Hundred Eighty Two and Paise Twelve Only	37142176.96
b)		ii) With approved concrete pump.	cum	12283.62	6431.72	Rupees Six Thousand Four Hundred Thirty One and Paise Seventy Two Only	79004807.29

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
16	9 to 9.11	Add extra over the rate of ground floor for basement and each additional floor above ground floor for items 4 to 10					
a)		i) Upto 4th floor	cum	18113.50	61.09	Rupees Sixty One and Paise Eight Only	1106462.92
b)		ii) above 4th floor	cum	2795.12	74.12	Rupees Seventy Four and Paise Eleven Only	207167.61
		BRICK WORK					
17	10.1 to 10.5	Brick work with 1 st class bricks in cement mortar (1:6)					
a)		a) in foundation and plinth	cum	259.08	4006.02	Rupees Four Thousand Six and Paise One Only	1037878.37
b)		b) in superstructure, ground floor	cum	11955.37	4160.70	Rupees Four Thousand One Hundred Sixty and Paise Seventy Only	49742721.20
		HALF BRICK MASONRY					
18	10.6 to 10.8	Brick work with 1 st class bricks in cement mortar (1:4)					
a)		b) in superstructure, ground floor	cum	1694.59	4480.11	Rupees Four Thousand Four Hundred Eighty and Paise Ten Only	7591925.64
19		Add extra for basement and each additional floor over the rate for ground floor on item Nos. 19 to 26 except 25					
a)		a) upto 4th floor	cum	10881.56	70.34	Rupees Seventy and Paise Thirty Four Only	765409.07
b)		b) Above 4th floor	cum	4557.79	84.35	Rupees Eighty Four and Paise Thirty Five Only	384449.22
20	10.9	Extra for providing and placing in position 2 Nos 6mm dia. M.S. bars at every third course of half brick masonry.	sqm	1694.59	69.50	Rupees Sixty Nine and Paise Fifty Only	117773.76
		MARBLE & GRANITE WORK					
21	11 to 11.4	Providing and fixing 18mm thick gang saw cut mirror polished pre moulded and prepolished machine cut for kitchen platforms, vanity counters, window sills , facias and similar locations of required size of approved shade, colour and texture laid over 20mm thick base cement mortar 1:4 (1 cement : 4 coarse sand) with joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edge to give high gloss finish etc. complete at all levels.					
		Area of Slab over 0.50sqm	sqm	872.38	3769.70	Rupees Three Thousand Seven Hundred Sixty Nine and Paise Seventy Only	3288595.81
22	11 to 11.4	Extra for providing edge moulding to 18mm thick marble stone counters, Vanities etc. including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineer-in-Charge.					
		Granite work.	metre	1377.68	210.65	Rupees Two Hundred Ten and Paise Sixty Five Only	290208.29
23	11 to 11.4	Extra for fixing marble /granite stone over and above corresponding basic item, in facia and drops of width upto 150 mm with epoxy resin based adhesive including cleaning etc. complete.	metre	1377.68	225.75	Rupees Two Hundred Twenty Five and Paise Seventy Five Only	311011.26

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
24	11 to 11.4	Extra for providing opening of required size & shape for wash basins/ kitchen sink in kitchen platform, vanity counters and similar location in marble/Granite/stone work including necessary holes for pillar taps etc. including rubbing and polishing of cut edges etc. complete.	each	496.00	350.80	Rupees Three Hundred Fifty and Paise Eighty Only	173996.80
25		Mirror polishing on marble work/Granite work/ stone work where ever required to give high gloss finish complete.	sqm	872.38	196.85	Rupees One Hundred Ninety Six and Paise Eighty Five Only	171727.22
		WOOD AND PVC WORK					
26	2 to 12.1	Wood work in door and windows frame with rebate cutting, fitted and fixed in position complete including a protective coat of painting at the contact surface of the frame excluding cost of concrete, Iron Butt Hinges and M.S. Clamps. (The quantum should be corrected upto three decimals)					
a)		1st Class Best Indian Teak	cum	32.00	154397.50	Rupees One Lakh Fifty Four Thousand Three Hundred Ninety Seven and Paise Fifty Only	4940720.00
		Note: Extra for Lifting Charges:					
b)		i) Upto 4th floor Rs. 200/- per Cu.m.	cum	25.60	200.00	Rupees Two Hundred and Paise Zero Only	5120.00
c)		ii) Above 4th Floor Rs. 250/- per Cu.m.	cum	6.40	250.00	Rupees Two Hundred Fifty and Paise Zero Only	1600.00
27	3.4 to 4.11	Diluting and injecting chemical emulsion for POST-CONSTRUCTIONAL anti-termite treatment (excluding the cost of chemical emulsion) :					
		Treatment at points of contact of wood work by chemical emulsion Chlorpyrifos/ Lindane (in oil or kerosene based solution) @ 0.5 litres per hole by drilling 6 mm dia holes at downward angle of 45 degree at 150 mm centre to centre and sealing the same.	metre	2807.60	187.65	Rupees One Hundred Eighty Seven and Paise Sixty Five Only	526846.14
28	12.1.3	Supplying solid flush type doors of commercial quality, the timber frame consisting of top and bottom rails and side styles of well seasoned timber 65mm wide each and the entire frame fitted with 37.5 wide battens places both ways in order to make the door of solid core and internal lipping with Garjan or similar wood veneers using phenol formaldehyde as glue etc complete, including fittings, fixing shutters in position but excluding the cost of hinges and other fittings in ground floor.					
		a) 35mm thick shutters (single leaf)	sqm	3481.80	2446.97	Rupees Two Thousand Four Hundred Forty Six and Paise Ninety Seven Only	8519860.15
29	13	Extra for providing lipping with 2nd class teak wood battens 25 mm minimum depth on all edges of shutters (over all area of door shutter to be measured) over item no. 9.20 and 9.21	sqm	3481.80	348.45	Rupees Three Hundred Forty Eight and Paise Forty Five Only	1213233.21
30		Extra over Item No. 101 and 102 for providing					
a)	12.1.3	a) Vision aperture (round or rectangular in shape) with 7.4 kg per Sq.M / 3mm thick glass pane with wooden beads.	each	748.00	20.97	Rupees Twenty and Paise Ninety Seven Only	15685.56
		(Cost of glass panes and wooden beads will be paid separately)					
b)		c) Double leaf shutters	Sqm of Shutters	57.60	18.81	Rupees Eighteen and Paise Eighty One Only	1083.46
31	14	Providing and fixing wooden moulded beading to door and window frames with iron screws, plugs and priming coat on unexposed surface etc. complete :					
		2nd class teak wood					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
		50 x 20 mm	metre	2807.60	148.10	Rupees One Hundred Forty Eight and Paise Ten Only	415805.56
32	12.1.3	Supplying, fittings, fixtures decorative lamination conforming to IS: 2046 : 1995 as per approved make, brand, finish and thickness with fitting, fixing the same on Particle / MDF / Ply Boards with recommend / approved adhesive with proper clipping the sides for better attachment as per direction of Engineer-in-charge. The rate includes the cost of labour, adhesive and all incidental charges thereof.					
		Glossy / Matt/ Suede excluding surface texture or metallic lustre.					
		ii) Thickness of laminate 1.0 mm	sqm	6963.60	1284.91	Rupees One Thousand Two Hundred Eighty Four and Paise Ninety Only	8947564.46
		Providing and fixing hardware's for Door :					
33	15	Providing and fixing aluminum handles ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade or powder coated(minimum thickness 50 micron aluminum)with necessary screws etc. complete :					
a)		125 mm	each	3544.00	66.95	Rupees Sixty Six and Paise Ninety Five Only	237270.80
b)		100 mm	each	3016.00	52.80	Rupees Fifty Two and Paise Eighty Only	159244.80
34	15	Providing and fixing aluminum tower bolts ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade or powder coated(minimum thickness 50 micron aluminum)with necessary screws etc. complete :					
a)		250x10 mm	each	1896.00	90.65	Rupees Ninety and Paise Sixty Five Only	171872.40
b)		200x10 mm	each	1808.00	76.40	Rupees Seventy Six and Paise Forty Only	138131.20
c)		150x10mm	each	5084.00	62.75	Rupees Sixty Two and Paise Seventy Five Only	319021.00
35	15	Providing and fixing aluminum hanging floor door stopper ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade or powder coated(minimum thickness 50 micron aluminum) with necessary screws etc. complete.					
		Single rubber stopper	each	1484.00	33.75	Rupees Thirty Three and Paise Seventy Five Only	50085.00
36	15	Providing and fixing aluminum sliding door bolts ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade or powder coated(minimum thickness 50 micron aluminum) with nuts and screws etc. complete :					
a)		300x16 mm	each	1260.00	215.30	Rupees Two Hundred Fifteen and Paise Thirty Only	271278.00
b)		250x16mm	each	604.00	180.45	Rupees One Hundred Eighty and Paise Forty Five Only	108991.80

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
37	15	Providing and fixing aluminum die cast body tubular type universal hydraulic door closer (having brand logo with ISI, IS : 3564, embossed on the body, door weight upto 35 kg and door width upto 700 mm) with necessary accessories and screws etc. complete.	each	1224.00	1027.20	Rupees One Thousand Twenty Seven and Paise Twenty Only	1257292.80
38	15	Providing and fixing Aluminum Casement stays, ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade or powder coated (minimum thickness 50 micron aluminum)with nuts and screws etc. complete :	each	2536.00	68.40	Rupees Sixty Eight and Paise Forty Only	173462.40
39	15	Providing and fixing bright finished brass 100 mm mortice latch and lock with 6 levers and a pair of lever handles with necessary screws etc. Complete (best make of approved quality).	each	752.00	514.55	Rupees Five Hundred Fourteen and Paise Fifty Five Only	386941.60
40	15	Extra for providing frosted glass panes 4mm thick instead of ordinary float glass panes 4mm thick in doors, windows& clerestory windows, shutters (Area of opening for glass panes excluding portion inside rebate shall be measured)	sqm	156.00	5.80	Rupees Five and Paise Eighty Only	904.80
41	17	Providing 40x5 mm flat iron hold fast 40 cm long including fixing to frame with 10 mm diameter bolts, nuts and wooden plugs and embeddings in cement concrete block 30x10x15cm 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 20mm nominal size)	each	4432.00	110.20	Rupees One Hundred Ten and Paise Twenty Only	488406.40
42	18.to 18.4	Supplying, fitting & fixing factory made PVC door frame of size 50mm x 47mm with a wall thickness of 5mm, made out of extruded 5mm, PVC sheet miter cut at two corners and joined with two nos of 1.5mm along brackets of 15mm x 15mm M.S. square tube. Thw two vertical door profiles are to be reinforced with 19mm x 19mm M.S. square tube of 19 gauge, weather seal to be provided through out the frame. The door frame shall be fixed iwth the wall using 65/100 mm long M.S. Screws through the frame by using P.V.C fasternrs. A minimum of 4 Nos of screws to be provided for each vertical member and minimum 2 Nos for horizontal member etc. Complete as per Manufacturer's Specificatiopn and direction of Engineer-in-charge.	metre	3014.80	335.76	Rupees Three Hundred Thirty Five and Paise Seventy Six Only	1012249.25
43	19 to 19.9	Supplying, Fittings & Fixing 30mm thick Factory made solid Panel PVC Door Shutter consisting of outer grame made out of M.S. tubes of 19 gauge thickness and size 19mm x 19mm for styles, top and bottom rails, M.S. frame shall have cost of steel primers of approved make and manufacture, M.S. frame covered with 5mm th. heat moulded PVC "C" channel of size 30mm th, 70 mm width out of which 50mm shall be flat and 20mm shall be tapered in 45 degree angle on either sides forming styles and 5 mm th. 95 mm wide PVC sheet out of which 75mm shall be flat and 20 mm tapered in 45 degree on the inner side to form top and bottom rail and 115mm wide PVC sheet out of which 75mm shall be flat and 20mm shall be tapered on both sides to form lock rail. Top, bottom and lock rails shall be provided either side of the panel with 10mm (5mm x 2) th, 20mm wide cross PVC sheet as gap insert for top rail and bottom rail. Paneling of 5mm th, both side PVC sheet tobe fitted in the M.S. frame welded / sealed to the styles and rails iwth 7mm (5mm + 2mm)th. x 15mm wide PVC sheet beading on innter side and joined together with solvent cement adhesive. An additional 5mm th. PVC strip of 20mm which is to be stuck	sqm	1021.56	1977.60	Rupees One Thousand Nine Hundred Seventy Seven and Paise Sixty Only	2020237.06

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
44	20.00	Providing and fixing 12 mm thick frameless toughened glass door shutter of approved brand and manufacturer, including providing and fixing top & bottom pivot & spring type fixing arrangement and making necessary holes etc. for fixing required door fittings, all complete as per direction of Engineer-in-charge (Door handle, lock and stopper etc.to be paid separately).	sqm	719.04	4692.70	Rupees Four Thousand Six Hundred Ninety Two and Paise Seventy Only	3374239.01
45	21	Providing and fixing fire resistant door frame of section 143 x 57 mm having built in rebate made out of 16 SWG G.I. sheet (zinc coating not less than 120 gm/sqm) duly filled with vermiculite based concrete mix, suitable for mounting 60 minutes fire rated door shutters. The frame is fitted with intumescent fire seal strip of size 10x4 mm (minimum) around the frame and fixing with dash fastener of approved size and make, including applying a coat of approved brand fire resistant primer etc. complete as per direction of Engineer-in-charge (Dash fastener to be paid for separately).	metre	288.00	1190.65	Rupees One Thousand One Hundred Ninety and Paise Sixty Five Only	342907.20
46	22	Providing and fixing 50 mm thick glazed fire resistant door shutters of 60 minutes fire rating conforming to IS:3614 (Part-II), tested and certified as per laboratory approved by Engineer-in-charge, with suitable mounting on door frame, consisting of vertical styles, lock rail, top rail 100 mm wide, bottom rail 200 mm wide, made out of 16 SWG G.I.sheet (zinc coating not less than 120 gm/m2) duly filled FR insulation material and fixing with necessary stainless steel ball bearing hinges of approved make, including applying a coat of approved fire resistant primer etc. all complete as per direction of Engineer-in-charge (panneling to be paid for separately).	sqm	138.24	6205.05	Rupees Six Thousand Two Hundred Five and Paise Five Only	857786.11
47	23.000	Providing and fixing glazing in fire resistant door shutters, fixed panels, ventilators and partitions etc., with G.I. beading of appropriate size, made out of 20 SWG G.I.sheet (zinc coating not less than 120 gm/m2), fire resistant sealant, including applying a coat of approved fire resistant primer on G.I. beading etc., complete all as per direction of Engineer-in-charge.	sqm	138.24	26954.60	Rupees Twenty Six Thousand Nine Hundred Fifty Four and Paise Sixty Only	3726203.90
		With clear fire resistant glass panes 6mm thick of approved brand, having minimum 60 minutes fire resistance					
48		Providing and fixing panic bar / latch (Double point) fitted with a single body, Trim Latch & Lock on back side of the Panic Latch of reputed brand and manufacture to be approved by the Engineer- in- charge, all complete.	nos	48.00	5892.30	Rupees Five Thousand Eight Hundred Ninety Two and Paise Thirty Only	282830.40
		STEEL WORK					
49	25 to 25.1.4	Structural steel work in single section, fixed with or without connecting plate, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	kg	12000.00	66.85	Rupees Sixty Six and Paise Eighty Five Only	802200.00
50	25 to 25.1.4	Payment to be made on the basis of calculated weight of structural members only in finished work as per IS specified weight. Payment for gusset, bracket, cleat, rivets, bolts and nuts may be made by adding the actual weight of such items with the weight of finished structural members or 7% of weight for finished structural members weighing not less than 22.5 kg /m. or 15% of weight for finished structural members weighing less than 22.5 Kg. / m may be increased allow for bracket, cleat, rivet, bolts and nuts etc and no sepeate payment being made for these items, as per direction of Engineer In Charge. The rates are considered for a height of erection 8m / 2nd floor level from the ground. Add 1.5% extra over the rate for each additional floor or 4 m beyond initial 8m or part thereof.					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
a)		II) For Structural works in Roof Trusses etc. using joists, channels and angles of specified section weighing not less than 22.5 kg/m.	MT	4.00	68660.48	Rupees Sixty Eight Thousand Six Hundred Sixty and Paise Forty Eight Only	274641.92
b)		III) For built up sections / structural members of specified sections weighing not less than 22.5 Kg/M.	MT	28.00	69731.06	Rupees Sixty Nine Thousand Seven Hundred Thirty One and Paise Five Only	1952469.56
51		Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying a priming coat of approved steel primer.					
		M.S. tube.	kg	38096.00	97.45	Rupees Ninety Seven and Paise Forty Five Only	3712455.20
52	27	Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners, stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-charge, (for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.).	kg	39991.00	611.10	Rupees Six Hundred Eleven and Paise Ten Only	24438500.10
53	27	Supplying and fixing rolling shutters of approved make, made of required size M.S. laths, interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete, including the cost of providing and fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength conforming to IS: 4454 - part 1 and M.S. top cover of required thickness for rolling shutters.					
		80x1.25 mm M.S. laths with 1.25 mm thick top cover	sqm	57.60	2044.15	Rupees Two Thousand Forty Four and Paise Fifteen Only	117743.04
54		Providing and fixing ball bearing for rolling shutters.	each	8.00	436.45	Rupees Four Hundred Thirty Six and Paise Forty Five Only	3491.60
55		Extra for providing mechanical device chain and crank operation for operating rolling shutters.					
		Exceeding 10.00 sqm and upto 16.80 sqm in the area.	sqm	57.60	665.50	Rupees Six Hundred Sixty Five and Paise Fifty Only	38332.80
56		Extra for providing grilled rolling shutters manufactured out of 8 mm dia.M.S. bar instead of laths as per design approved by Engineer-in-charge.(area of grill to be measured).	sqm	24.00	313.60	Rupees Three Hundred Thirteen and Paise Sixty Only	7526.40
57	29	(a) M.S. or W.I. Ornamental grill of approved design joints continuously welded with M.S., W.I. Flats and bars of windows, railing etc, fitted and fixed with necessary screws and lugs in ground floor.					
		(Add extra @ 1% for each addl floor upto 4th floor and @ 1.25% for each addl floor above 4th floor)					
		(i) Grill weighing above 10 Kg / Sq. Mtr and up to 16 Kg. / Sq. Mtr	Qtl.	261.53	6688.04	Rupees Six Thousand Six Hundred Eighty Eight and Paise Three Only	1749119.77

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
58		Providing and fixing pressed steel door frames confirming to IS: 4351 manufactured from commercial mild steel sheet of 1.25 mm thickness including hinges jamb, lock jamb, bead and if required angle threshold of mild steel angle of section 50x25mm, or base ties of 1.25mm pressed mild steel welded or rigidly fixed together by mechanical means, adjustable lugs with split end tail to each jamb including steel butt hinges 2.5mm thick with mortar guards, lock strike-plate and shock absorbers as specified and applying a coat of approved steel primer after pre-treatment of the surface as directed by Engineer-in-charge:					
		Fixing with adjustable lugs with split end tail to each jamb					
a)		Profile B	metre	5752.00	360.50	Rupees Three Hundred Sixty and Paise Fifty Only	2073596.00
		Fixing with adjustable lugs with split end tail to each jamb					
b)		Profile C	metre	7280.00	383.75	Rupees Three Hundred Eighty Three and Paise Seventy Five Only	2793700.00
		SUB HEAD-VIII :- FLOORING					
59	30	Cement concrete flooring 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate) finished with a floating coat of neat cement including cement slurry, but excluding the cost of nosing of steps etc. complete.					
		40mm thick with 20mm nominal size stone aggregate.	sqm	2929.24	316.80	Rupees Three Hundred Sixteen and Paise Eighty Only	927983.23
60	31	18mm to 22mm thick, kota stone slab set in 20mm thick (avg) cement mortar (1:4) in floor, stair & lobby including pointing in cement slurry with admixture & pigment matching the stone shade, including grinding & polishing as per direction of Engineer-in-charge to match with the existing work. [Slurry for bedding @ 4.4kg. /Sq.M and pointing @ 2.0kg /Sq.M.]	sqm	7706.16	958.56	Rupees Nine Hundred Fifty Eight and Paise Fifty Six Only	7386820.56
61	31	Extra cost of labour for prefinished and premoulded Nosing to treads of steps, railing, window sill etc. of Kota Stone.	metre	5076.00	137.16	Rupees One Hundred Thirty Seven and Paise Fifteen Only	696198.78
62	31	Extra cost of labour for grinding Kota stone Floor in treads and riser of Steps.	sqm	1980.00	128.21	Rupees One Hundred Twenty Eight and Paise Twenty One Only	253855.80
63	32	Supplying, fitting & fixing 1st quality Ceramic tiles in walls and floors to match with the existing work & 4 nos. of key stones (10mm) fixed with araldite at the back of each tile & finishing the joints with white cement mixed with colouring oxide if required to match the color of tiles including roughening of concrete surface, if necessary or by synthetic adhesive & grout materials etc.					
		Floor					
		With Sand Cement Mortar (1:4) 20mm thick & 2mm with cement slurry at back side of tiles using cement @ 2.91 Kg. /Sq.M & joint filling using white cement slurry @ 0.20Kg/ Sq.m					
		(a) Area of each tile upto 0.09 Sqm					
a)		(i) Coloured decorative	sqm	3546.37	705.71	Rupees Seven Hundred Five and Paise Seventy Only	2502698.50
b)		(ii) Other than Coloured decorative including white.	sqm	3379.59	655.71	Rupees Six Hundred Fifty Five and Paise Seventy One Only	2216040.72
		Wall					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
	32	With Sand Cement Mortar (1:3) 15mm thick & 2mm thick cement slurry at back side of tiles using cement @ 2.91 Kg/ Sq.M & joint filling using white cement slurry @ 0.20 Kg/ Sqm					
c)		(b) Area of each tile above 0.09 Sq.M.	sqm	23820.57	957.88	Rupees Nine Hundred Fifty Seven and Paise Eighty Seven Only	22817187.66
d)		(i) Coloured decorative	sqm	9842.14	883.66	Rupees Eight Hundred Eighty Three and Paise Sixty Six Only	8697107.55
		(ii) Other than Coloured decorative including white					
64	33	Supplying and laying true to line and level vitrified tiles of approved brand (size not less than 60mm X 600mm X 10mm thick) in floor, skirting etc. set in 20mm sand cement mortar (1:4) and 2 mm thick cement slurry back side of tiles using cement @ 2.91 Kg. /Sq.M or using polymerised adhesive (6mm thick layer applied directly over finished artificial stone floor / Mosaic etc without any backing course) laid after application slurry using 1.75 Kg of cement per Sq.M below mortar only, joints grouted with admixture of white cement and colouring pigment to match with colour of tiles / epoxy grout materials of approved make as directed and removal of wax coating of top surface of tiles with warm water and polishing the tiles using soft and dry cloth upto mirror finish complete including the cost of materials, labour and all other incidental charges complete true to the manufacturer's specification and direction of Engineer-in-Charge. (white cement, synthetic adhesive and grout material to be supplied by agency.)					
a)		(I) With application slurry @ 1.75 kg / Sq.M., 20mm sand cement mortar (1:4) & 2mm thick cement slurry at back side of tiles, 0.2 kg / Sq.M white cement for joint filling with pigment, (White cement and Pigment to be supplied by agency.)					
		(A) Deep Colour & White	sqm	25079.09	1443.25	Rupees One Thousand Four Hundred Forty Three and Paise Twenty Four Only	36195356.89
65	33	Supplying and laying chequered tiles of any shade & of approved quality with (1:1½:3) cement concrete laid in panels or patterns as directed in pavement, footpath etc. including necessary underlay 25mm thick [avg] cement mortar (1:3) complete in all respect iwth all labour and materials. [Using cement slurry @ 4.4kg /Sq.M at back side and @ 2.4kg /Sq.M for Joint filling]					
		Red Variety					
a)		(ii) 30mm. Thick	sqm	4669.98	493.80	Rupees Four Hundred Ninety Three and Paise Eighty Only	2306036.12
66	34	Supplying, fitting & fixing granite slabs 15mm to 18mm, thick with uniform texture & without decorative veins in columns, walls, facia etc. with 15mm thick [avg] cement mortar (1:2) including making suitable arrangements to hold the stones properly by brass / copper hooks including pointing in cement mortar (1:2) (1 white cement : 2 marble dust) with admixture of pigment matching the stone shades all complete as per direction of the Engineer-in-charge including cost of all materials, labours, scaffolding, staging, curing and roughening of concrete surface complete.	sqm	2295.15	2443.95	Rupees Two Thousand Four Hundred Forty Three and Paise Ninety Five Only	5609242.60
		[Using cement slurry at back side of granite @ 4.4Kg/Sq.M and white cement slurry for joint filling @ 1.8lg/Sq.M]					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
67	34	Supplying, fitting & fixing granite tiles 10mm to 12mm thick in columns, walls, fascia etc with 15 thick [avg] cement mortar (1:2) including making suitable arrangements to hold the stones properly by brass / copper hooks including pointing in cement mortar (1:2) (1 white cement: 2 marble dust) with admixture of pigment matching the stone shades all complete as per direction of the Engineer-in-charge including cost of all materials, labours, scaffolding, staging, curing and roughening of concrete surface complete.					
		[Using cement slurry at back side of tiles @ 4.4kg / Sq.M & white cement slurry for joint filling @ 1.8 kg /Sq.M)					
		Area of each slab upto 0.2 Sqm	sqm	229.52	1779.22	Rupees One Thousand Seven Hundred Seventy Nine and Paise Twenty Two Only	408358.46
68	35	A) Supplying & laying of approved brand of scratch proof, semi flexible P.V.C blended homogeneous marble Vinyl flooring in tiles conforming to IS: 3461, fixing with synthetic acrylic adhesive after preparing the floor levelling & smothaning when necessary with suitable putty, as per the design & instruction of the Engineer-in-Charge.	sqm	2667.64	497.23	Rupees Four Hundred Ninety Seven and Paise Twenty Three Only	1326430.64
		2mm thick					
		ROOFING					
69	36	Making khurras 45x45 cm with average minimum thickness of 5 cm cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate of 20 mm nominal size) over P.V.C. sheet 1 m x1 m x 400 micron, finished with 12 mm cement plaster 1:3 (1 cement : 3 coarse sand) and a coat of neat cement, rounding the edges and making and finishing the outlet complete.	each	458.80	167.45	Rupees One Hundred Sixty Seven and Paise Forty Five Only	76826.06
70	37	Providing gola 75x75 mm in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 stone aggregate 10 mm and down gauge), including finishing with cement mortar 1:3 (1 cement : 3 fine sand) as per standard design :					
		In 75 x75 mm deep chase	meter	2160.00	127.95	Rupees One Hundred Twenty Seven and Paise Ninety Five Only	276372.00
71	38	Providing fixing thermal insulation of ceiling (under deck insulation) with Resin Bonded Fibre glass wool conforming to IS : 8183, density 24kg / m3, 50mm thick, wrapped in 200 G Virgin Polythene bags, fixed to ceiling with metallic cleats (50x50x3 mm) @ 60 cm and wire mesh of 12.5 mm x 24 gauge wire mesh, for top most ceiling of building.	sqm	6592.40	465.10	Rupees Four Hundred Sixty Five and Paise Ten Only	3066125.24
72	38	Providing and fixing Heat Resistant Terrace Tiles (300 mm x 300 mm x 20 mm) with SRI (solar refractive index) > 78, solar reflection >0.70 and initial emittance >0.75 on waterproof and sloped surface of terrace, laid on 20 mm thick cement sand mortar in the ratio of 1:4 (1 cement : 4 coarse sand) and grouting the joints with mix of white cement & marble powder in ratio of 1:1, including rubbing and polishing of the surface upto 3 cuts complete, including providing skirting upto 150 mm height along the parapet walls in the same manner	sqm	9228.40	1108.70	Rupees One Thousand One Hundred Eight and Paise Seventy Only	10231527.08

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
73	39	Providing and fixing at all height false ceiling including providing and fixing of frame work made of special sections power pressed from M.S. sheet and galvanised in accordance with zinc coating of grade 350 as per IS : 277 and consisting of angle cleats of size 25mm wide x 1.6mm thick with flanges of 22mm and 37mm at 1200mm centre to centre one flange fixed to the ceiling with dash fastener 12.5mm diax40mm long with 6mm dia bolts to the angle hangers of 25x25x0.55mm of required length, and other end of angle hanger being fixed with nut and bolts to G.I. channels 45x15x0.9mm running at the rate of 1200mm centre to centre to which the ceiling section 0.5mm thick button wedge of 80mm with tapered flanges of 26mm each having clips of 10.5mm at 450mm centre to centre shall be fixed in a direction perpendicular to G.I. channel with connecting clips made out of 2.64mm diax230mm long G.I. wire at every junction including fixing the gypsum board with ceiling section and perimeter channels 0.5mm thick 27mm high havm (5mm + 2mm)th. x 15mm wide PVC sheet beading on innter side and joined together with solvent cement adhesive. An additional 5mm th. PVC strip of 20mm which is to be stuck on the					
		12.5 mm thick tapered edge gypsum board conforming to IS: 2095- Part I.	sqm	11982.24	804.80	Rupees Eight Hundred Four and Paise Eighty Only	9643308.81
74	39	Providing and fixing tiled false ceiling of approved materials of size 595x595 mm in true horizontal level suspended on inter locking metal grid of hot dipped galvanized steel sections (galvanized @ 120 gsm/sqm, both side inclusive) consisting of main "T" runner with suitably spaced joints to get required length and of size 24x38mm made from 0.30mm thick (minimum) sheet, spaced at 1200mm center to center and cross "T" of size 24x25mm made of 0.30mm thick (minimum) sheet, 1200mm long spaced between main "T" at 600mm center to center to form a grid of 1200x600 mm and secondary cross "T" of length 600mm and size 24x25mm made of 0.30 mm thick (minimum) sheet to be interlocked at middle of the 1200x600mm panel to form grids of 600x600mm and wall angle of size 24x24x0.3 mm and laying false ceiling tiles of approved texture in the grid including, wherever, required, cutting/making, opening for services like diffusers, grills, light fittings, fixtures, smoke detectors etc. Main "T" runners to be suspended from ceiling using GI slotted cleats of size 27 x 37 x 25 x1.6 x mm fixed to ceiling with 12.5 mm dia and 50 mm long dash fasteners, 4mm GI adjustable rods with galvanised butterfly level clips of size 85 x 30 x 0.8 mm spaced at 1200mm center to center along main T, bottom exposed width of 24 mm of all T-sections shall be pre-painted with polyester paint, all complete at all heights as per specifications drawings and as directed by Engineer-in-charge.	sqm	17973.36	1518.85	Rupees One Thousand Five Hundred Eighteen and Paise Eighty Five Only	27298843.67
		GI Metal Ceiling Lay in plain Tegular edge Global white color tiles of size 595x595 mm, and 0.5mm thick with 8mm drop; made of G I sheet having galvanizing of 100 gms/sqm (both sides inclusive) and electro statically polyester powder coated of thickness 60 microns (minimum), including factory painted after bending.					
		FINISHING WORK					
75	40	Plaster (to wall, floor, ceiling etc) with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints including throating, nosing and drip course, scaffolding / staging where necessary (ground floor)					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
		(Excluding cost of chipping over concrete surface)					
		i) With 1:6 cement mortar					
a)		15 mm thick plaster	sqm	61088.14	113.78	Rupees One Hundred Thirteen and Paise Seventy Eight Only	6950608.80
b)		20 mm thick plaster	sqm	46662.06	133.99	Rupees One Hundred Thirty Three and Paise Ninety Nine Only	6252249.42
76		6 mm cement plaster of mix : 1:3 (1 cement : 3 fine sand)	sqm	42443.61	120.35	Rupees One Hundred Twenty and Paise Thirty Five Only	5108088.03
77	40	Providing and Applying plaster of Paris putty of 2mm thickness over Plastered surface to prepare the surface even and smooth complete	sqm	120813.81	100.95	Rupees One Hundred and Paise Ninety Five Only	12196153.96
78	40	White washing with lime to give an even shade:					
		New work (three or more coats)	sqm	42239.61	14.35	Rupees Fourteen and Paise Thirty Five Only	606138.35
79		Colour washing such as green, blue or buff to give an even shade					
		New work (two or more coats) with a base coat of white washing with lime	sqm	208.00	19.75	Rupees Nineteen and Paise Seventy Five Only	4108.00
80	41	Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete.					
a)		On steel work	sqm	6680.00	109.80	Rupees One Hundred Nine and Paise Eighty Only	733464.00
81	41	Painting (one or more coats) with black Japan paint of approved brand and manufacture to give an even shade.	sqm	1411.25	38.50	Rupees Thirty Eight and Paise Fifty Only	54333.28
82	41	Finishing walls with textured exterior paint of required shade :					
		New work (Two or more coats applied @ 3.28 ltr/10 sqm) over and including priming coat of exterior primer applied @ 2.20kg/10 sqm.	sqm	82702.20	127.10	Rupees One Hundred Twenty Seven and Paise Ten Only	10511449.87
83	41	Distempering with 1st quality acrylic distemper, having VOC (Volatile Organic Compound) content less than 50 grams/ litre, of approved brand and manufacture, including applying additional coats wherever required, to achieve even shade and colour.					
		Two coats	sqm	120397.81	41.75	Rupees Forty One and Paise Seventy Five Only	5026608.50
84	41	Painting with synthetic enamel paint, having VOC (Volatile Organic Compound) content less than 150 grams/ litre, of approved brand and manufacture, including applying additional coats wherever required to achieve even shade and colour.					
		Two coats.	sqm	5440.00	67.00	Rupees Sixty Seven and Paise Zero Only	364480.00
85	42	Making V- Groove line (12 mm wide, 12 mm deep) in plasterd surface	%metre	10100.00	3.97	Rupees Three and Paise Ninety Six Only	40073.21
86	43	Closing gap between door and window frame and jambs with cement mortar (1:3) including removing old mortar (throughout entire surface of contact) and cleaning the joint. (cement 0.012 Cu.m/100 Mtr)	%metre	23534.68	8.07	Rupees Eight and Paise Six Only	189864.85
		ALUMINIUM WORK					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
87	44	Providing and fixing aluminum work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS : 1285, fixed with rawl plugs and screws or with fixing clips, or with expansion hold fasteners including necessary filling up of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt etc. Aluminum sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminum snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing and paneling to be paid for separately) :					
		For fixed portion					
a)	44	Powder coated aluminum (minimum thickness of powder coating 50 micron)	kg	35744.00	373.00	Rupees Three Hundred Seventy Three and Paise Zero Only	13332512.00
b)	44	For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of PVC / neoprene gasket required (Fittings shall be paid for separately).					
		Powder coated aluminum (minimum thickness of powder coating 50 micron)	kg	17216.00	427.60	Rupees Four Hundred Twenty Seven and Paise Sixty Only	7361561.60
88	44	Providing and fixing glazing in aluminum door, windows, ventilator shutters and partitions etc. with PVC/ neoprene gasket etc. complete as per the architectural drawings and the directions of the Engineer-in-Charge. (Cost of aluminum snap beading shall be paid in basic item).					
a)		With float glass panes of 4.0mm thickness	sqm	1490.56	790.00	Rupees Seven Hundred Ninety and Paise Zero Only	1177542.40
b)		With float glass panes of 5.50 mm thickness	sqm	159.00	1009.00	Rupees One Thousand Nine and Paise Zero Only	160431.00
89	44	Extra for providing frosted glass panes 4mm thick instead of ordinary float glass panes 4mm thick in doors, windows& clerestory windows, shutters (Area of opening for glass panes excluding portion inside rebate shall be measured)	sqm	21.60	5.80	Rupees Five and Paise Eighty Only	125.28
90	45	Filling the gap in between aluminum frame & adjacent RCC/ Brick/ Stone work by providing weather silicon sealant over backer rod of approved quality as per architectural drawings and direction of Engineer-in-charge complete.					
		Upto 5mm depth and 5 mm width	metre	20726.08	83.05	Rupees Eighty Three and Paise Five Only	1721300.94
91	45	Designing, fabricating, testing, installing and fixing in position Curtain Wall with Aluminium Composite Panel Cladding, with open grooves for linear as well as curvilinear portions of the building , for all heights and all levels etc. including:	sqm	1200.00	3696.65	Rupees Three Thousand Six Hundred Ninety Six and Paise Sixty Five Only	4435980.00
		(a) Structural analysis & design and preparation of shop drawings for pressure equalisation or rain screen principle as required, proper drainage of water to make it watertight including checking of all the structural and functional design.					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
		(b) Providing, fabricating and supplying and fixing panels of aluminium composite panel cladding in pan shape in metallic colour of approved shades made out of 4mm thick aluminium composite panel material consisting of 3mm thick FR grade mineral core sandwiched between two Aluminium sheets (each 0.5mm thick). The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF / Lumiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicone sealant, backer rods etc. "					
		(c) The fastening brackets of Aluminium alloy 6005 T5 / MS with Hot Dip Galvanised with serrations and serrated washers to arrest the wind load movement, fasteners, SS 316 Pins and anchor bolts of approved make in SS 316, Nylon separators to prevent bi-metallic contacts all complete required to perform as per specification and drawing					
		The item includes cost of all material & labour component, the cost of all mock ups at site, cost of all samples of the individual components for testing in an approved laboratory, field tests on the assembled working curtain wall with aluminium composite panel cladding, cleaning and protection of the curtain wall with aluminium composite panel cladding till the handing over of the building for occupation.					
		The Contractor shall provide curtain wall with aluminium composite panel cladding, having all the performance characteristics all complete, as per the Architectural drawings, as per item description, as specified, as per the approved shop drawings and as directed by the Engineer-in-Charge.					
		"However, for the purpose of payment, only the actual area on the external face of the curtain wall with Aluminum Composite Panel Cladding (including width of groove) shall be measured in sqm. up to two decimal places."					
		Note : The following performance test are to be conducted on ACP system if area of ACP system exceeds 4500 Sqm from the certified laboratories accredited by NABL (National Accreditation Board for Testing and Calibration Laboratories), Department of Science & Technologies, India. The NIT approving authority will decide the necessity of testing on the basis of cost of the work, cost of the test and importance of the work.					
		Performance Testing of ACP system					
		Tests to be conducted in the NABL certified laboratories					
		Performance Laboratory Test for Air Leakage Test (-50pa to -300pa) & (+50pa to +300pa) as per ASTM E-283-04 testing method for a range of testing limit 1 to 200 mVhr"					
		Static Water Penetration Test. (50pato 1500pa) as per ASTM E-331-09 testing method for a range upto 2000 ml.					
		Dynamic Water Penetration (50pato 1500pa) as per AAMA 501.01-05 testing method for a range upto 2000 ml					
		Structural Performance Deflection and deformation by static air pressure test (1.5 times design wind pressure without any failure) as per ASTM E-330-10 testing method for a range upto 50 mm"					
		Seismic Movement Test (Upto 30 mm) as per AAMA 501.4-09 testing method for Qualitative test.					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
		Tests to be conducted on site					
		Onsite Test for Water Leakage for a pressure range 50 kpa to 240 kpa (35 psi) upto 2000 ml"					
		WATER PROOFING WORK					
92	46.3 to 46.5	Providing and laying integral cement based treatment for waterproofing on horizontal surface at all depth below ground level for under ground structures as directed by Engineer-in-Charge and consisting of : i) 1st layer of 22 mm to 25 mm thick approved and specified rough stone slab over a 25 mm thick base of cementmortar 1:3 (1 cement : 3 coarse sand) mixed with water proofing compound conforming to IS:2645 in the recommended proportion over the leveling course (leveling course to be paid separately). Joints sealed and grouted with cement slurry mixed with water proofing compound. ii) 2nd layer of 25 mm thick cement mortar 1:3 (1 cement:3 coarse sand) mixed with water proofing compound in recommended proportions. iii) Finishing top with stone aggregate of 10 mm to 12mm nominal size spreading @ 8 cu dm/sqm thoroughly embedded in the 2nd layer.					
		Using rough kota stone.	sqm	2456.00	844.10	Rupees Eight Hundred Forty Four and Paise Ten Only	2073109.60
93	47	Providing and laying integral cement based treatment for waterproofing on the vertical surface by fixing specified stone slab 22 mm to 25 mm thick with cement slurry mixed with water proofing compound conforming to IS:2645 in recommended proportions with a gap of 20 mm (minimum) between stone slabs and the receiving surfaces and filling the gaps with neat cement slurry mixed with water proofing compound and finishing the exterior of stone slab with cement mortar 1:3 (1 cement : 3 coarse sand) 20 mm thick with neat cement punning mixed with water proofing compound in recommended proportion complete at all levels and as directed by Engineer-in-charge :					
		Using rough kota stone.	sqm	5576.00	1036.90	Rupees One Thousand Thirty Six and Paise Ninety Only	5781754.40
94	47	Providing and laying water proofing treatment in sunken portion of WCs, bathroom etc., by applying cement slurry mixed with water proofing cement compound consisting of applying : a) First layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. This layer will be allowed to air cure for 4 hours. b) Second layer of slurry of cement @ 0.242 kg/sqm mixed with water proofing cement compound @ 0.126 kg/sqm. This layer will be allowed to air cure for 4 hours followed with water curing for 48 hours. The rate includes preparation of surface, treatment and sealing of all joints, corners, junctions of pipes and masonry with polymer mixed slurry.	sqm	8048.82	255.00	Rupees Two Hundred Fifty Five and Paise Zero Only	2052448.64

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
95	47	Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces etc consisting of following operations: a) Applying a slurry coat of neat cement using 2.75 kg/sqm of cement admixed with water proofing compound conforming to IS. 2645 and approved by Engineer-in-charge over the RCC slab including adjoining walls upto 300 mm height including cleaning the surface before treatment. b) Laying brick bats with mortar using broken bricks/brick bats 25 mm to 115 mm size with 50% of cement mortar 1:5 (1 cement : 5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge over 20 mm thick layer of cement mortar of mix 1:5 (1 cement :5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge to required slope and treating similarly the adjoining walls upto 300 mm height including rounding of junctions of walls and slabs c) Aftern using GI slotted cleats of size 27 x 37 x 25 x1.6 x mm fixed to ceiling with 12.5 mm dia and 50 mm long dash fasteners, 4mm GI adjustable rods with galvanised butterfly level clips of size 85 x 30 x 0.8 mm spaced at 1200mm center to center along main T, bottom exposed width of 24 mm of all T-sections shall be pre-painted with polyester paint, all complete at all heights as per specifications drawings and as directed by Engineer-in-charge.viding and laying silt free coarse sand , pea gravels etc., in layers as per direction of engineer-in- charge) all complete as per drawing and specification and direction of the Engineer in Charge but excluding the cost of painting with : s for curing and for final test. All above operations to be done in order and as directed and specified by the Engineer-in-Charge :					
		With average thickness of 120 mm and minimum thickness at khurra as 65 mm.	sqm	9588.40	882.60	Rupees Eight Hundred Eighty Two and Paise Sixty Only	8462721.84
96		Providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS : 10910 on 12mm dia steel bar conforming to IS : 1786 having minimum cross section as 23 mmx25mm and over all minimum length 263 mm and width as 165mm with minimum 112 mm space between protruded legs having 2 mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tail length on 138 mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per specifications and having manufacture's permanent identification mark to be visible even after fixing, including fixing in manholes with 30x20x15 cm cement concrete block 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) complete as per design.	each	588.00	295.20	Rupees Two Hundred Ninety Five and Paise Twenty Only	173577.60
97		Providing and placing in position suitable PVC water stops conforming to IS:12200 between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc complete.					
		Serrated with central bulb (225mm wide,8-11mm thick)	metre	1740.00	489.45	Rupees Four Hundred Eighty Nine and Paise Forty Five Only	851643.00
		MISCELLANEOUS WORK					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
98	49	Boring, providing and installing bored cast-in-situ reinforced cement concrete piles of grade M-25 of specified diameter and length below the pile cap, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring, with bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. all complete, including removal of excavated earth with all lifts and leads (Length of pile for payment shall be measured upto bottom of pile cap).					
		600 mm dia piles	metre	35056.00	3454.75	Rupees Three Thousand Four Hundred Fifty Four and Paise Seventy Five Only	121109716.00
99	49	Boring, Providing and installing cast in situ single under reamed piles of specified diameter and length below pile cap in M-25 cement concrete, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring with bentonite solution and the length of the pile to be embedded in pile cap etc. all complete. (Length of pile for payment shall be measured upto to the bottom of pile cap) :					
		400 mm dia piles	metre	5040.00	2471.20	Rupees Two Thousand Four Hundred Seventy One and Paise Twenty Only	12454848.00
100	49	Extra over item No. 23.3 for providing additional bulb in under reamed piles, under specified dia meter (Only the quantity of extra bulbs are to be paid).					
		400mm dia piles	each	840.00	1599.25	Rupees One Thousand Five Hundred Ninety Nine and Paise Twenty Five Only	1343370.00
101	50	Vertical load testing of piles in accordance with IS 2911 (Part IV) including installation of loading platform and preparation of pile head or construction of test cap and dismantling of test cap after test etc. complete as per specification & the direction of Engineer in-charge.					
		Single pile above 50 tonne and upto 100 tonne capacity					
		Initial test	per test	40.00	46808.45	Rupees Forty Six Thousand Eight Hundred Eight and Paise Forty Five Only	1872338.00
		HORTICULTURE & LANDSCAPING					
102	51	Trenching in ordinary soil up to a depth of 60 cm including removal and stacking of serviceable materials and then disposing of surplus soil, by spreading and neatly leveling within a lead of 50 m and making up the trenched area to proper levels by filling with earth or earth mixed with sludge or/and manure before and after flooding trench with water (excluding cost of imported earth, sludge or manure).	cum	3281.00	37.10	Rupees Thirty Seven and Paise Ten Only	121725.10
103	51	Supplying and stacking at site dump manure from approved source, including carriage up to 1 km (manure measured in stacks will be reduced by 8% for payment) :					
a)		Screened through sieve of I.S. designation 20 mm	cum	547.00	167.60	Rupees One Hundred Sixty Seven and Paise Sixty Only	91677.20
b)		Screened through sieve of I.S. designation 16 mm	cum	547.00	184.85	Rupees One Hundred Eighty Four and Paise Eighty Five Only	101112.95

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
c)		Screened through sieve of I.S. designation 4.75 mm	cum	547.00	198.65	Rupees One Hundred Ninety Eight and Paise Sixty Five Only	108661.55
104	51	Fine dressing of the ground	100sqm	36.00	175.30	Rupees One Hundred Seventy Five and Paise Thirty Only	6310.80
105	51	Spreading of sludge, dump manure and / or good earth in required thickness as per direction of Officer-in-charge (Cost of sludge, dump manure and / or good earth to be paid separately).	cum	1640.00	25.15	Rupees Twenty Five and Paise Fifteen Only	41246.00
106	51	Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge..	cum	1640.00	17.25	Rupees Seventeen and Paise Twenty Five Only	28290.00
107	51	Digging holes in ordinary soil and refilling the same with the excavated earth mixed with manure or sludge in the ratio of 2:1 by volume (2 parts of stacked volume of earth after reduction by 20% : 1 part of stacked volume of manure after reduction by 8%) flooding with water, dressing including removal of rubbish and surplus earth, if any, with all leads and lifts (cost of manure, sludge or extra good earth if needed to be paid for separately) :					
a)		Holes 60 cm dia, and 60 cm deep.	each	72.00	28.00	Rupees Twenty Eight and Paise Zero Only	2016.00
b)		Holes 45 cm dia, and 45 cm deep.	each	48.00	12.15	Rupees Twelve and Paise Fifteen Only	583.20
		ROAD WORKS :					
108		Preparation and consolidation of sub grade with power road roller of 8 to 12 tonne capacity after excavating earth to an average of 22.5 cm depth, dressing to camber and consolidating with road roller including making good the undulations etc. and re-rolling the sub grade and disposal of surplus earth with lead upto 50 metres.	sqm	7454.00	73.55	Rupees Seventy Three and Paise Fifty Five Only	548241.70
109	52	Extra for compaction of earth work in embankment under optimum moisture conditions to give at least 95% of the maximum dry density (proctor density).	cum	7082.00	9.30	Rupees Nine and Paise Thirty Only	65862.60
110	52	Supplying and stacking at site					
a)		90 mm to 45 mm size stone aggregate	cum	1118.00	1121.90	Rupees One Thousand One Hundred Twenty One and Paise Ninety Only	1254284.20
b)		63 mm to 45 mm size stone aggregate	cum	1118.00	1272.90	Rupees One Thousand Two Hundred Seventy Two and Paise Ninety Only	1423102.20
c)		Stone screening 13.2 mm nominal size (type A)	cum	559.00	1410.20	Rupees One Thousand Four Hundred Ten and Paise Twenty Only	788301.80
d)		Stone screening 11.2 mm nominal size (type A)	cum	559.00	1453.80	Rupees One Thousand Four Hundred Fifty Three and Paise Eighty Only	812674.20
e)		Moorum	cum	223.00	646.55	Rupees Six Hundred Forty Six and Paise Fifty Five Only	144180.65
111	52	Laying spreading and compacting stone aggregate of specified sizes to WBM specifications including spreading in uniform thickness, hand picking, rolling with 3 wheeled road/vibratory roller 8-10 tonne in stages to proper grade and camber, applying and brooming requisite type of screening/binding material to fill up interstics of coarse aggregate watering and compacting to the required density.	cum	168.00	388.85	Rupees Three Hundred Eighty Eight and Paise Eighty Five Only	65326.80

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
112	52	Providing and laying C.C. pavement of mix M-25 with ready mixed concrete from batching plant. The ready mixed concrete shall be laid and finished with screed board vibrator, vacuum dewatering process and finally finished by floating, brooming with wire brush etc. complete as per specifications and directions of Engineer-in-charge. (The panel shuttering work shall be paid for separately). (Note:- Cement content considered in this item is @ 330 kg/cum. Excess/less cement used as per design mix is payable/ recoverable separately).	cum	1118.00	6248.00	Rupees Six Thousand Two Hundred Forty Eight and Paise Zero Only	6985264.00
113	52	Extra for providing and mixing hardening compound of approved quality as per manufacturer's specification in cement concrete.	litre	559.00	46.45	Rupees Forty Six and Paise Forty Five Only	25965.55
114	52	Providing & Fixing in position premoulded joint filler in expansion joint	per cm depth per cm width per m length	11318.00	2.45	Rupees Two and Paise Forty Five Only	27729.10
115	52	Providing and laying in position bitumen hot sealing compound for expansion joints etc.					
		16.46.1 Using grade 'A' sealing compound.	per cm depth per cm width per m length	11318.00	1.90	Rupees One and Paise Ninety Only	21504.20
		PAINTING ROAD / RUNWAY MARKING					
116	52	Painting runway/taxi track/apron marking with adequate no. of coats to give uniform finish with road marking paint of superior make as approved by the Engineer-in-charge i/c cleaning the surface of all dirt, scales, oil, grease and other foreign material etc. and lining out complete					
		New work (Two or more coats)	sqm	782.00	104.45	Rupees One Hundred Four and Paise Forty Five Only	81679.90
117	52	Supplying & laying interlocking designer paver block of any shade and of approved quality as per IS: 1237-1980 laid in pattern as directed in pavement, footpath, driveway, etc including necessary underlay complete in all respect with all labour and material.					
		c) 60 mm thick block (over 150 mm medium sand bed including cost of sand but excluding cost of earthwork in excavation or dismantling of existing hard surface if necessary)					
		i) Grey	sqm	340.00	1235.02	Rupees One Thousand Two Hundred Thirty Five and Paise Two Only	419906.80
		ii) Coloured Decorative	sqm	340.00	1394.90	Rupees One Thousand Three Hundred Ninety Four and Paise Ninety Only	474266.00

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
118	52	Providing and laying at or near ground level factory made kerb stone of M-25 grade cement in position to the required line , level and curvature jointed with cement mortar 1:3 (1 cement : 3 coarse sand) including making joints with or without grooves (thickness of joints except sharp curve shall not be more than 5mm) including making drainage opening wherever required complete etc. as per direction of engineer-in-charge (length of finished kerb edging shall be measured for payment).(Precast C.C. kerb stone shall be approved by engineer-in-charge).	cum	124.00	5236.90	Rupees Five Thousand Two Hundred Thirty Six and Paise Ninety Only	649375.60
119	53	Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete :					
a)		600 mm dia. R.C.C. pipe	metre	61.00	1358.65	Rupees One Thousand Three Hundred Fifty Eight and Paise Sixty Five Only	82877.65
		PART A (a) : SUB-TOTAL					991423897.26
						Say,	991423897.00

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
PRICED BILL OF QUANTITIES FOR INTERNAL WATER SUPPLY, SANITARY, DRAINAGE & BORE WELL							
PART A (b) : (Refer Clause 12 of ITB, Volume I, Section 2)							
		INTERNAL WATER SUPPLY					
120	4	Supplying, fitting and fixing G.I. pipes of TATA make with all necessary accessories, specials, viz. socket, bend, tee, union, cross, llbo, nipple, longscrow, reducing socket, reducing tee, short piece etc. fitted with holder bat clamps, including cutting pipes, making threads, fitting, fixing, etc. complete in all respect including cost of all necessary fittings as required, jointing materials and two coats of painting with approved paint in any position above ground . (Payment will be made on the centre line measurements of total pipe line including all specials. No separate payment will be made for accessories, specials. Payment for painting will be made separately).					
		For Exposed Work :-					
(a)		15mm dia medium quality	Mtr.	900	194.00	Rupees One Hundred Ninety Four and Paise Zero Only	174600.00
(b)		20mm dia medium quality	Mtr.	2420	221.00	Rupees Two Hundred Twenty One and Paise Zero Only	534820.00
(c)		25mm dia medium quality	Mtr.	3840	300.00	Rupees Three Hundred and Paise Zero Only	1152000.00
(d)		32mm dia medium quality	Mtr.	1960	343.00	Rupees Three Hundred Forty Three and Paise Zero Only	672280.00
(e)		40mm dia medium quality	Mtr.	1580	399.00	Rupees Three Hundred Ninety Nine and Paise Zero Only	630420.00
(f)		50mm dia medium quality	Mtr.	1660	520.00	Rupees Five Hundred Twenty and Paise Zero Only	863200.00
(g)		65mm dia medium quality	Mtr.	1880	653.00	Rupees Six Hundred Fifty Three and Paise Zero Only	1227640.00
(h)		80mm dia medium quality	Mtr.	1740	841.00	Rupees Eight Hundred Forty One and Paise Zero Only	1463340.00
(i)		100mm dia medium quality	Mtr.	720	1184.00	Rupees One Thousand One Hundred Eighty Four and Paise Zero Only	852480.00
121	4	Providing and fixing chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot and cold water supply including all CPVC plain and brass threaded fittings including fixing the pipe with clamps at 1.00 M. spacing, This include jointing of pipes and fittings with one step CPVC solvent cement and cost of cuttung chases and making good the same including testing of joints complete as per direction of Enginerr-in-charge.					
		Concealed work including cutting chases and making good the walls etc.					
(a)		15 mm nominal outer dia pipes	Metre	14120	254.95	Rupees Two Hundred Fifty Four and Paise Ninety Five Only	3599894.00
(b)		20 mm nominal outer dia pipes	Metre	3900	281.35	Rupees Two Hundred Eighty One and Paise Thirty Five Only	1097265.00
(c)		25 mm nominal outer dia pipes	Metre	820	336.25	Rupees Three Hundred Thirty Six and Paise Twenty Five Only	275725.00

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
(d)		32 mm nominal outer dia pipes	Metre	280	407.40	Rupees Four Hundred Seven and Paise Forty Only	114072.00
122	4	Providing and fixing chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot and cold water supply including all CPVC plain and brass threaded fittings including fixing the pipe with clamps at 1.00 M. spacing, This include jointing of pipes and fittings with one step CPVC solvent cement and cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer-in-charge.					
		Internal Work					
(a)		32 mm nominal outer dia pipes	Metre	264	287.10	Rupees Two Hundred Eighty Seven and Paise Ten Only	75794.40
(b)		40 mm nominal outer dia pipes	Metre	164	395.60	Rupees Three Hundred Ninety Five and Paise Sixty Only	64878.40
(c)		50 mm nominal outer dia pipes	Metre	40	569.20	Rupees Five Hundred Sixty Nine and Paise Twenty Only	22768.00
123	4	Supplying, fitting, and fixing Gun-metal Wheel valve of approved Brand and make tested to 21 kg per sq. cm. (for water lines only).					
(a)		80mm	each	40	4842.00	Rupees Four Thousand Eight Hundred Forty Two and Paise Zero Only	193680.00
(b)		65mm	each	52	3175.00	Rupees Three Thousand One Hundred Seventy Five and Paise Zero Only	165100.00
(c)		50mm	each	248	1824.00	Rupees One Thousand Eight Hundred Twenty Four and Paise Zero Only	452352.00
(d)		40mm	each	144	1250.00	Rupees One Thousand Two Hundred Fifty and Paise Zero Only	180000.00
(e)		32mm	each	188	1015.00	Rupees One Thousand Fifteen and Paise Zero Only	190820.00
(f)		25mm	each	468	708.00	Rupees Seven Hundred Eight and Paise Zero Only	331344.00
124	4	Constructing masonry Chamber 30x 30x 50 cm, inside with 75 class designation brick work in cement mortar 1:5 (1 cement : 5 fine sand) for stop cock, with C.I surface box 100x100x75 mm (inside) with hinged cover fixed in cement concrete slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement : 5 fine sand : 10graded stone aggregate 40mm nominal size) and inside plastering with cement mortat 1:3 (1cement :3 coarse sand) 12mm thick finished with a floating coat of neat cement complete as per standard design.					
		With F.P.S. bricks	Each	28	1101.70	Rupees One Thousand One Hundred One and Paise Seventy Only	30847.60
125	3	Supplying, fitting and fixing waste fittings complete.					
		(a) C.P. over brass					
		(iii) 40 mm	Each	272	274.00	Rupees Two Hundred Seventy Four and Paise Zero Only	74528.00
126	3	Supplying, fitting and fixing C.I. bracket including two coats of painting.					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
		(b) Sink, Drain board	Each	272	133.00	Rupees One Hundred Thirty Three and Paise Zero Only	36176.00
127	3	Supplying, fitting and fixing C.P. Extension pipe	Each	272	101.00	Rupees One Hundred One and Paise Zero Only	27472.00
		INTERNAL DRAINAGE WORKS					
128	3	Supplying, fitting and fixing cast iron soil pipe only conforming to IS:3989/1970 and IS:1729/1964 with bobbins, nails etc. including making holes in the wall, floor etc. and cutting trenches etc. in any floor through masonry concrete, if necessary, and mending good damages with necessary jointing materials and painting two coats of the exposed surface with approved paint complete. (Measurement will be made along the center line of the total pipe line in fitted condition including specials, payment for specials & painting will however be paid seperately).					
		(b) With lead caulked joints.					
(a)		100 mm dia (internal)	Metre	4960	768.00	Rupees Seven Hundred Sixty Eight and Paise Zero Only	3809280.00
(b)		75 mm dia (internal)	Metre	1980	654.00	Rupees Six Hundred Fifty Four and Paise Zero Only	1294920.00
129	3	Supplying, fitting and fixing H.C.I. bend with door conforming to I.S.S. including jointing complete and painting two coats to the exposed surface with approved paint complete. (payment of painting will however be paid seperately).					
		(b) With lead caulked joints					
		(ii) 100 mm dia	Each	880	593.00	Rupees Five Hundred Ninety Three and Paise Zero Only	521840.00
130	3	Supplying, fitting and fixing H.C.I. bend without door conforming to I.S.S. including jointing complete and painting two coats to the exposed surface with approved paint complete. (payment of painting will however be paid seperately).					
		(ii) 100 mm dia	Each	428	530.00	Rupees Five Hundred Thirty and Paise Zero Only	226840.00
131	3	Providing and fixing single branch equal with door confirming to I.S.1729/1970 including jointing and painting two coats to the exposed surface with approved paint complete.(payment of painting will however be paid seperately).					
		(ii)100 mm dia	Each	988	748.00	Rupees Seven Hundred Forty Eight and Paise Zero Only	739024.00
132	3	Providing and fixing double branch equal with door confirming to I.S.1729/1970 including jointing and painting two coats to the exposed surface with approved paint complete.(payment of painting will however be paid seperately).					
		(ii)100 mm dia	Each	224	915.00	Rupees Nine Hundred Fifteen and Paise Zero Only	204960.00
133	3	Providing and fixing collar.					
	3	100 mm dia Centrifugally cast (spun) iron S&S as per IS:3989.	Each	400	317.05	Rupees Three Hundred Seventeen and Paise Five Only	126820.00
134	3	Supplying, fitting and fixing cast iron 'P' or 'S' trap confirming to I.S. 3989/1970 and 1729/1964 including lead caulked joints and painting two coats to the exposed surface. (painting to be paid seperately)					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
		(A) 'P' Trap					
		100 mm	Each	712	943.00	Rupees Nine Hundred Forty Three and Paise Zero Only	671416.00
135	3	Providing and fixing G.I. Pipes complete with G.I. Fittings and clamps, including cutting and making good the walls etc. (Internal work)					
(a)		32 mm dia. nominal bore	Metre	2160	333.50	Rupees Three Hundred Thirty Three and Paise Fifty Only	720360.00
(b)		40 mm dia. nominal bore	Metre	392	413.25	Rupees Four Hundred Thirteen and Paise Twenty Five Only	161994.00
(c)		50 mm dia. nominal bore	Metre	1000	512.10	Rupees Five Hundred Twelve and Paise Ten Only	512100.00
136	3	Providing and fixing M.S. holder-bat clamps of approved design to Sand Cast iron/cast iron (spun) pipe embedded in and including cement concrete blocks 10x10x10cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) including cost of cutting holes and making good the walls etc. :					
(a)		For 100 mm dia.	Each	2164	140.65	Rupees One Hundred Forty and Paise Sixty Five Only	304366.60
(b)		For 75 mm dia.	Each	944	138.35	Rupees One Hundred Thirty Eight and Paise Thirty Five Only	130602.40
137	3	Painting GI pipes and fittings with two coats of anti-corrosive bitumastic paint of approved quality.					
(a)		32 mm dia. nominal bore	Metre	2160	9.35	Rupees Nine and Paise Thirty Five Only	20196.00
(b)		40 mm dia. nominal bore	Metre	392	10.65	Rupees Ten and Paise Sixty Five Only	4174.80
(c)		50 mm dia. nominal bore	Metre	1000	12.65	Rupees Twelve and Paise Sixty Five Only	12650.00
138	3	Supplying, fitting and fixing approved patent Vent Cowl I.C.I conforming to I.S.S. and painting two coats to the exposed surface with approved paint complete. (Payment of painting will however be paid seperately).					
		(ii) 75 mm dia	Each	64	237.00	Rupees Two Hundred Thirty Seven and Paise Zero Only	15168.00
139		Supplying, fitting and fixing Aluminium domical grating.					
		(ii) 125 mm	Each	1272	54.00	Rupees Fifty Four and Paise Zero Only	68688.00
	3	Rain Water Pipes					
140		Providing and fixing to the inlet mouth of rain water pipe cast iron grating 15 cm diameter and weighing not less than 440 grams.	Each	136	37.25	Rupees Thirty Seven and Paise Twenty Five Only	5066.00
141		Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering - work upto plinth level					
		1:2:4 (1cement : 2 Coarse sand : 4 graded stone aggregate 20 mm nominal size)	Cum	84	3.20	Rupees Three and Paise Twenty Only	268.80
142		Providing and fixing on wall face unplasticised-Rigid PVC rain water pipes conforming to IS: 13592 Type A including jointing with seal ring conforming to IS: 5382 leaving 10mm gap for thermal expansion. (Also for balcony waste)					
		Single socketed pipes					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
a)		75 mm dia	Metre	304	134.50	Rupees One Hundred Thirty Four and Paise Fifty Only	40888.00
b)		110mm dia	Metre	2440	218.60	Rupees Two Hundred Eighteen and Paise Sixty Only	533384.00
143	3	Providing and fixing on wall face unplasticised PVC moulded fittings/accessories for unplasticised Rigid PVC rain water pipes conforming to IS:13592 Type A including jointing with seal ring conforming to IS:5382 leaving 10mm gap for thermal expansion.					
		Coupler					
a)		75 mm dia	Each	20	100.55	Rupees One Hundred and Paise Fifty Five Only	2011.00
b)		110mm dia	Each	120	133.55	Rupees One Hundred Thirty Three and Paise Fifty Five Only	16026.00
144		Single Tee Without Door					
a)		75x75x75 mm	Each	16	187.35	Rupees One Hundred Eighty Seven and Paise Thirty Five Only	2997.60
b)		110x110x110 mm	Each	52	244.95	Rupees Two Hundred Forty Four and Paise Ninety Five Only	12737.40
145		Bend 87.5°					
a)		75 mm	Each	16	107.50	Rupees One Hundred Seven and Paise Fifty Only	1720.00
b)		110 mm	Each	120	160.25	Rupees One Hundred Sixty and Paise Twenty Five Only	19230.00
146		Shoe (Plain)					
a)		75 mm	Each	16	166.75	Rupees One Hundred Sixty Six and Paise Seventy Five Only	2668.00
b)		110 mm	Each	120	290.35	Rupees Two Hundred Ninety and Paise Thirty Five Only	34842.00
147	3	Providing and fixing unplasticised-PVC pipe clips of approved design to unplasticised-PVC rain water pipes by means of 50x50x50 mm hard wood plugs, screwed with MS screws of required length including cutting brick work and fixing in cement mortar 1:4 (1 cement : 4 coarse sand) and making good the wall etc. complete.					
a)		75 mm	Each	84	156.30	Rupees One Hundred Fifty Six and Paise Thirty Only	13129.20
b)		110 mm	Each	796	173.75	Rupees One Hundred Seventy Three and Paise Seventy Five Only	138305.00
		SANITARY FIXTURES AND FITTINGS					
148	2	Providing and fixing water closet squatting pan (Indian type W.C. pan) with 100mm sand cast Iron P or S trap, 10 litre low level white P.V.C. flushing cistern with manually controlled device (handle lever) conforming to IS : 7231, with all fittings and fixtures complete including cutting and making good the walls and floors wherever required :					
		White Vitreous china Orissa pattern W.C. pan of size 580x440mm with integral type foot rests.	Each	284	3265.25	Rupees Three Thousand Two Hundred Sixty Five and Paise Twenty Five Only	927331.00

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
149	2	Supplying, fitting and fixing E.W.C. in white glazed vitreous chinaware of approved make complete in position with necessary bolts, nuts etc. (Excluding Cistern)					
a)		(a) With 'P' trap	Each	8	1279.00	Rupees One Thousand Two Hundred Seventy Nine and Paise Zero Only	10232.00
b)		(b) With 'S' trap	Each	200	1372.00	Rupees One Thousand Three Hundred Seventy Two and Paise Zero Only	274400.00
		N.B. For W.C. with trap without vent the rate will be reduced by Rs. 25.00					
150	2	Supplying, fitting and fixing Flat back urinal (half stall urinal) in white vitreous chinaware of approved make in position with brass screws on 75 mm X 75 mm X 75 mm wooden blocks complete.					
		(ii) 465 mm X 355 mm X 265 mm	Each	104	766.00	Rupees Seven Hundred Sixty Six and Paise Zero Only	79664.00
151	2	Supplying, fitting and fixing Closet seat of approved make with lid and C.P. hinges, rubber buffer and brass screws complete.					
		(a) E.W.C					
		(ii) Plastic (hollow type) white	Each	208	379.00	Rupees Three Hundred Seventy Nine and Paise Zero Only	78832.00
152		Supplying, fitting and fixing 32 mm dia flush pipe of approved make with necessary fixing material and clamps complete.					
		(ii) C. P. Flush Pipe	Each	208	276.00	Rupees Two Hundred Seventy Six and Paise Zero Only	57408.00
153	2	Supplying, fitting and fixing urinal flush pipe fittings of approved brand.					
a)		(a) C. P. urinal flush pipe fittings range of one	Each	4	448.00	Rupees Four Hundred Forty Eight and Paise Zero Only	1792.00
b)		(b) C. P. urinal flush pipe fittings range of two	Each	100	1043.00	Rupees One Thousand Forty Three and Paise Zero Only	104300.00
154		Supplying, fitting and fixing 25 mm thick marble partition slab with chawk doongri marble square cut, both sides polished with two front corners rounded and edges polished. (900mm x 700mm size each) - Urinal Partition	Sq.m	104	2753.00	Rupees Two Thousand Seven Hundred Fifty Three and Paise Zero Only	286312.00
155	2	Supplying, fitting and fixing bevelled edged mirror 5.5 mm thick silver red as per I.S. 3438/1965 together with brass C. P. hinges.					
		(ii) 600 mm X 450 mm	Each	620	441.00	Rupees Four Hundred Forty One and Paise Zero Only	273420.00
156		Supplying, fitting and fixing liquid Soap Container.					
		(b) PTMT	Each	620	196.00	Rupees One Hundred Ninety Six and Paise Zero Only	121520.00
157	2	Supplying, fitting and fixing Towel Rail with two brackets.					
		(a) C. P. over brass					
		(ii) 25 mm dia and 600 mm long	Each	328	339.00	Rupees Three Hundred Thirty Nine and Paise Zero Only	111192.00

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
158	2	Supplying, fitting and fixing Stainless Steel Sink complete with waste fittings and two coats of painting of C.I. brackets.					
		(b) Sink with drain board 1050mm x 450mm x 180mm	Each	236	5993.00	Rupees Five Thousand Nine Hundred Ninety Three and Paise Zero Only	1414348.00
		(In Kitchen)					
159	2	Supplying, fitting and fixing pillar cock of approved make.					
		(e) (i) CP centre hole basin mixture with regular spout without popup waste system with 450 mm long braided hoses(Equivalent to Code No. 5167 (b) & model florentine of jaquar or similar brand)	Each	620	617.00	Rupees Six Hundred Seventeen and Paise Zero Only	382540.00
160	2	Supplying, fitting and fixing complete Bottle waste trap (Heavy Quality)					
		(a) Chromium plated Bottle trap 32 mm with 190 mm long connecting pipe and wall flange (Equivalent to Code No. 545 & Model - Tropical / Sumthing Special of ESSCO or similar brand).	Each	620	677.00	Rupees Six Hundred Seventy Seven and Paise Zero Only	419740.00
161	2	Supplying, fitting and fixing 10 litre P.V.C. low-down cistern conforming to I.S. specification with P.V.C. fittings complete, C.I. brackets including two coats of painting to bracket etc.	Each	208	1129.00	Rupees One Thousand One Hundred Twenty Nine and Paise Zero Only	234832.00
162	2	Wash Basin white vitreous china best quality approved make Wash Basin with CI Brackets on 75mm x 75mm wooden blocks, CP Waste fittings of 32mm dia, one approved quality brass CP Pillar cock of 15mm dia, CP chain with rubber plug of 30mm dia, approved quality PVC Waste pipe with CP nut and 32mm dia, 900mm long approved quality PVC connection Pipe with heavy brass CP nut, including mending good all damages and painting the brackets with two coats of approved paint.					
		550mm x 400mm size	Each	620	2038.00	Rupees Two Thousand Thirty Eight and Paise Zero Only	1263560.00
163		Providing and fixing CP brass stop cock (Concealed) of standard design and of approved make conforming to IS: 8931.					
		15 mm nominal bore	Each	328	618.70	Rupees Six Hundred Eighteen and Paise Seventy Only	202933.60
164		Providing and fixing CP brass shower rose with 15 or 20 mm inlet .					
		100 mm diameter	Each	328	71.40	Rupees Seventy One and Paise Forty Only	23419.20
165	2	Providing & fixing white vitreous china laboratory sink with c.i.brackets.c.p. brass chain with rubber plug 40mm c.p. brass waste and 40mm c.p.brass trap with necessary c.p.brass union complete including painting and brackets,cutting and making good the wall wherever required:					
		Size 600x450x200mm	Each	36	2992.45	Rupees Two Thousand Nine Hundred Ninety Two and Paise Forty Five Only	107728.20
166	2	Providing and fixing C.P. brass angle valve for basin mixer and geyser points of approved quality conforming to IS:8931 a) 15 mm nominal bore					
		15mm nominal bore	Each	2308	506.70	Rupees Five Hundred Six and Paise Seventy Only	1169463.60
167	2	Providing and fixing C.P. brass long body bib cock of approved quality conforming to IS standards and weighing not less than 690 gms.					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
		15 mm nominal bore.	Each	416	609.40	Rupees Six Hundred Nine and Paise Forty Only	253510.40
168	2	Supplying, fitting and fixing of Soap Holder	Each	328	164.00	Rupees One Hundred Sixty Four and Paise Zero Only	53792.00
		PTMT					
		EXTERNAL WATER SUPPLY WORKS					
169	4	Supplying, fitting and fixing G.I. pipes of TATA make for underground works with all necessary accessories, specials, viz. socket, bend, tee, union, cross, lbo, nipple, longscrow, reducing socket, reducing tee, short piece etc. fitted with holder bat clamps, including cutting pipes, making threads, cutting trenches upto 1.5 metre below surface in all sorts of soil and re-filling the same as directed with two coats of painting on GI pipes and specials with bituminoustic paint complete in all respect. (Payment will be made on the centre-line measurement of the total pipe line including all specials. No separate payment will be made for accessories, specials. Payment for painting will be made separately).					
(a)		20mm dia medium quality	Mtr.	160	229.00	Rupees Two Hundred Twenty Nine and Paise Zero Only	36640.00
(b)		25mm dia medium quality	Mtr.	180	309.00	Rupees Three Hundred Nine and Paise Zero Only	55620.00
(c)		32mm dia medium quality	Mtr.	200	342.00	Rupees Three Hundred Forty Two and Paise Zero Only	68400.00
(d)		40mm dia medium quality	Mtr.	300	390.00	Rupees Three Hundred Ninety and Paise Zero Only	117000.00
(e)		50mm dia medium quality	Mtr.	1340	507.00	Rupees Five Hundred Seven and Paise Zero Only	679380.00
(f)		65mm dia medium quality	Mtr.	1820	640.00	Rupees Six Hundred Forty and Paise Zero Only	1164800.00
(g)		80mm dia medium quality	Mtr.	560	829.00	Rupees Eight Hundred Twenty Nine and Paise Zero Only	464240.00
(h)		100mm dia medium quality	Mtr.	1200	1167.00	Rupees One Thousand One Hundred Sixty Seven and Paise Zero Only	1400400.00
(i)		150mm dia medium quality	Mtr.	60	829.00	Rupees Eight Hundred Twenty Nine and Paise Zero Only	49740.00
170	4	Supplying, fitting and fixing G.I. pipes of TATA make with all necessary accessories, specials, viz. socket, bend, tee, union, cross, elbo, nipple, longscrow, reducing socket, reducing tee, short piece etc. fitted with holder bat clamps, including cutting pipes, making threads, fitting, fixing, etc. complete in all respect including cost of all necessary fittings as required, jointing materials and two coats of painting with approved paint in any position above ground . (Payment will be made on the centre line measurements of total pipe line including all specials. No separate payment will be made for accessories, specials. Payment for painting will be made separately).					
		For Exposed Work :-					
(a)		40mm dia medium quality	Mtr.	40	399.00	Rupees Three Hundred Ninety Nine and Paise Zero Only	15960.00

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
(b)		50mm dia medium quality	Mtr.	60	520.00	Rupees Five Hundred Twenty and Paise Zero Only	31200.00
(c)		65mm dia medium quality	Mtr.	60	653.00	Rupees Six Hundred Fifty Three and Paise Zero Only	39180.00
(d)		80mm dia medium quality	Mtr.	40	841.00	Rupees Eight Hundred Forty One and Paise Zero Only	33640.00
(e)		100mm dia medium quality	Mtr.	80	1184.00	Rupees One Thousand One Hundred Eighty Four and Paise Zero Only	94720.00
171		Providing and laying S&S centrifugally cast (spun) iron pipes (Class LA) conforming to IS 1536 :					
(a)		100 mm dia pipe	Mtr.	700	1072.70	Rupees One Thousand Seventy Two and Paise Seventy Only	750890.00
(b)		125 mm dia pipe	Mtr.	100	1336.60	Rupees One Thousand Three Hundred Thirty Six and Paise Sixty Only	133660.00
172		Providing flanged joints to double flanged C.I./ D.I. pipes and specials, including testing of joints :					
(a)		100 mm diameter pipe	each	240	189.60	Rupees One Hundred Eighty Nine and Paise Sixty Only	45504.00
(b)		125 mm diameter pipe	each	36	191.95	Rupees One Hundred Ninety One and Paise Ninety Five Only	6910.20
173		Providing and fixing C.I. sluice valves (with cap) complete with bolts, nuts, rubber insertions etc. (the tail pieces if required will be paid separately):					
(a)		100 mm diameter	each	8	3895.60	Rupees Three Thousand Eight Hundred Ninety Five and Paise Sixty Only	31164.80
(b)		125 mm diameter	each	4	4614.65	Rupees Four Thousand Six Hundred Fourteen and Paise Sixty Five Only	18458.60
		EXTERNAL SEWERAGE WORKS					
174	6	Carting of STONEWARE PIPES 60cm long stone ware glazed pipes and specials from store to the site of work lowering the same in trenches in depth 0 to 1.5m below ground level true to alignment caulking the joints with necessary spun yarn soaked in bitumen and jointing with 1:1 cement mortar in coarse sand including excavation of earth below invert level of pipe cost of all jointing materials, testing etc. complete but excluding excavation and refilling of trenches from ground level to the invert level of pipes.details of cost for 30 m					
(a)		150 mm dia	Mtr	900	301.90	Rupees Three Hundred One and Paise Ninety Only	271710.00
(b)		200 mm dia	Mtr	600	447.25	Rupees Four Hundred Forty Seven and Paise Twenty Five Only	268350.00
(c)		250 mm dia	Mtr	140	676.75	Rupees Six Hundred Seventy Six and Paise Seventy Five Only	94745.00
175	6	Providing and laying cement concrete 1:5:10 (1 cement:5coarse sand:10 graded stone aggregate 40mm nominal size) all-round S.W. pipes including bed concrete as per standard design.					
(a)		150 mm dia	Mtr	900	664.80	Rupees Six Hundred Sixty Four and Paise Eighty Only	598320.00

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
(b)		200 mm dia	Mtr	600	774.80	Rupees Seven Hundred Seventy Four and Paise Eighty Only	464880.00
(c)		250 mm dia	Mtr	140	896.15	Rupees Eight Hundred Ninety Six and Paise Fifteen Only	125461.00
176	6	Providing and fixing square-mouth S.W. gully trap grade 'A' complete with C.I. grating brick masonry chamber with water tight C.I. cover with frame of 300x300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 Kg as per standard design :					
		100x100 mm size P type with F.P.S. bricks of class designation 75.	Each	60	1520.90	Rupees One Thousand Five Hundred Twenty and Paise Ninety Only	91254.00
177	6	Constructing brick masonry manhole in cement mortar 1:4 (1 cement :4 coarse sand) RCC top slab with 1:2:4 mix (1 cement :2 coarse sand :4 graded stone aggregate 20mm nominal size), foundation concrete 1:4:8 mix (1 cement :4 coarse sand :8 graded stone aggregate 40mm nominal size) inside plastering 12mm thick with cement mortar 1:3 (1 cement :3 coarse sand) finished with floating coat fo neat cement and making channels in cement concrete 1:2:4 (1 cement :2 coarse sand :4 graded stone aggregate 20mm nminal size) finished with a floating coat of neat cement complete as per standard design.					
178	6	Inside size 90x80cms and 45cms deep including CI cover with frame (light duty) 455x610mm internal dimenstions total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15kg).					
		With FPS bricks of class designation 75					
		(i) For Sewer Line	Each	120	8062.70	Rupees Eight Thousand Sixty Two and Paise Seventy Only	967524.00
179		Extra for depth for manholes:					
		Size 90x80cm with FPS bricks (class I) conforming to IS : 4885.	Mtr	8	5490.50	Rupees Five Thousand Four Hundred Ninety and Paise Fifty Only	43924.00
180	6	Constructing brick masonry circular type manhole 0.91m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement :4 coarse sand),in side cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation cocreate 1:3:6 mix (1 cement :3 coarse sand : 6 graded staone aggregate 40 mm nominal size),and making necessary channel in cement concrete 1:2:4 (1 cement :2 coarse sand :4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement all complete as per standard design:					
	6	0.91 m deep with S.F.R.C cover and frame (heavy duty HD-20 grade designation) 560 mm internal diameter conforming to I.S.12592, total weight of cover and frame to be not less than 182 kg, fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand :4 graded stone aggregate 20 mm nominal size) including centering shuttering all complete. (Excavation, foot rests and 12 mm thick cement plaster at the external surface shall be paid for separately):					
		With Sewer. bricks conforming IS:4885	Each	16	8236.05	Rupees Eight Thousand Two Hundred Thirty Six and Paise Five Only	131776.80

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
181	6	Providing M.S. foot rest including fixing in manholes with 20x20x10 cm cement concrete blockes 1:3:6 (1 cement: 3 coarse sand:6graded stone aggregate 20 mm nominal size) as per standard design:					
		With 20 mm diameter round bar	Each	400	225.90	Rupees Two Hundred Twenty Five and Paise Ninety Only	90360.00
182	6	Excavating trenches of required width for pipes, cables etc. including excavation for sockets and dressing of sides, ramming of bottom depth upto 1.5 M including getting out the excavated soil(HARD OR SOFT) and then returning the soil as required in layers not exceeding 20 cms in depth including consolidating each deposited layer by ramming, watering etc. and disposing of surplus excavated soil as directed within a lead of 50m. [hard/Dense soil]					
		All kind of soil					
	6	Pipes,cables etc.exceeding 80mm dia.but not exceeding 300mm dia.	Mtr	1640	192.75	Rupees One Hundred Ninety Two and Paise Seventy Five Only	316110.00
183	6	Extra for excavating trenches for pipes, cables etc. in all kinds of soil for depth exceeding 1.5m,but not exceeding 3 m.(Rate is over corresponding basic item for depth up to 1.5 metre).	Cum	344	259.40	Rupees Two Hundred Fifty Nine and Paise Forty Only	89233.60
		EXTERNAL RAIN WATER DISPOSAL					
184	6	Providing and laying non-pressure NP2 class (light duty) R.C.C.pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc complete:					
(a)		150mm dia RCC pipe	Mtr	700	340.35	Rupees Three Hundred Forty and Paise Thirty Five Only	238245.00
(b)		250mm dia RCC pipe	Mtr	340	455.90	Rupees Four Hundred Fifty Five and Paise Ninety Only	155006.00
(c)		300mm dia RCC pipe	Mtr	60	494.35	Rupees Four Hundred Ninety Four and Paise Thirty Five Only	29661.00
185	6	Providing and laying cement concrete 1:5:10 (1 cement:5coarse sand:10 graded stone aggregate 40mm nominal size) up to haunches of pipes including bed concrete as per standard design.					
(a)		150mm dia RCC pipe	Mtr	700	418.70	Rupees Four Hundred Eighteen and Paise Seventy Only	293090.00
(b)		250mm dia RCC pipe	Mtr	340	572.95	Rupees Five Hundred Seventy Two and Paise Ninety Five Only	194803.00
(c)		300mm dia RCC pipe	Mtr	60	661.10	Rupees Six Hundred Sixty One and Paise Ten Only	39666.00
186	6	Constructing brick masonry circular type manhole 0.91m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement :4 coarse sand),in side cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation cocreate 1:3:6 mix (1 cement :3 coarse sand : 6 graded staone aggregate 40 mm nominal size),and making necessary channel in cement concrete 1:2:4 (1 cement :2 coarse sand :4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement all complete as per standard design:					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
187	6	0.91 m deep with S.F.R.C cover and frame (heavy duty HD-20 grade designation) 560 mm internal diameter conforming to I.S.12592, total weight of cover and frame to be not less than 182 kg, fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering shuttering all complete. (Excavation, foot rests and 12 mm thick cement plaster at the external surface shall be paid for separately):					
	6	With Sewer. bricks conforming IS:4885	Each	20	8236.05	Rupees Eight Thousand Two Hundred Thirty Six and Paise Five Only	164721.00
188	6	Constructing brick masonry manhole in cement mortar 1:4(1 cement : 4 coarse sand)R.C.C.top slab with 1:2:4 mix (1 cement: 2 coarse sand: 4 graded stone aggregate 20 mm nominal size),foundation concrete 1:4:8 mix (1 cement: 4 coarse sand: 8 graded stone aggregate 40 mm nominal size) inside plastering 12 mm thick with cement mortar 1:3 (1 cement: 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 mix (1 cement: 2 coarse sand: 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement complete as per standard design:					
	6	Inside size 90x80 cm and 60 cm deep including C.I.cover with frame (light duty) 455x610 mm internal diameter, total weight of cover and frame to be not less than 38 kg (weight of cover 23kg and weight of frame 15 kg):					
		With F.P.S. bricks class designation 75	Each	40	8062.70	Rupees Eight Thousand Sixty Two and Paise Seventy Only	322508.00
189	6	Making connection of drain or sewer line with existing manhole ; including breaking into & making good the walls ,floors with cement concrete 1:2:4 mix (1 cement :2 coarse sand :4 graded stone aggregate 20mm nominal size) cement plastered on both sides with cement mortar 1:3 (1 cement :3 coarse sand) finished with floating coat of neat cement & making necessary channels for the drain etc. complete.					
		For Pipes 350 to 450 mm diameter	Each	4	574.10	Rupees Five Hundred Seventy Four and Paise Ten Only	2296.40
190	6	Constructing brick masonry road gully chamber 50x45x60 cm with bricks in cement mortar 1:4 (1 cement : 4 coarse sand) including 500x450 mm pre-cast R.C.C. horizontal grating with frame complete as per standard design :					
	6	With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	88	3774.95	Rupees Three Thousand Seven Hundred Seventy Four and Paise Ninety Five Only	332195.60
191	6	Providing M.S. foot rest including fixing in manholes with 20x20x10 cm cement concrete blockes 1:3:6 (1 cement: 3 coarse sand:6graded stone aggregate 20 mm nominal size) as per standard design:					
		With 20 mm diameter bar	Each	184	225.90	Rupees Two Hundred Twenty Five and Paise Ninety Only	41565.60
192	6	Excavating trenches of required width for pipes, cables etc. including excavation for sockets and dressing of sides, ramming of bottom depth upto 1.5 M including getting out the excavated soil(HARD OR SOFT) and then returning the soil as required in layers not exceeding 20 cms in depth including consolidating each deposited layer by ramming, watering etc. and disposing of surplus excavated soil as directed within a lead of 50m. [hard/Dense soil]					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
		All kind of soil					
a)	6	Pipes,cables etc.exceeding 80mm dia.but not exceeding 300mm dia.	Cum	1100	192.75	Rupees One Hundred Ninety Two and Paise Seventy Five Only	212025.00
		<u>BORE-WELL</u>					
		<u>(Suitable for an Yield of 20000 Litres per hour-appx.)</u>					
193	4	Labour for Boring through any type of soil for sinking Tubewell of required dia with top enlargement by Rig Boring system (Direct Circulation method) including hire charges and labour for Rig machine, Tools and plants, Staging, force Pumping sets and making arrangement for water required for Boring etc. complete and lowering of pipes, Strainers, Blind pipes etc. complete.					
		(a) For depth upto 150 metres for 150 mm dia Tube well with Top Enlargement of 250mm dia (upto 36 metres).					
a)		i) First 50 Metres	Metre	400	957.00	Rupees Nine Hundred Fifty Seven and Paise Zero Only	382800.00
b)		ii) Next 50 Metres	Metre	400	937.00	Rupees Nine Hundred Thirty Seven and Paise Zero Only	374800.00
c)		iii) Next 50 Metres and above	Metre	400	1119.00	Rupees One Thousand One Hundred Nineteen and Paise Zero Only	447600.00
194	4	Packing the annular space between the outside of the Tubewell pipes & Strainers and the bore with Pea size washed (at Site) gravel of approved quality having size from 2mm to 5mm or the size approved by the Engineer-in-charge including cost of all materials labour & Equipment complete. (96m)	Cum	480	1824.00	Rupees One Thousand Eight Hundred Twenty Four and Paise Zero Only	875520.00
		(Initial 10M of the annular space between the Housuing Pipe and the bore should not be shrouded with Pea size gravel to avoid contamination with the surface water).					
195	4	Geophysical Investigation of acquifer by electro logging system with all tools and plants as necessary including supply of necessary Report with chart duly signed by a qualified Geophysicist.	Each	8	6544.00	Rupees Six Thousand Five Hundred Forty Four and Paise Zero Only	52352.00
196	4	Washing & Developing Tube well with air compressor for 8 hours minimum continuous pumping per day with necessary arrangements for Testing the Yield in litres per hour with "V" Notch/orifice tube/flow meter, including hire and labour charges for all tools and plants and scaffolding as required.	Days	40	6712.00	Rupees Six Thousand Seven Hundred Twelve and Paise Zero Only	268480.00
197	4	Collecting Sample of Water for Bacteriological and Chemical tests as per IS 10500 and conducting tests and analysis including presence of Arsenic from any depth at any time during execution of work including hire and labour charges for tools and plants and sterilising the equipments, paying all charges and fees, testing etc, complete in all respect as per direction.	L.S.	8	1130.00	Rupees One Thousand One Hundred Thirty and Paise Zero Only	9040.00
198	4	Providing and fixing Bell Plug as required for 150 mm (internal) dia PVC pipe including cost of materials and labour complete.	Each	8	463.00	Rupees Four Hundred Sixty Three and Paise Zero Only	3704.00
199	4	Supplying, fitting and fixing MS. Housing Clamp (250 mm dia) made out of 100 mm x 12 mm. MS flat including necessary Nuts and Bolts, Washers and top covered with 6 mm thick M.S.sheet well cover having slots for Column pipe, Electrical Cable, Probes for level control and including painting etc. all complete as per direction.	Set	16	2621.00	Rupees Two Thousand Six Hundred Twenty One and Paise Zero Only	41936.00
200	4	Providing Centre Guide for 150mm dia with clamp as per sample approved	Set	48	145.00	Rupees One Hundred Forty Five and Paise Zero Only	6960.00

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
201	4	Supplying, fitting and fixing heavy type Bell mouth PVC Reducing Socket female threaded to match with the PVC threaded pipes .					
		(v) 250 x 150mm	Each	8	1791.00	Rupees One Thousand Seven Hundred Ninety One and Paise Zero Only	14328.00
		PART - A (b) : SUB-TOTAL					46018897.80
						Say,	46018898.00

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
PRICED BILL OF QUANTITIES FOR ELECTRICAL WORKS							
PART A (c) : (Refer Clause 12 of ITB, Volume I, Section 2)							
CIRCUIT CUM POINT WIRING							
202	1 & 2	Point wiring in PVC conduit, with modular type switch					
		Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface/ recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq. mm FRLS PVC insulated copper conductor single core cable etc as required.					
a)		Group C	Pt.	5700	727.00	Rupees Seven Hundred Twenty Seven and Paise Zero Only	4143900.00
b)		Group A	Pt.	2544	593.00	Rupees Five Hundred Ninety Three and Paise Zero Only	1508592.00
203	1 & 2	Power Plug wiring in PVC Conduit (2 x 4 Sq.mm)					
		Wiring for light/ power plug with 2 x 4 sq. mm FRLS PVC insulated copper conductor single core cable in surface/ recessed medium class PVC conduit alongwith 1 No 4 sq. mm FRLS PVC insulated copper conductor single core cable for loop earthing as required.	Metre	73740	171.00	Rupees One Hundred Seventy One and Paise Zero Only	12609540.00
204	1 & 2	Power Plug wiring in PVC Conduit (4 x 4 Sq.mm)					
		Wiring for light/ power plug with 4 x 4 sq. mm FRLS PVC insulated copper conductor single core cable in surface/ recessed medium class PVC conduit alongwith 2 No 4 sq. mm FRLS PVC insulated copper conductor single core cable for loop earthing as required.	Pt.	31480	278.00	Rupees Two Hundred Seventy Eight and Paise Zero Only	8751440.00
205	1 & 2	Circuit wiring in PVC conduit					
		Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required					
a)		2 x 2.5 Sq.mm. + 1 x 2.5 Sq.mm. earth wire	Mtr.	78200	140.00	Rupees One Hundred Forty and Paise Zero Only	10948000.00
b)		2 x 6 Sq.mm. + 1 x 6 Sq.mm. earth wire	Mtr.	4120	216.00	Rupees Two Hundred Sixteen and Paise Zero Only	889920.00
c)		4 x 6 Sq.mm. + 2 x 6 Sq.mm. earth wire	Mtr.	800	371.00	Rupees Three Hundred Seventy One and Paise Zero Only	296800.00
d)		2 X 10 sq. mm + 1 X 10 sq. mm earth wire	Mtr.	1440	320.00	Rupees Three Hundred Twenty and Paise Zero Only	460800.00
206	1 & 2	S/ F Medium Class PVC Conduit					
		Supplying and fixing of following sizes of medium duty PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.					
a)		20 mm	Mtr.	520	64.00	Rupees Sixty Four and Paise Zero Only	33280.00
b)		25 mm	Mtr.	700	72.00	Rupees Seventy Two and Paise Zero Only	50400.00
207	1 & 2	S/ F Modular Type Switch/ Socket					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
		Supplying and fixing following modular type switch/ socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.					
a)		5/6 amps switch	Each	1696	77.00	Rupees Seventy Seven and Paise Zero Only	130592.00
b)		15/ 16 Amps Switch	Each	2464	99.00	Rupees Ninety Nine and Paise Zero Only	243936.00
c)		3 Pin 5/ 6 Amp Socket Outlet	Each	4416	101.00	Rupees One Hundred One and Paise Zero Only	446016.00
d)		6 pin 15/16 amp socket outlet	Each	1104	163.00	Rupees One Hundred Sixty Three and Paise Zero Only	179952.00
e)		Bell Push	Each	264	105.00	Rupees One Hundred Five and Paise Zero Only	27720.00
208	1 & 2	S/ F Modulat Type Electronic Fan Regulator					
		Supplying and fixing stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required.	Each	1804	362.00	Rupees Three Hundred Sixty Two and Paise Zero Only	653048.00
209	1 & 2	S/ F Modular Type Blanking Plate					
		Supplying and fixing modular blanking plate on the existing modular plate & switch box excluding modular plate as required.	Each	1648	23.00	Rupees Twenty Three and Paise Zero Only	37904.00
210	1 & 2	S/ F Modular Boxes, Base & Cover Plate					
		Supplying and fixing following size/ modules, GI box alongwith modular base & cover plate for modular switches in recess etc as required.					
a)		3 Module (100mmX75mm)	Each	960	172.00	Rupees One Hundred Seventy Two and Paise Zero Only	165120.00
b)		4 Module (125mmX75mm)	Each	1104	197.00	Rupees One Hundred Ninety Seven and Paise Zero Only	217488.00
c)		6 Module (200mmX75mm)	Each	1936	241.00	Rupees Two Hundred Forty One and Paise Zero Only	466576.00
211	1 & 2	S/ F Light Plug Point With Modular Type Accessories					
		Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 3 pin 5/6 amps modular socket outlet and 5/6 amps modular switch, connection painting etc. as required. (For light plugs to be used in non residential buildings)	Each	1000	320.00	Rupees Three Hundred Twenty and Paise Zero Only	320000.00
212	1 & 2	S/ F Power Plug Point with Modular Type Accessories					
		Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 5/ 6 & 15/ 16 amps modular socket outlet and 15/16 amps modular switch, connection etc. as required.	Each	1940	411.00	Rupees Four Hundred Eleven and Paise Zero Only	797340.00
213	1 & 2	S/ F Ceiling Rose					
		Supplying and fixing 3 pin, 5 amp ceiling rose on the existing junction box/ wooden block including connection etc as required.	Each	648	42.00	Rupees Forty Two and Paise Zero Only	27216.00
214	1 & 2	S/ F Call Bell Buzzer					
		Supplying and fixing call bell/ buzzer suitable for single phase, 230 volts, complete as required.	Each	264	60.00	Rupees Sixty and Paise Zero Only	15840.00
215	1 & 2	S/ F Light Fixtures					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
		Installation, testing and commissioning of pre-wired, fluorescent fitting / compact fluorescent fitting of all types, complete with all accessories and tube etc. directly on ceiling/ wall, including connection with 1.5 sq. mm FRLS PVC insulated, copper conductor, single core cable and earthing etc. as required.	Each	10724	82.00	Rupees Eighty Two and Paise Zero Only	879368.00
216	1 & 2	ITC Ceiling Fan					
		Installation, testing and commissioning of ceiling fan, including wiring the down rods of standard length (upto 30 cm) with 1.5 sq. mm FRLS PVC insulated, copper conductor, single core cable, including providing and fixing phenolic laminated sheet cover on the fan box etc. as required.	Each	1852	112.00	Rupees One Hundred Twelve and Paise Zero Only	207424.00
217	1 & 2	ITC Ceiling Fan Regulator					
		Installation, testing and commissioning of resistance type ceiling fan regulator, in existing switch box including connection with 1.5 sq. mm FRLS PVC insulated, copper conductor, single core cable, earthing the regulator etc. as required.	Each	1852	48.00	Rupees Forty Eight and Paise Zero Only	88896.00
218	1 & 2	Numbering					
		Numbering of ceiling fan/ exhaust fan/ fluorescent fittings as required.	Each	6724	24.00	Rupees Twenty Four and Paise Zero Only	161376.00
219	1 & 2	ITC Exhaust Fan					
		Installation of exhaust fan in the existing opening, including making good the damage, connection, testing, commissioning etc. as required.					
		Upto 450 mm sweep	Each	648	189.00	Rupees One Hundred Eighty Nine and Paise Zero Only	122472.00
220	1 & 2	Fixing Louvers Shutters For Exhaust Fan					
		Extra for fixing the louvers/ shutters complete with frame for a exhaust fan of all sizes.	Each	648	81.00	Rupees Eighty One and Paise Zero Only	52488.00
221	4	S/ F MCCB In Cubical Panel Board/ VTPN DB					
		Providing and fixing following rating and breaking capacity and pole MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections, etc. as required.					
a)		100 Amp, 16 kA, TP MCCB	Each	12	3032.00	Rupees Three Thousand Thirty Two and Paise Zero Only	36384.00
b)		125 Amp, 16 kA, TP MCCB	Each	12	4233.00	Rupees Four Thousand Two Hundred Thirty Three and Paise Zero Only	50796.00
c)		160 Amp, 16 kA, TP MCCB	Each	28	5181.00	Rupees Five Thousand One Hundred Eighty One and Paise Zero Only	145068.00
d)		200 Amp, 25 kA, TP MCCB	Each	8	7883.00	Rupees Seven Thousand Eight Hundred Eighty Three and Paise Zero Only	63064.00
222	4	S/ F Prewired SP & N MCB DB					
		Supplying and fixing following way prewired SP&N MCB distribution board of steel sheet for 240 volts on surface/ recess complete with loose wire box, terminal connectors for all incoming and outgoing circuits, duly prewired with suitable size FRLS PVC insulated copper conductor up to terminal blocks, tinned copper bus bar, neutral link, earth bar, din bar, detachable gland plate, interconnections, powder painted including earthing etc. as required. (But without MCB/ RCCB/ Isolator)					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
a)		2 + 4 Way, Double Door	Each	16	2381.00	Rupees Two Thousand Three Hundred Eighty One and Paise Zero Only	38096.00
		2 + 8 Way, Double Door	Each	164	2844.00	Rupees Two Thousand Eight Hundred Forty Four and Paise Zero Only	466416.00
b)		2 + 12 way, Double door	Each	68	3432.00	Rupees Three Thousand Four Hundred Thirty Two and Paise Zero Only	233376.00
c)							
223	4	Prewired TP & N MCB Distribution Board					
		Supplying and fixing following way prewired TP&N MCB distribution board of steel sheet for 415 volts on surface/ recess complete with loose wire box, terminal connectors for all incoming and outgoing circuits, duly prewired with suitable size FRLS PVC insulated copper conductor up to terminal blocks, tinned copper bus bar, neutral link, earth bar, din bar, detachable gland plate, interconnections, powder painted including earthing etc. as required.(But without MCB/ RCCB/ Isolator)					
a)		4 Way (4 + 12), Double Door	Each	4	6997.00	Rupees Six Thousand Nine Hundred Ninety Seven and Paise Zero Only	27988.00
b)		6 Way (4 + 18), Double Door	Each	20	9034.00	Rupees Nine Thousand Thirty Four and Paise Zero Only	180680.00
c)		8 Way (4 + 24), Double Door	Each	48	9899.00	Rupees Nine Thousand Eight Hundred Ninety Nine and Paise Zero Only	475152.00
d)		12 Way (4 + 36), Double Door	Each	68	12163.00	Rupees Twelve Thousand One Hundred Sixty Three and Paise Zero Only	827084.00
224	4	Prewired Vertical Type TP & N MCB Distribution Board					
		Supplying and fixing following way prewired vertical type TP&N MCB distribution board of steel sheet for 415 volts on surface/ recess complete with loose wire box of sheet steel, dust protected, duly powder painted, inclusive of 200 amps tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCB's, terminal connectors for all incoming and outgoing circuits, duly prewired with adequate size of FRLS PVC insulated copper conductor upto the terminal connector/ neutral link, earthing etc as required (But without MCB/ RCCB/ Isolator).					
a)		4 Way Double Door	Each	4	7515.00	Rupees Seven Thousand Five Hundred Fifteen and Paise Zero Only	30060.00
b)		6 Way Double Door	Each	12	9708.00	Rupees Nine Thousand Seven Hundred Eight and Paise Zero Only	116496.00
c)		8 Way Double Door	Each	36	10584.00	Rupees Ten Thousand Five Hundred Eighty Four and Paise Zero Only	381024.00
d)		12 Way Double Door	Each	8	14055.00	Rupees Fourteen Thousand Fifty Five and Paise Zero Only	112440.00
225		S/ F 'C' Series, SP MCB					
		Supplying and fixing 5 Amps to 32 Amps rating, 240/ 415 volts, "C" series, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.					
a)		Single Pole	Each	6488	146.00	Rupees One Hundred Forty Six and Paise Zero Only	947248.00

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
b)		Triple Pole	Each	92	610.00	Rupees Six Hundred Ten and Paise Zero Only	56120.00
226	4	S/ F SP MCB Blanking Plate					
		Supplying and fixing single pole blanking plate in the existing MCB DB complete etc. as required.	Each	416	6.00	Rupees Six and Paise Zero Only	2496.00
227	4	S/ F DP MCB Isolator					
		Supplying and fixing following rating, double pole, 240 volts, isolator in the existing MCB DB complete with connectins, testing and commissioning etc. as required.					
		40 Amps	Each	232	267.00	Rupees Two Hundred Sixty Seven and Paise Zero Only	61944.00
228	4	S/ F Four Pole MCB Isolator					
		Supplying and fixing following rating, four pole, 415 volts, isolator in the existing MCB DB complete with connectins, testing and commissioning etc. as required.					
a)		40 Amps	Each	76	604.00	Rupees Six Hundred Four and Paise Zero Only	45904.00
b)		63 Amps	Each	64	614.00	Rupees Six Hundred Fourteen and Paise Zero Only	39296.00
229	4	S/ F SPN RCCB					
		Supplying and fixing following rating, double pole, (single phase and neutral), 240 volts, residual current circuit breaker (RCCB), having a sensitivity current upto 300 milliamperes in the existing MCB DB complete with connections, testing and commissioning etc. as required.					
a)		25 Amps	Each	184	1427.00	Rupees One Thousand Four Hundred Twenty Seven and Paise Zero Only	262568.00
b)		40 Amps	Each	460	1510.00	Rupees One Thousand Five Hundred Ten and Paise Zero Only	694600.00
230	4	S/ F 20 Amps SPN MCB Industrial Socket Outlet					
		Supplying and fixing 20 amps, 240 volts, SPN industrial type, socket outlet, with 2 pole and earth, metal enclosed plug top alongwith 20 amps "C" curve, SP, MCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	Each	148	796.00	Rupees Seven Hundred Ninety Six and Paise Zero Only	117808.00
231	4	S/ F 20 Amps TPN MCB Industrial Socket Outlet					
		Supplying and fixing 20 amps, 415 volts, TPN industrial type, socket outlet, with 4 pole and earth, metal enclosed plug top alongwith 20 amps "C" curve, TP, MCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	Each	40	1869.00	Rupees One Thousand Eight Hundred Sixty Nine and Paise Zero Only	74760.00
232	4	S/ F 30 Amps TPN MCB Industrial Socket Outlet					
		Supplying and fixing 30 amps, 415 volts, TPN industrial type, socket outlet, with 4 pole and earth, metal enclosed plug top alongwith 30 amps "C" curve, TP, MCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	Each	20	2156.00	Rupees Two Thousand One Hundred Fifty Six and Paise Zero Only	43120.00
233							

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
	3	S/ F MS Cable Trays					
		Supplying and installing following size of perforated pre-painted M.S. cable trays with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.					
a)		150 mm width X 50 mm depth X 1.6 mm thickness	Metre	200	459.00	Rupees Four Hundred Fifty Nine and Paise Zero Only	91800.00
b)		300 mm width X 50 mm depth X 1.6 mm thickness	Metre	2300	756.00	Rupees Seven Hundred Fifty Six and Paise Zero Only	1738800.00
c)		450 mm width X 62.5 mm depth X 2.0 mm thickness	Metre	80	1138.00	Rupees One Thousand One Hundred Thirty Eight and Paise Zero Only	91040.00
d)		600 mm width X 62.5 mm depth X 2.0 mm thickness	Metre	1300	1399.00	Rupees One Thousand Three Hundred Ninety Nine and Paise Zero Only	1818700.00
e)		900 mm width X 62.5 mm depth X 2.0 mm thickness	Metre	100	1944.00	Rupees One Thousand Nine Hundred Forty Four and Paise Zero Only	194400.00
234	3	S/ F MS Cable Tray Bends					
		Supplying and installing following size of perforated pre-painted M.S. cable tray bends with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.					
a)		150 mm width X 50 mm depth X 1.6 mm thickness	Each	24	880.00	Rupees Eight Hundred Eighty and Paise Zero Only	21120.00
b)		300 mm width X 50 mm depth X 1.6 mm thickness	Each	140	1329.00	Rupees One Thousand Three Hundred Twenty Nine and Paise Zero Only	186060.00
c)		450 mm width X 62.5 mm depth X 2.0 mm thickness	Each	16	2042.00	Rupees Two Thousand Forty Two and Paise Zero Only	32672.00
d)		600 mm width X 62.5 mm depth X 2.0 mm thickness	Each	60	2538.00	Rupees Two Thousand Five Hundred Thirty Eight and Paise Zero Only	152280.00
e)		900 mm width X 62.5 mm depth X 2.0 mm thickness	Each	16	3534.00	Rupees Three Thousand Five Hundred Thirty Four and Paise Zero Only	56544.00
235	3	S/ F MS Cable Tray Tee's					
		Supplying and installing following size of perforated pre-painted M.S. cable tray tee's with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.					
a)		300 mm width X 50 mm depth X 1.6 mm thickness	Each	8	2462.00	Rupees Two Thousand Four Hundred Sixty Two and Paise Zero Only	19696.00
b)		600 mm width X 62.5 mm depth X 2.0 mm thickness	Each	8	4753.00	Rupees Four Thousand Seven Hundred Fifty Three and Paise Zero Only	38024.00
c)		900 mm width X 62.5 mm depth X 2.0 mm thickness	Each	8	6668.00	Rupees Six Thousand Six Hundred Sixty Eight and Paise Zero Only	53344.00
236	3	S/ F MS Cable Tray Cross Members					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
		Supplying and installing following size of perforated pre-painted M.S. cable tray cross members with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.					
a)		300 mm width X 50 mm depth X 1.6 mm thickness	Each	8	1047.00	Rupees One Thousand Forty Seven and Paise Zero Only	8376.00
b)		600 mm width X 62.5 mm depth X 2.0 mm thickness	Each	4	1985.00	Rupees One Thousand Nine Hundred Eighty Five and Paise Zero Only	7940.00
c)		900 mm width X 62.5 mm depth X 2.0 mm thickness	Each	4	2749.00	Rupees Two Thousand Seven Hundred Forty Nine and Paise Zero Only	10996.00
	6	SCHEDULE OF RATES FOR EARTHING INSTALLATION					
237	6	Earthing Installation - with CI Plate Electrode					
		Earthing with CI earth plate (610 mm x 610 mm 10 mm thick) size having weight of 27 Kg and 1 No. 4 SWG GI (Hot Dip) wire (7 Mts. Long) 13 mm dia x 63.5 mm long Galv. Bolts double nuts & washers incl. S & F 15 mm dia GI pipe protection (1 Mt long) to be filled with bitumen, partly under the ground level & partly above the ground level to an average depth of 3.65 Mts. below the ground level and restoring the surface duly rammed.					
		For Soft Soil	Set	40	2222.40	Rupees Two Thousand Two Hundred Twenty Two and Paise Forty Only	88896.00
238	6	Extra for providing masonry enclosure on the top of the earth electrode of overall size 86.36 cm x 86.36 cm x 46 cm deep (below ground level) complete with cemented mortar (inside) CI hinged inspection cover of size 36.56 cm x 36.56 cm with locking arrangement, GI reducer including drilling of 46 Nos. 12 mm dia holes on the GI pipe.	Item	40	1542.00	Rupees One Thousand Five Hundred Forty Two and Paise Zero Only	61680.00
239	6	Extra for treatment of soil by using salt & charcoal or coke for plate electrode (for soft/ morrum soil)	Item	40	703.20	Rupees Seven Hundred Three and Paise Twenty Only	28128.00
240	6	Earth Busbar					
		Supplying & fixing earth busbar of galvanized (Hot Dip) MS flat 25 mm x 6 mm on wall having clearance of 6 mm from wall including providing drilled holes on the busbar complete with GI bolts, nuts, washers, spacing insulators etc. as required.	Mtr	600	172.80	Rupees One Hundred Seventy Two and Paise Eighty Only	103680.00
241	6	Earth Continuity Conductor					
		Connecting the equipment to earth busbar including S & F GI (Hot Dip) wire of size as below on wall/ floor with staples buried inside wall/ floor as required and making connection to equipment with bolts, nuts, washers, cable lugs etc. as required and mending good damages.					
		No. 6 SWG	Mtr	9100	16.80	Rupees Sixteen and Paise Eighty Only	152880.00
242	6	Earthing Installation - with Copper Plate Electrode					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
		Earthing with Coper plate (610 x 610 x 3 mm size) having weight of 9.84 Kg and 1 No. 25 x 5 mm Copper strip (3.20 mt long) & 1 No. 6 sqmm PVC insulated stranded Copper wire (4 Mt. long) incl. S & F 15 mm dia GI pipe (ISI - Medium) protected (4 mt. long) to be filled with bitumen, partly under the ground level & partly above the ground level to an average depth of 3.65 Mts. below the ground level and restoring the surface duly rammed incl. providing 3.0 mt long, 25 mm dia GI pipe (ISI - Medium) for periodic treatment, incl. providing masonry enclosure on the top of the earth electrode of overall size 86.36 x 86.36 x 35.46 cm deep (below ground level) complete with cement mortar (inside) CI hinged inspection cover of size 36.56 x 36.56 cm with locking arrangement, GI reducer and treatment of soil by using salt & charcoal or coke for palte electrode (fr soft soil/ morrum soil)					
		For Soft Soil	Set	80	12430.80	Rupees Twelve Thousand Four Hundred Thirty and Paise Eighty Only	994464.00
243	6	S/ L 25 mm x 5 mm GI Strip in Ground					
		Supplying and laying 25 mm X 5 mm G.I strip at 0.50 metre below ground as strip earth electrode, including connection/ terminating with G.I. nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of G.I. nut bolt & spring washer spaced at 50mm)	Mtr.	2000	103.00	Rupees One Hundred Three and Paise Zero Only	206000.00
244	7 (A)	P/ F Copper Lightning Conductor Finial					
		Providing and fixing of lightning conductor finial, made of 25 mm dia 300 mm long, copper tube, having single prong at top, with 85 mm dia 3 mm thick copper base plate including holes etc. complete as required.	Each	24	741.00	Rupees Seven Hundred Forty One and Paise Zero Only	17784.00
245	7 (A)	Jointing of Copper/ GI Tape					
		Jointing copper / G.I. tape (with another copper/ G I tape, base of the finial or any other metallic object) by riveting / nut bolting/ sweating and soldering etc as required.	Each	24	68.00	Rupees Sixty Eight and Paise Zero Only	1632.00
246	7 (A)	P/ F Copper Lightning Conductor Tape in Horizontal Run					
		Providing and fixing copper tape 20 mm X 3 mm thick on parapet or surface of wall for lightning conductor complete as required.(For horizontal run)	Mtr.	1800	356.00	Rupees Three Hundred Fifty Six and Paise Zero Only	640800.00
247	7 (A)	P/ F Copper Lighting Conductor Tape in Vertical Run					
		Providing and fixing copper tape 20 mm X 3 mm thick on parapet or surface of wall for lightning conductor complete as required.(For vertical run)	Mtr.	900	384.00	Rupees Three Hundred Eighty Four and Paise Zero Only	345600.00
248	7 (A)	P/ F Testing Joint For Copper Lightning Conductor					
		Providing and fixing testing joint, made of 20 mm X 3 mm thick copper strip, 125 mm long, with 4 nos. of tinned brass bolts, nuts, chuck nuts and spring washers etc. complete as required.	Each	48	185.00	Rupees One Hundred Eighty Five and Paise Zero Only	8880.00
249	7 (A)	P/ L Copper Earth Tape For Lightning Conductor					
		Providing and laying copper tape 32 mm X 6 mm from earth electrode directly in ground as required.	Mtr.	1200	1067.00	Rupees One Thousand Sixty Seven and Paise Zero Only	1280400.00
	6	SCHEDULE OF RATES FOR EARTHING INSTALLATION					
250		Earthing Installation - with Copper Plate Electrode					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
		Earthing with Coper plate (610 x 610 x 3 mm size) having weight of 9.84 Kg and 1 No. 25 x 5 mm Copper strip (3.20 mt long) & 1 No. 6 sqmm PVC insulated stranded Copper wire (4 Mt. long) incl. S & F 15 mm dia GI pipe (ISI - Medium) protected (4 mt. long) to be filled with bitumen, partly under the ground level & partly above the ground level to an average depth of 3.65 Mts. below the ground level and restoring the surface duly rammed incl. providing 3.0 mt long, 25 mm dia GI pipe (ISI - Medium) for periodic treatment, incl. providing masonry enclosure on the top of the earth electrode of overall size 86.36 x 86.36 x 35.46 cm deep (below ground level) complete with cement mortar (inside) CI hinged inspection cover of size 36.56 x 36.56 cm with locking arrangement, GI reducer and treatment of soil by using salt & charcoal or coke for palte electrode (fr soft soil/ morrum soil)					
		For Soft Soil	Set	24	12430.80	Rupees Twelve Thousand Four Hundred Thirty and Paise Eighty Only	298339.20
251	3	Laying of MV Cable in Ground					
		Laying of one number PVC insulated and PVC sheathed/ XLPE power cable of 1.1 KV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc as required.					
		Above 185 sq. mm and upto 400 sq. mm	Mtr.	11100	215.00	Rupees Two Hundred Fifteen and Paise Zero Only	2386500.00
252	3	Laying of Cables on Cable Tray					
		Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on cable tray as required.					
a)		Upto 35 Sq.mm (Clamped with 1 mm thick saddle)	Mtr.	14520	19.00	Rupees Nineteen and Paise Zero Only	275880.00
b)		Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	Mtr.	5180	44.00	Rupees Forty Four and Paise Zero Only	227920.00
c)		Above 95 sq. mm and upto 185 sq. mm (clamped with 25/40x3mm MS flat clamp)	Mtr.	720	54.00	Rupees Fifty Four and Paise Zero Only	38880.00
d)		Above 185 sq. mm and upto 400 sq. mm (clamped with 40x3mm MS flat clamp)	Mtr.	3700	84.00	Rupees Eighty Four and Paise Zero Only	310800.00
253	3	End Termination of Cables					
		Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.					
a)		3½ x 35 sq. mm (32mm)	Each	48	245.00	Rupees Two Hundred Forty Five and Paise Zero Only	11760.00
b)		3½ x 50 sq. mm (35mm)	Each	8	286.00	Rupees Two Hundred Eighty Six and Paise Zero Only	2288.00
c)		3½ x 70 sq. mm (38mm)	Each	48	324.00	Rupees Three Hundred Twenty Four and Paise Zero Only	15552.00
d)		3½ x 120 sq. mm (45mm)	Each	8	417.00	Rupees Four Hundred Seventeen and Paise Zero Only	3336.00
e)		3½ x 150 sq. mm (50mm)	Each	32	501.00	Rupees Five Hundred One and Paise Zero Only	16032.00
f)		3½ x 300 sq. mm (70mm)	Each	216	940.00	Rupees Nine Hundred Forty and Paise Zero Only	203040.00

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
g)		4 x 10 sq. mm (25mm)	Each	192	163.00	Rupees One Hundred Sixty Three and Paise Zero Only	31296.00
h)		4 x 16 sq. mm (28mm)	Each	184	208.00	Rupees Two Hundred Eight and Paise Zero Only	38272.00
254	8	P/ F MV Danger Notice Plate					
		Providing and fixing MV danger notice plate of 200 mm x 150 mm, made of mild steel, at least 2 mm thick, and vitreous enamelled white on both sides and with inscription in single red colour on front side as required.	Each	40	133.00	Rupees One Hundred Thirty Three and Paise Zero Only	5320.00
255	8	P/ F HT Danger Notice Plate					
		Providing and fixing MV danger notice plate of 250 mm x 200 mm, made of mild steel, at least 2 mm thick, and vitreous enamelled white on both sides and with inscription in single red colour on front side as required.	Each	12	146.00	Rupees One Hundred Forty Six and Paise Zero Only	1752.00
256	10	Laying of 11 kV HT Cable					
		Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc as required.					
		Above 120 sq. mm and upto 400 sq. mm	Metre	260	256.00	Rupees Two Hundred Fifty Six and Paise Zero Only	66560.00
257	10	Indoor End Termination of 11 kV HT Cable					
		supplying and making indoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required					
		240 Sq.mm.	Each	20	7007.00	Rupees Seven Thousand Seven and Paise Zero Only	140140.00
258	10	Outdoor End Termination of 11 kV HT Cable					
		Supplying and making outdoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required					
		240 Sq.mm.	Each	8	9400.00	Rupees Nine Thousand Four Hundred and Paise Zero Only	75200.00
259	10	P/ F RCC Hume Pipe					
		Providing, laying and fixing following dia RCC pipe NP2 class (light duty) in ground complete with RCC collars, jointing with cement mortar 1:2 (1 cement : 2 fine sand) including trenching (75 cm deep) and refilling etc as required.					
a)		150 mm dia ID	RM	100	328.00	Rupees Three Hundred Twenty Eight and Paise Zero Only	32800.00
b)		300 mm dia ID	RM	100	496.00	Rupees Four Hundred Ninety Six and Paise Zero Only	49600.00
	6	SCHEDULE OF RATES FOR EARTHING INSTALLATION					
260	6	Earthing Installation - with CI Plate Electrode					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
		Earthing with CI earth plate (610 mm x 610 mm 10 mm thick) size having weight of 27 Kg and 1 No. 4 SWG GI (Hot Dip) wire (7 Mts. Long) 13 mm dia x 63.5 mm long Galv. Bolts double nuts & washers incl. S & F 15 mm dia GI pipe protection (1 Mt long) to be filled with bitumen, partly under the ground level & partly above the ground level to an average depth of 3.65 Mts. below the ground level and restoring the surface duly rammed.					
		For Soft Soil	Set	48	2222.40	Rupees Two Thousand Two Hundred Twenty Two and Paise Forty Only	106675.20
261	6	Extra for providing masonry enclosure on the top of the earth electrode of overall size 86.36 cm x 86.36 cm x 46 cm deep (below ground level) complete with cemented mortar (inside) CI hinged inspection cover of size 36.56 cm x 36.56 cm with locking arrangement, GI reducer including drilling of 46 Nos. 12 mm dia holes on the GI pipe.	Item	48	1542.00	Rupees One Thousand Five Hundred Forty Two and Paise Zero Only	74016.00
262	6	Extra for tratment of soil by using salt & charcoal or coke for plate electrode (for soft/ morrum soil)	Item	48	703.20	Rupees Seven Hundred Three and Paise Twenty Only	33753.60
263	6	Earth Busbar					
		Supplying & fixing earth busbar of galvanized (Hot Dip) MS flat 25 mm x 6 mm on wall having clearance of 6 mm from wall including providing drilled holes on the busbar complete with GI bolts, nuts, washers, spacing insulators etc. as required.	Mtr	300	172.80	Rupees One Hundred Seventy Two and Paise Eighty Only	51840.00
264	6	Earth Continuity Conductor					
		Connecting the equipment to earth busbar including S & F GI (Hot Dip) wire of size as below on wall/ floor with staples burried inside wall/ floor as required and making connection to equipment with bolts, nuts, washers, cable lugs etc. as required and mending good damages.					
		No. 6 SWG	Mtr	9100	16.80	Rupees Sixteen and Paise Eighty Only	152880.00
265	6	Earthing Installation - with Copper Plate Electrode					
		Earthing with Coper plate (610 x 610 x 3 mm size) having weight of 9.84 Kg and 1 No. 25 x 5 mm Copper strip (3.20 mt long) & 1 No. 6 sqmm PVC insulated stranded Copper wire (4 Mt. long) incl. S & F 15 mm dia GI pipe (ISI - Medium) protected (4 mt. long) to be filled with bitumen, partly under the ground level & partly above the ground level to an average depth of 3.65 Mts. below the ground level and restoring the surface duly rammed incl. providing 3.0 mt long, 25 mm dia GI pipe (ISI - Medium) for periodic treatment, incl. providing masonry enclosure on the top of the earth electrode of overall size 86.36 x 86.36 x 35.46 cm deep (below ground level) complete with cement mortar (inside) CI hinged inspection cover of size 36.56 x 36.56 cm with locking arrangement, GI reducer and treatment of soil by using salt & charcoal or coke for palte electrode (fr soft soil/ morrum soil)					
		For Soft Soil	Set	32	12430.80	Rupees Twelve Thousand Four Hundred Thirty and Paise Eighty Only	397785.60
266	1	S/ F Medium Class PVC Conduit					
		Supplying and fixing of following sizes of medium duty PVC conduit along with accessories in surfac/ recess including cutting the wall and making good the same in case of recessed conduit as required.					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
		25 mm	RM	7400	72.00	Rupees Seventy Two and Paise Zero Only	532800.00
267	2	S/ F GI Box/ Modular Base/ Cover Plates					
		Supplying and fixing following size/ modules, GI box alongwith modular base & cover plate for modular switches in recess etc as required.					
		1 or 2 Module (75mmX75mm)	Each	420	159.00	Rupees One Hundred Fifty Nine and Paise Zero Only	66780.00
268	12	S/ F Cat 6 Lan Cable					
		Supplying and drawing of UTP 4 pair CAT 6 LAN Cable in the existing surface/ recessed steel/ PVC conduit as required.	RM	12360	31.00	Rupees Thirty One and Paise Zero Only	383160.00
269	11	S/ F Telephone Cables					
		Supplying and drawing following pair 0.5 mm dia FRLS PVC insulated annealed copper conductor, unarmored telephone cable in the existing surface/ recessed steel/ PVC conduit as required.					
		2 Pair	Metre	23376	17.00	Rupees Seventeen and Paise Zero Only	397392.00
270	1	S/ F Medium Class PVC Conduit					
		Supplying and fixing of following sizes of medium duty PVC conduit along with accessories in surfac/ recess including cutting the wall and making good the same in case of recessed conduit as required.					
		25 mm	RM	14700	72.00	Rupees Seventy Two and Paise Zero Only	1058400.00
271	2	S/ F Modular Telephone Socket					
		Supplying and fixing following piano type switch/ socket on the existing switch box/ cover including connections etc. as required.					
		Telephone socket outlet	Each	832	92.00	Rupees Ninety Two and Paise Zero Only	76544.00
272	2	S/ F GI Box/ Modular Base/ Cover Plates					
		Supplying and fixing following size/ modules, GI box alongwith modular base & cover plate for modular switches in recess etc as required.					
		1 or 2 Module (75mmX75mm)	Each	832	159.00	Rupees One Hundred Fifty Nine and Paise Zero Only	132288.00
273	13	S/ F RG 6 TV Cable					
		Supplying and drawing co-axial TV cable RG-6 grade, 0.7 mm solid copper conductor PE insulated, shielded with fine tinned copper braid and protected with PVC sheath in the existing surface/ recessed steel/ PVC conduit as required.	Metre	8100	23.00	Rupees Twenty Three and Paise Zero Only	186300.00
274	1	S/ F Medium Class PVC Conduit					
		Supplying and fixing of following sizes of medium duty PVC conduit along with accessories in surfac/ recess including cutting the wall and making good the same in case of recessed conduit as required.					
		20 mm.	RM	6040	64.00	Rupees Sixty Four and Paise Zero Only	386560.00
275	2	S/ F Modular TV Socket					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
		Supplying and fixing following piano type switch/ socket on the existing switch box/ cover including connections etc. as required.					
		TV antenna socket outlet	Each	372	94.00	Rupees Ninety Four and Paise Zero Only	34968.00
276	2	S/ F GI Box/ Modular Base/ Cover Plates					
		Supplying and fixing following size/ modules, GI box alongwith modular base & cover plate for modular switches in recess etc as required.					
		1 or 2 Module (75mmX75mm)	Each	372	159.00	Rupees One Hundred Fifty Nine and Paise Zero Only	59148.00
		<u>FIRE ALARM SYSTEM</u>					
		<u>INTELLIGENT ADDRESSABLE FIRE DETECTION & ALARM SYSTEM</u>					
	4	<u>CONDUITING AND CABLING</u>					
277		<u>S/ F Medium Class PVC Conduit</u>					
	4	Supplying and fixing of following sizes of medium duty PVC conduit along with accessories in surfac/ recess including cutting the wall and making good the same in case of recessed conduit as required.					
a)	4	20 mm	RM	200	64.00	Rupees Sixty Four and Paise Zero Only	12800.00
b)	4	25 mm	RM	400	72.00	Rupees Seventy Two and Paise Zero Only	28800.00
		<u>SECURITY SYSTEM</u>					
	A	<u>CLOSE CIRCUIT TELEVISION SYSTEM (COLOURED)</u>					
278	A	<u>S/ D Copper FRLS Wire</u>					
		Supply and drawing following sizes of FRLS PVC insulated copper conductor, single core cable in the existing/ recessed steel/ PVC conduit as required.					
		3 x 1.5 sq. mm.	RM	1900	52.00	Rupees Fifty Two and Paise Zero Only	98800.00
279	A	<u>S/ F PVC Conduit</u>					
		Supplying and fixing of following sizes of PVC conduit along with accessories in surfac/ recess including cutting the wall and making good the same in case of recessed conduit as required.					
		25 mm	RM	4000	64.00	Rupees Sixty Four and Paise Zero Only	256000.00
280	A	Supplying and drawing of UTP 4 pair CAT 6 LAN Cable in the existing surface/ recessed steel/ PVC conduit as required.	RM	1900	31.00	Rupees Thirty One and Paise Zero Only	58900.00
		<u>ACCESS CONTROL SYSTEM</u>					
281	B	<u>S/ F PVC Conduit</u>					
		Supplying and fixing of following sizes of PVC conduit along with accessories in surfac/ recess including cutting the wall and making good the same in case of recessed conduit as required.					
		25 mm	RM	2180	64.00	Rupees Sixty Four and Paise Zero Only	139520.00
		<u>LIFTS</u>					
282	71	Passenger Lift, 13 passenger, Weight 884 kg, Speed 1.0M/sec., Travel (G + 4), doors power operated, Control ACV VVF	No.	4	2200000.00	Rupees Twenty Two Lakhs Zero and Paise Zero Only	8800000.00

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
283	71	Bed Lift, 20 passenger, Weight 1360 kg, Speed 0.75M/sec., Travel (G + 4), doors power operated, Control ACV VVF	No.	4	2400000.00	Rupees Twenty Four Lakhs Zero and Paise Zero Only	9600000.00
284	71	Goods Lifts, Weight 1 Ton , Speed 0.5M/sec., Travel (G + 4),	No.	8	2600000.00	Rupees Twenty Six Lakhs Zero and Paise Zero Only	20800000.00
285	71	Passenger Lift, 8 passenger, Weight 544 kg, Speed 1.0M/sec., Travel (G + 4), doors power operated, Control ACV VVF	No.	4	1800000.00	Rupees Eighteen Lakhs Zero and Paise Zero Only	7200000.00
		Building Management System (BMS)					
286		Supplying & drawing following sizes of FR PVC insulated copper conductor, single core cable in the existing surface / recessed steel / PVC conduit as required.(SOR Code No. 17.2, WGEC)					
		2 X 1.5 mm ²	RM	20000	32.70	Rupees Thirty Two and Paise Seventy Only	654000.00
287		Supplying & fixing of following sizes of PVC conduit along with accessories in surface / recess including cutting the wall & making good the same in case of recessed conduit as required. (SOR Code No. 21.1, 21.2, PVCCON)					
a)		20 mm Conduit	RM	3000	54.20	Rupees Fifty Four and Paise Twenty Only	162600.00
b)		25 mm Conduit	RM	16000	61.90	Rupees Sixty One and Paise Ninety Only	990400.00
288		Fabricating and installing following size of ferforated M.S. cable trays including horizontal and vertical bends, reducers, tees, cross members and other accessories as required and duly suspended from the ceiling with M.S. suspenders and including painting with powder coating etc. as required.(SOR Code No. 1.2 CBTR)					
		150 mm width X 50 mm depth X 1.6 mm thickness(item code 3.1.2)	RM	600	461.50	Rupees Four Hundred Sixty One and Paise Fifty Only	276900.00
		PART A (c) : SUB-TOTAL					116357325.60
						Say,	116357326.00

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
PRICED BILL OF QUANTITIES FOR HVAC WORKS							
PART A (d) : (Refer Clause 12 of ITB, Volume I, Section 2)							
		(CHILLED WATER / DRAIN)					
		CHILLED WATER PIPING INSULATED WITH NITRILE RUBBER					
289	19.3	Supplying, laying/ fixing, testing and commissioning of following nominal sizes of chilled water piping inside the building (with necessary clamps, vibration isolators and fittings but excluding valves, strainers, gauges etc.) duly insulated with following thick cross link closed cell preformed sections of polyethylene insulation applied by adhesive confirming to standard specifications and finally applying 0.63mm aluminium sheet cladding complete with type3 ,grade 1 roofing feltstrip(as per IS:1322 as amended up to date) at joints and repairing of damage to building etc. as per specifications and as required complete in all respect. Note : The Pipes of sizes 150mm & below shall be M.S. ‘C’ class as per IS : 1239 and pipes size above 150mm shall be welded black steel pipe heavy class as per IS: 3589, from minimum 6.35mm thick M.S. Sheet for pipes upto 350 mm dia. and from minimum 7mm thick MS sheet for pipes of 400 mm dia and above.					
a)		125 mm dia MS Pipes	RM	120	2444.00	Rupees Two Thousand Four Hundred Forty Four and Paise Zero Only	293280.00
b)		100 mm dia MS Pipes	RM	40	1905.00	Rupees One Thousand Nine Hundred Five and Paise Zero Only	76200.00
c)		80 mm dia MS Pipes	RM	880	1479.00	Rupees One Thousand Four Hundred Seventy Nine and Paise Zero Only	1301520.00
d)		65 mm dia MS Pipes	RM	640	1270.00	Rupees One Thousand Two Hundred Seventy and Paise Zero Only	812800.00
e)		50 mm dia MS Pipes	RM	1720	1023.00	Rupees One Thousand Twenty Three and Paise Zero Only	1759560.00
f)		40 mm dia MS Pipes	RM	1400	860.00	Rupees Eight Hundred Sixty and Paise Zero Only	1204000.00
g)		32 mm dia MS Pipes	RM	520	647.00	Rupees Six Hundred Forty Seven and Paise Zero Only	336440.00
h)		25 mm dia MS Pipes	RM	360	569.00	Rupees Five Hundred Sixty Nine and Paise Zero Only	204840.00
		INUSLATED VALVE					
290		Supplying, fixing, testing and commissioning of following valves, strainers, gauges in the chilled water plumbing duly insulated to the same specifications as the connected piping and adequately supported as per specifications					
	19.2	BUTTERFLY VALVE (MANUAL) with C I body SS Disc, Nitrile Rubber Seal & O- Ring PN 16 pressure rating for chilled water/hot water circulation as specified					
a)		125 mm dia	Nos	12	5447.00	Rupees Five Thousand Four Hundred Forty Seven and Paise Zero Only	65364.00
b)		100 mm dia	Nos	48	4563.00	Rupees Four Thousand Five Hundred Sixty Three and Paise Zero Only	219024.00
c)		80 mm dia	Nos	8	3514.00	Rupees Three Thousand Five Hundred Fourteen and Paise Zero Only	28112.00

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
d)		65 mm dia	Nos	8	3151.00	Rupees Three Thousand One Hundred Fifty One and Paise Zero Only	25208.00
e)		50 mm dia	Nos	56	2753.00	Rupees Two Thousand Seven Hundred Fifty Three and Paise Zero Only	154168.00
f)		40 mm dia	Nos	56	2581.00	Rupees Two Thousand Five Hundred Eighty One and Paise Zero Only	144536.00
291	19.2	BALANCING VALVE WITH BUILT IN MEASURING FACILITY with C I body flanged construction with EPDM coated disc with long pitch with protected out pipe insulation & PN 16 pressure rating for chilled / hot water circulation as specified.					
a)		125 mm dia	Nos	4	18608.00	Rupees Eighteen Thousand Six Hundred Eight and Paise Zero Only	74432.00
b)		100 mm dia	Nos	12	13626.00	Rupees Thirteen Thousand Six Hundred Twenty Six and Paise Zero Only	163512.00
c)		80 mm dia	Nos	4	7497.00	Rupees Seven Thousand Four Hundred Ninety Seven and Paise Zero Only	29988.00
d)		50 mm dia	No	24	6209.00	Rupees Six Thousand Two Hundred Nine and Paise Zero Only	149016.00
292	19.2	NON - RETURN VALVE with dual plate of C I body SS plates vulcanized NBR seal flanged end & PN 16 pressure rating for chilled / hot water circulation including insulation as specified.					
a)		100 mm dia	Nos	12	4458.00	Rupees Four Thousand Four Hundred Fifty Eight and Paise Zero Only	53496.00
b)		65 mm dia	No.	8	2555.00	Rupees Two Thousand Five Hundred Fifty Five and Paise Zero Only	20440.00
293	19.2	Y - STRAINER of Ductile CI Body flanged ends with stainless steel strainer for chilled / hot water circulation including insulation as specified.					
a)		100 mm dia	Nos	12	8075.00	Rupees Eight Thousand Seventy Five and Paise Zero Only	96900.00
b)		65 mm dia	Nos	4	5096.00	Rupees Five Thousand Ninety Six and Paise Zero Only	20384.00
c)		50 mm dia	Nos	16	4373.00	Rupees Four Thousand Three Hundred Seventy Three and Paise Zero Only	69968.00
d)		40 mm dia	Nos	24	3872.00	Rupees Three Thousand Eight Hundred Seventy Two and Paise Zero Only	92928.00
294	19.3	Providing and fixing in position the industrial type pressure gauge complete as required	Each	456	947.00	Rupees Nine Hundred Forty Seven and Paise Zero Only	431832.00
295	19.3	Providing & fixing in position the mercury in glass industrial type thermometer complete as required	Each	384	673.00	Rupees Six Hundred Seventy Three and Paise Zero Only	258432.00
		AIR DISTRIBUTION DUCT (FOR VENTILATION)					
296	16	Supply, installation, balancing and commissioning of factory fabricated GSS sheet metal rectangular/round ducting complete with neoprene rubber gaskets, elbows, splitter dampers, vanes, hangers, supports etc. as per approved drawings and specifications of following sheet thickness complete as required.					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
a)		0.63 MM (24 gauge) Galvanized Sheet Steel Ducting	Sqm.	3280	637.00	Rupees Six Hundred Thirty Seven and Paise Zero Only	2089360.00
b)		0.8 MM (22 gauge) Galvanized Sheet Steel Ducting	Sqm.	720	750.00	Rupees Seven Hundred Fifty and Paise Zero Only	540000.00
c)		1.0 MM (20 gauge) Galvanized Sheet Steel Ducting	Sqm.	1600	933.00	Rupees Nine Hundred Thirty Three and Paise Zero Only	1492800.00
297	15.4	Supply, installation, testing and commissioning of GI volume control duct damper complete with neoprene rubber gaskets, nuts, bolts, screws linkages, flanges etc, as per specifications.	Sqm.	24	4673.00	Rupees Four Thousand Six Hundred Seventy Three and Paise Zero Only	112152.00
		SUPPLY / RETURN AIR DIFFUSERS					
298	15.7	Supplying, fixing testing commissioning of supply air diffusers of powder coated aluminium with aluminium volume control dampers with anti smudge ring & removable core.	Sqm.	112	8440.00	Rupees Eight Thousand Four Hundred Forty and Paise Zero Only	945280.00
299	15.7	Supplying, fixing testing commissioning of Return air diffusers of powder coated aluminium without volume control dampers with anti smudge ring & removable core.	Sqm.	120	5621.00	Rupees Five Thousand Six Hundred Twenty One and Paise Zero Only	674520.00
		SUPPLY / RETURN AIR GRILLES					
300	15.7	Supplying & fixing of powder coated extruded aluminium Supply Air Grills with aluminium volume control dampers as per specifications.	Sqm.	20	6820.00	Rupees Six Thousand Eight Hundred Twenty and Paise Zero Only	136400.00
301	15.7	Supplying & fixing of powder coated extruded aluminium Return Air Grills with louvers but without volume control dampers complete as required.	Sqm.	16	4317.00	Rupees Four Thousand Three Hundred Seventeen and Paise Zero Only	69072.00
		FIRE DAMPERS					
302	15.8	Supplying, Fixing,testing and commissioning of fire dampers in supply air duct/main branch and return air path as and where required of required sizes i/c control wiring,the damper shall be motorized and spring return so as to close the damper in the event of power failure automatically and open the same in case of power being restored. The spring return action shall be inbuilt mechanism and not externally mounted. The damper shall also be closed in the event of fire signal complete as required and as per specifications.					
a)		Fire damper	Sqm.	8	6864.00	Rupees Six Thousand Eight Hundred Sixty Four and Paise Zero Only	54912.00
b)		Actuator	Each	16	6517.00	Rupees Six Thousand Five Hundred Seventeen and Paise Zero Only	104272.00
		INSULATION					
303	20.2	Supplying and fixing of following thickness duly laminated aluminum foil of mat finish closed cell Nitrile rubber (class"O") insulation on existing duct after applying two coats of cold setting adhesive (CPRX compound). The joints shall sealed with 50 mm wide and 3 mm thick self adhesive nitrile rubber tape insulation complete as per specifications and as required.					
a)		19 mm thick (In Condition Space)	Sqm.	760	742.00	Rupees Seven Hundred Forty Two and Paise Zero Only	563920.00
b)		25 mm thick (In Non - Condition Space)	Sqm.	2800	972.00	Rupees Nine Hundred Seventy Two and Paise Zero Only	2721600.00

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs.)
					In Figure	In Words	
304	20.3	Supply and fixing of acoustic lining of supply air duct and plenum with 25 mm thick resin bonded glass wool having density of 32 kg/m ³ , with 25 mm X 25 mm GI section of 1.25 mm thick, at 600 mm centre to centre covered with Reinforced Plastic tissue paper and 0.5 mm thick perforated aluminum sheet fixed to inside surface of ducts with cadmium plated nuts, bolts, stick pins, CPRX compound etc. complete as required and as per specifications.	Sqm.	600	503.00	Rupees Five Hundred Three and Paise Zero Only	301800.00
		PART A (d) : SUB-TOTAL					17892468.00

NON-PRICED BILL OF QUANTITIES (Rate and Amount to be provided by the bidder) FOR CIVIL WORK							
PART B (e) : (Refer Clause 12 of ITB, Volume I, Section 2)							
Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		WOOD AND PVC WORK					
1		Melamine polishing: Two or more coats on new works including a coat of wood filler	Sqm	828.24			
2	44	Providing and fixing 12 mm thick frameless toughened glass door partitions of approved brand and manufacturer, including providing and fixing partitions at top & bottom with aluminum channel etc. all complete as per direction of Engineer-in-charge	Sqm	359.52			
3	54	Providing and fixing 40mm thick (minimum) cladding comprising of second Class kail wood framework using 25mx50mm sections at a maximum spacing of 600mm in any one direction (including adding members as required) covered with12mm thick BWP ply layered with 4mm thk. veneer on one side pasted and pressed with adhesive to give a uniform and smooth finish, including 4mm thk. S.S. strip framework of grade 304 on all sides of veneer panels with wooden member surround, top mouldings / margins, melamine polish etc. to finish the thickness, as shown complete in drawing. All members / ply etc. shall be treated with anti-termite solution as per norms. No extra shall be paid for making of openings, door / window frames and for making provisions for electric conduits. complete in all respects as per direction of the Engineer-in-charge.	Sqm	636.04			
4	55	Providing and fixing approved brand and manufacturer SS 304 grade hardware's for Doors etc.					
a)	55	Providing and fixing approved brand and manufacturer SS 304 grade S.S Floor door spring fixed with SS screws etc. complete in all respects as per manufacturer's specifications & as directed by Engineer-in-charge.	nos	288.00			
b)	55	Providing and fixing approved brand and manufacturer SS 304 grade S.S Handles including lock (1200 mm) fixed with SS screws etc. complete in all respects as per manufacturers' specifications & as directed by Engineer-in-charge.	nos	416.00			
c)	55	Providing and fixing approved brand and manufacturer SS 304 grade S.S Handles (450 mm) fixed with SS screws etc. complete in all respects as per manufacturers' specifications & as directed by Engineer-in-charge.	nos	160.00			
d)	55	Providing and fixing approved brand and manufacturer SS 304 grade S.S door stopper fixed with SS screws etc. complete in all respects as per manufacturer's specifications & as directed by Engineer-in-charge.	nos	288.00			
e)	55	Providing and fixing approved brand and manufacturer SS 304 grade S.S dead lock fixed with SS screws etc. complete in all respects as per manufacturer's specifications & as directed by Engineer-in-charge.	nos	144.00			

SI.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
f)	55	Providing and fixing approved brand and manufacturer SS 304 grade S.S tower bolt (300mm) fixed with SS screws etc. complete in all respects as per manufacturer's specifications & as directed by Engineer-in-charge.	nos	288.00			
g)	55	Providing and fixing approved brand and manufacturer SS 304 grade patch fittings L type for frameless doors fixed with SS screws etc. complete in all respects as per manufacturer's specifications & as directed by Engineer-in-charge.	nos	576.00			
		FLOORING					
5	56	Providing and laying Laminate wooden flooring (Grade AC4, 8 mm thick Ambience Premium-AC4), having a good backing layer made up of plastic laminate or melamine as specified by the manufacturer and approved by Engineer-in-charge.					
a)		Flooring	Sqm	261.60			
b)		Skirting	Sqm	20.24			
c)		Floor strip on edges	meter	202.40			
6	35	Providing and applying 1mm thk Vinyl based Anti-microbial wall covering over smooth surface including fixing with adhesive complete as per drawing & as directed by Engineer-in-charge.	Sqm	1253.28			
		ROOFING					
7	57	Providing & fixing trap door in the false ceiling using 19 mm thk commercial ply laminated with approved finish 1mm thick laminate with necessary 2nd Class teak frame work of size 2" x 1.5", Oak wood mouldings as per Architect's drawing, brass hinges, latches etc. complete in all respect as directed by Engineer-in-charge.	Sqm	2995.56			
8	58	Providing and making 75mm deep suspended feature panel ceiling comprising of 19mm Thk. Commercial Board layered with 4mm Thk. Italian Veneer ply including all edge mouldings, melamine polish, suspension system etc. complete as per drawing & as directed by Engineer-in-charge.	Sqm	2396.45			
		ALUMINIUM WORK					
9	44	Providing and fixing in aluminum door, windows, ventilator shutters and partitions etc. with PVC/ neoprene gasket etc. complete as per the architectural drawings and the directions of the Engineer-in-Charge approved make Glazing of 6 mm thk Lowe reflective toughened glass complete in all respects as per direction of the Engineer-in-charge. Technical parameters of Low-e glass U value<1.77W/m2K, SHGC<0.36, VLT >62%	Sqm	1339.20			
10	44	Providing and fixing in aluminum door, windows, ventilator shutters and partitions etc. with PVC/ neoprene gasket etc. complete as per the architectural drawings and the directions of the Engineer-in-Charge approved make Glazing of 8 mm thk toughened glass complete in all respects as per direction of the Engineer-in-charge.	Sqm	125.42			
11	59	Providing and fixing over glass 1.5mm thick Etching strips (film) of approved make fixed as per manufacturer's specifications all complete as per direction of the Engineer-in-charge.	Sqm	1438.08			
		WATER PROOFING WORK					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
12	60	Providing and laying foam concrete filling in sunken portion of W.C. & kitchen with approved quality of cinder including supply of labour, material, and tools and plant etc. required for proper completion of the work as per direction of Engineer-in-charge.	Cum	1629.54			
13	62	Providing & fixing Chicken wire mesh on joints of RCC & Brick work before plastering complete in the direction of Engineer-in-charge.	sqm	8164.00			
		HORTICULTURE & LANDSCAPING					
14	63	Supply & Planting best quality trees inclusive of cultivation of trees bead to required depth. All trees / plants to be approved before planting including watering & maintenance for 180 days.					
a)		ARECA LUTESCENS	each	24.00			
b)		CYCAS REVOLUTA	each	24.00			
c)		DRACENA VICTERIA	each	24.00			
d)		FURCAREA	each	24.00			
e)		HAMELIA PATENS	each	24.00			
		PART B (e) : SUB-TOTAL					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
NON-PRICED BILL OF QUANTITIES (Rate and Amount to be provided by the bidder) FOR INTERNAL WATER SUPPLY, SANITARY, DRAINAGE & BORE WELL							
PART B (f) : (Refer Clause 12 of ITB, Volume I, Section 2)							
INTERNAL WATER SUPPLY							
15	4	Providing and fixing elastometric thermal insulation over CPVC pipes with tubular section/self adhesive tape (6mm /9 mm thick) including adhesive solution as per manufacturers guidelines.					
i)		6 mm Thick (for Pipes in chases)					
a)		15 mm nominal bore	Metre	7120			
b)		20mm nominal bore	Metre	2100			
c)		25 mm nominal outer dia pipes	Metre	180			
ii)		9 mm Thick (for Pipes in chases)					
a)		15 mm nominal bore	Metre	580			
b)		20 mm nominal outer dia pipes	Metre	1200			
a)		25 mm nominal bore	Metre	780			
b)		32 mm nominal outer dia pipes	Metre	1000			
a)		40 mm nominal bore	Metre	780			
b)		50 mm nominal outer dia pipes	Metre	760			
a)		65 mm nominal bore	Metre	900			
b)		80 mm nominal outer dia pipes	Metre	1000			
		INTERNAL DRAINAGE WORKS					
	3	Sewerage & Waste Pipes					
16		Providing and fixing G.I. inlet fitting with 1 or 2 inlets fabricated from 100 mm dia G.I. pipes and welded G.I. sockets fixed to C.I. trap with lead caulked joint and set in cement concrete as per drawing complete. - 100 mm dia	Each	712			
17		Providing and fixing in position 100x50 mm GI reducing elbow including fixing to floor with cement mortar.	Each	560			
18		Providing and fixing cast brass clean out plug with suitable insert keys for opening, male threaded joint with G.I. socket caulked to HCI soil pipe or C.I.(LA) pipe including cost of lead joint.	Each	324			
		RAIN WATER DISPOSAL					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
19	3	Providing all material & constructing brick masonry recharge pit of 4.0x3.5 x 3.5 m depth with brick work in cement mortar 1:4 (1 cement : 4 coarse sand) with 100mm dia weep holes at side walls @ 500 mm vertically & horizontally center to center, 200 mm thick RCC top slab in cement concrete (1:2:4) along with periferial & two nos. of intermediate RCC beams of size 250 x 450mm R/ F of slab 12 mm tor steel at bottom and 10 mm at topwith a spacing of 125 mm c/c, 4 nos 16 mm tor steel bars at bottom & 2 nos. 12 mm tor steel bars at top for beams with 8 mm stirrups @ 150 mm c/c, 2 nos. heavy duty SFRC cover of 560 mm dia,poly propelene coated rungs @ 300 mm c/c embeded in CC (1 : 2 : 4) blocks of 200 x 200 x 200 mm, 150 mm thick PCC in 1: 4 : 8 below footing with 150 mm projection, internal & external plaster in CM 1 : 4, necessary excavation, backfilling & disposal of surplus earth upto a lead of 50m complete in all respect including drilling percolation Bore Hole of 200/250 mm dia upto 50 meter depth with reverse rotary method in all types of soil including costs for mobilisation of Rig, including development of bore with 300-400 cfm compressor and making good the area after completion of work. Contractor shall arrange for all necessary tools,consumables and water required for drilling and providing and fixing 160 mm OD UPVC perforated/partially plain pipe (6 Kg/cm.sq.) in bore hole with cap at top of approved brand.(Item including of providing and laying silt free coarse sand , pea gravels etc., in layers as per direction of engineer-in- charge)	Nos.	4			
20	3	Providing and constructing brick masonry desilting chamber of size 200x150xupto300 cms depth inside with 75 class designation brick work 345mm/230mm thick in cement mortar 1:4 (1cement:4 coarse sand) with weep holes all around , SFRC cover heavy duty 560mm dia and 150 mm thick R.C.C. top slab 1:2:4 mix(1 Cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) including necessary excavation, back filling, disposal of surplus earth as directed, foundation concrete 1:5:10 mix (1 cement : 5 fine sand : 10 graded stone aggregate 40mm nominal size) below masonry walls with 150mm projection at either side including necessary baffle wall inside(as per std. drawing) , excavation,back filling and disposal of surplus earth upto a lead of 200 mtr., poly propelene coated rungs @ 300 mm c/c.	Nos.	4			
SANITARY FIXTURES AND FITTINGS							
21	2	Providing and fixing C.P. brass twin coat hooks fixed on toilet door with C.P. brass screws.Make-Jaquar-1161)	Each	492			
22	2	Providing and fixing health faucet with 1 m PVC tube and swivel hook including all fittings (Jaquar Cat No.ALD-563) complete.	Each	208			
23	2	Providing and fixing of fully automatic "NO TOUCH" hand drier suitable to operate on 220 volts, single phase 50 hz, A.C. power supply and directly plugged to power point complete.					
		Fully automatic Hand Drier- .UT-508	Each	80			

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
24	2	Providing and fixing 15mm C.P brass mixing fitting for kitchen sink with swinging spout complete. Including cutting and making good the walls wherever required .					
		C.P. brass mixing fitting (Jaquar cat. No.CON- 319 with aerator).	Each	272			
25	2	Providing and fixing 450 mm long grab bar for handicapped toilet Including cutting and making good the walls wherever required .	Each	32			
		EXTERNAL WATER SUPPLY WORKS					
26	5	Providing and laying of HDPE pipes conforming to IS: 4984 type PE-80 (6 kg/cm2) including all fittings wherever required e.g., tees, bends of any degree, couplings, adapters, plugs, unions etc. and jointing as manufacturer recommendation etc. including necessary excavation and refilling complete in all respects. (For tubewell, municipal supply & irrigation water Supply main)					
a)		32 mm OD	Mtr	80			
b)		90 mm OD	Mtr	1100			
c)		110 mm OD	Mtr	100			
d)		160 mm OD	Mtr	20			
27	5	Providing and fixing of cast iron double flanged butterfly valves (PN 16) complete with 2 nos. matching flanges, bolts, nuts, washers 3 mm thick insertion neoprene gasket conforming to IS 13095.					
a)		65 mm dia	Each	8			
b)		80 mm dia	Each	12			
c)		100 mm dia	Each	8			
d)		150 mm dia	Each	4			
28	5	Providing and fixing M.S. puddle flanges fabricated out of 6 mm thick M.S. plate of size 200 x 200mm plus dia of pipe of 750 mm long pipe pieces to R.C.C. water tanks / R.C.C. walls. The entire fitting shall be hot dipped galvanised.					
a)		a) 50mm dia (4mm wall thickness)	Each	40			
b)		b) 65mm dia (4mm wall thickness)	Each	60			
c)		c) 80mm dia (4mm wall thickness)	Each	60			
d)		d) 100mm dia (4mm wall thickness)	Each	80			
e)		e) 150mm dia (6mm wall thickness)	Each	80			
		STP - 170 KLD					
29	6	STP-170 KLD					
		Preliminary Works					
A		Shop Drawings.					
a		Detailed GA drawing, flow diagram, equipment list, power load requirement	Job	4			
b		Design, calculations of all elements of the plant, electrical and mechanical work to satisfy adequacy of design	Job	4			
c		Miscellaneous Work	Job	4			
		Submission of detailed GOOD FOR CONSTRUCTION' stage architectural, structural, construction, electrical, mechanical and piping drawing for approval.					

SI.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
B		Sewage Treatment Plant					
		Design, Supplying, Installing, Testing & Commissioning of Sewage Treatment Plant capacity 170KLD. The plant proposed shall be 170 kld with a main pump room. The plant is proposed to be installed in the Under-ground from the pump room itself for future maintenance. Opening shall be provided on above for this purpose, for the following :					
		Nature of effluent - Domestic Sewage from Toilet use and kitchen waste,washing waste water.					
		Daily average flow - 170 Cum / Day					
		pH - 6.5 - 8.5					
		BOD5 - upto 250-450 Mg/L					
		S. Solids - 250 - 400 Mg/L					
		COD - upto 450-600 Mg/L					
		Oil & Grease - 50 Mg / L					
		Effluent discharge standard after treatment					
		pH - 6.5 - 8.5					
		BOD5 - Less than 30 Mg/L					
		S. Solids - Less than 10 Mg/L					
		COD - Less than 100 Mg/L					
		Oil & Grease - Nil					
		Sewage treatment plant shall include the following items:					
		Screen Chamber					
		Sewage equalization tank/sump					
		MBBR(FAB) Tanks					
		Settling/ Clarifier Tank					
		Clear Water tank					
		Softener Feed PUMPS					
		Soft Water tank					
		Sludge Holding Tank					
		Plant Room Sump					
		Filtration through MGF & ACF,softner					
		Air Blowers, Pumps & equipment,filter press.					
		Piping, valves etc					
		Electrical Panel & Cabling					
		Common plant room adjacent to STP.					
		All piping, valves & level indicator/controller etc. within plant room.					
a		Supply, installation, testing & commissioning of 2 Nos Stainless Steel Perforated Screen with suitable lifting arrangement (size 600 mm wide x 1200 mm high approx)	Set	4			
b		Supply, installation, testing & commissioning of electronic type level indicator and controller for automatic operation of the system with high/low level alarm complete with auxiliary NO/NC contacts.	Set	4			

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		Contractor shall ensure submission of detailed GA drawings (Plan & Section), P & I diagram, schematic diagram for the above mentioned components and additional components such as inserts, puddle flanges, vent pipes etc. if so required for the complete work.					
C		Supply, installation, testing & commissioning of non clogging type pumps, having C.I. casing & bronze impeller complete with all accessories, motor of required capacity. Delivery header with isolation valve, pressure gauge on delivery line with isolation cock level controller with wiring to control the level of sump automatically. Pump shall have following duty.					
a		Submersible Transfer Pumps (2 Nos. - One working & one standby)					
		(Solid handling Cap. 38 mm)					
		Flow rate (each) = 14 m ³ / hr					
		Head = 10-12 Mtr	Set	4			
b		Plant room sump pump 2 Nos (1 working + 1 standby) .					
		Flow rate = 2.0 cum/hr					
		Head = 10-12 Mtr	Set	4			
		(Solid handling size for this pump shall be 15 mm).					
c		Mono block centrifugal Sludge Transfer Pumps (2 Nos. - One working & one stand by) Make: Kirloskar / Equivalent.					
		(Solid handling cap. 10 mm)					
		Flow rate (each) = 14 m ³ / hr					
		Head = 8-10 Mtr	Set	4			
		Cost shall be inclusive of PVC flexible Hose pipe (for piping submerged in effluent) with M S epoxy piping (for piping non-submerged in effluent)					
		Provision of guide ropes to guide submersible pump from upper level to operational level in sump basin with channels / angle section of MSEP shall be made by the STP contractor.					
D		Air diffusion system shall include the following:					
		Twin type rotary air blowers (one working & one standby) capable of delivering 170 cum/hr (each) of free air at 0.5 kg/cm ² driven through "V" belt or directly coupled through flexible coupling to a TEFC motor of suitable HP Suitable for 415 ± 10% volts, 3 phase, 50 cycles a/c supply	Set	4			
E		Air piping shall comprise of pipes droppers/ laterals with M S (epoxy coated) Header complete with all fittings such as tees, crosses, plugs, sockets, elbows, reducers, supports & clamps, puddle flanges etc cutting chases & making good.	Lot	4			
F		Non clog type air dispersion system capable of handling 3-5 cfm of air with oxygen transfer efficiency of 3-4% per/meter water depth. Air dispersion grid shall be assembled in modular form so that they can be replaced / repaired					
		Fine bubble diffusers					
a)		For equalization tank -1 Nos.	Lot	4			
b)		For sludge holding tank - 1 No.	Lot	4			

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
c)		Reactor tank.	Lot	4			
		Note:					
		Air dispersion system shall be provided for Equalization Tank, Sludge holding Tank and reactor Tank.					
G		Providing and fixing all piping (as described below) and isolation control valves for making the system complete.					
		SS 304 :Submerged air piping					
		MS Epoxy : Air piping					
		PVC piping :Pumped effluent & tank overflow pipe line	Job	4			
H		Supply, installation, testing and commissioning of Fludised Media for Aeration Tank (FAB Media) Make - Cooldeck/Equivalent	m3	80			
I		Supply, installation, testing and commissioning of Bowl type Centrifuge 1-2m3/hr Make Hiller with screw feed pumps for required capacity (1Working+1Standby), with interconnecting piping and poly dosing system all complete.	Set	4			
J		Supplying, installing, testing & commissioning of centrifugal vertical / horizontal filter feed water pumps C.I. Body, bronze impeller with mechanical seal along with motor. Pressure gauge with isolation cock, NRV, Isolation valve on delivery line. Isolation valve, strainer at suction. The pump shall be suitable for 415 ± 10% volts, 3 phase, 50 cycles a/c supply.					
		Capacity :20 M3/hr.					
		Head : 30 M					
		No. of Pumps (1 working + 1 standby)	Set	4			
		Note:					
		Operation of pump shall be based on level controller proposed to be installed in tank as per site location. The contractor to ascertain the Head required for pumps as per site conditions and provide accordingly.					
K		Supplying, installing, testing and commissioning of MS vessel filter with frontal piping and associated valves and accessories. Filter shall be suitable for a minimum working pressure of 3.0 kg / cm2 and shall include media, standard fittings like pressure tight manholes, initial charge of media, raw water distributor, under drain system, face piping, pressure gauges etc.,					
a		The Multi-grad filter shall be constructed of M.S material with inner shell of integrated polyethylene, polypropylene and other material as per manufacturer's standard.The inter distribution system and the underbed draw off system shall be of Hub & Lateral type of polypropylene material. The filter shall be provide with manhole cover, hand hole, flanged outlet for piping/valve connection and adequate tripod with skid self supporting structure for making the installation completed. The filter shall also be provided with vacuums breaking connection / accessories to avoid any collapse of internal lining. All filters shall be provided with lifting lugs and making the installation completed as required.					

SI.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		Flow rate : 17.5 cum/hr					
		Filter Diameter : A/D mm.900 Dia Height 1500 mm	Set	4			
b		The Activated Carbon filter shall be constructed of M.S material with inner shell of integrated polyethylene, polypropylene and other material as per manufacturer's standard. The inter distribution system and the underbed draw off system shall be of Hub & Lateral type of polypropylene material. The filter shall be provide with manhole cover, hand hole, flanged outlet for piping/valve connection and adequate tripod with skid self supporting structure for making the installation completed. The filter shall also be provided with vacuums breaking connection / accessories to avoid any collapse of internal lining. All filters shall be provided with lifting lugs and making the installation completed as required.					
		Flow rate : 17.5 cum/hr					
		Filter Diameter : A/D mm.900 Dia Height 1500 mm	Set	4			
c		Supply, installation, testing and commissioning of Filter Press of plate size 30"x 30" x 35 Nos plate with screw feed pumps for required capacity (1Working+1Standby), with interconnecting piping system all complete.	Set	4			
		Electrical Installation					
L		Design, fabrication, assembling, wiring, supply, installation, testing and commissioning of motor control centre fabricated out of 14 gauge CRCA sheet steel. Cable gland plates shall be provided on top as well as at the bottom of the panels. Panels shall be treated with all anticorrosive process before painting as per specifications with 2 coats of red oxide primer and final approved shade of powder coated paint. 2 Nos. earthing terminals shall be provided for 3 phase, 4 wire, 50 Hz supply system. Lifting hooks shall also be provided in case of large panels. Approval shall be taken for each panel before fabrication. Quoted rates shall be inclusive of cables (in accordance to specification) with earthing from panel to each motor / equipment.					
		Motor Control Centre					
		Incoming					
		200 amps TPN MCCB with the following accessories:					
		0-500 volts 96 x 96 mm square electronic voltmeter with selector switch shall be protected by 2 amps TP MCB. 1 Set					
		0-100 amps 96 x 96 mm square electronic ammeter with selector switch and 100/5 amps 10 VA CL:1 CTs. 1 Set					
		Phase indicating lamps shall be protected by 2 amp SP MCB 3 Sets					
		Bus Bar					
		200 amps TPN (15 KA) copper bus bar with heat shrinkable insulation sleeves.					

SI.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		a. Required Nos of required capacity TPN MCB for direct on line starter/star delta starters and out going feeders to all the pumps/blowers etc. (including standbys). Each compartment shall contain auto / manual selector switch and indicating lamp with MCB's for 'ON/OFF/TRIP' status of motor					
		Spare MCB's of following capacities:					
		32 amps TPN MCB's 3 Nos.					
		Necessary cable alleys, internal / cabling, wiring, cabling from MCC to various pumps / equipment and interlocking, earthing for all equipment shall also included					
		Notes :-					
		All MCCBs / MCBs shall be of 15 KA breaking capacity and suitable for motor duty application.					
		All motor starters shall be provided with Automatic level controller					
		DOL starters shall be used for motors below 7.5 HP and Star-Delta Starters for other motors .					
		Provision shall be made for providing potential free contacts to all pumps starters					
M		MCC for all STP equipments/pumps as described in sub head II	Job	4			
N		Maintenance Contract					
		To operate the entire STP under available load conditions for further period of 30 days on round the clock basis.					
		To provide services of contractors expert operating personal comprising of :					
		One Supervisor 4 hrs Three times a week.					
		One Plant operator one per shift in three shifts.					
		One helper for general maintenance and assistance. One per shift in three shifts.	Job	4			
O		Company's back up services of senior engineers and experts for any major problems, general check up and maintenance and advise. Once a week for 2 hours minimum more or more if required.	Job	4			
P		All tools, equipment and testing devices to be provided by the contractor.	Job	4			
Q		Consumable including lubricants and chemicals will be provided by Owners.	Job	4			
		ETP - 25 KLD					

SI.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
30	CC	Supply, Fabrication, installation, testing and commissioning of effluent treatment plant with effluent handling capacity 25 m3 per day. The entire plant will be constructed in MS (FRP coated, min. 3 mm). The ETP shall be designed as water retaining structures, with necessary chemical dosing as required by the manufacturer's design. All the equipment, piping, pumps, air blowers and electrical panel to be housed in the ETP skid including M.S. puddle flange (Galvanised), inlet, outlet, overflow, vent, moving ladders & railing. The Plant shall be complete with a central Electrical Power and Control panel fully pre/site wired and with all power and control cables to all pumps and equipment including all instrumentation, level and other controls. The cost will also include any consequential civil work including making foundations for the structure, pumps, blowers etc. It should be complete as per manufacturer's specifications & as directed by Engineer-in-charge.	Lot	4			
		Effluent from OT Scrubs, blood bank, labs etc. Some solvent/ chemical waste originating typically from hospital complex shall also be discharged into the ETP. Design to take consideration of same.					
		Daily average flow : 25 Cum/Day					
		PH : 5.5 - 9.0					
		BOD : 250 - 600 mg/l					
		S. Solids : 200 - 650 Mg/l					
		COD : 600 - 1200 mg/l					
		Oil & Grease : 50-140 mg/L					
		<u>Effluent discharge standard after treatment :-</u>					
		PH : 7.0 - 8.5					
		S. Solids : Less than 400 mg/l					
		COD : Less than 100 mg/l					
		Oil & Grease : Less than 5 mg/l					
		BOD : Less than 30 Mg/L					
		The ETP shall consist of following units but not limited to these unit as may be required by the manufacturer's design. MS PVC coated rungs in all tanks & Platform for maintenance etc. complete as required.					
a		SS Perforated basket screen having provision for chain lifting arrangement etc. complete as required.	Set	4			
		Collection cum Equalization tank including provision for aeration will be kept to avoid any smell problems in RCC Construction (Civil contractor's Scope)-12.5 Cum	Set	4			
b		Reaction tank with air diffuser and piping complete of adequate capacity. Fine air bubble jet diffuser with EPDM seat minimum number of diffusers to be provided as per manufacturer's recommendations in MS (FRP) Construction. Min. 2 Cum	Set	4			

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
c		Secondary clarifier tank, hopper bottom type with arrangement of deep well, baffle wall, scum removal arrangement, outlet launders with arrangement of lifting sludge from the bottom etc. complete as required in MS (FRP) Construction. Min. 3 Cum	Set	4			
		Sludge Holding Tank with suitable sludge disposal pump of suitable capacity with provision of air diffusion, supernatant withdrawal arrangement in RCC Construction (Sludge Holding Tank in Civil contractor's Scope)	Set	4			
d		Providing and fixing all piping (as described below) and isolation control valves, non return valves etc. for making the system complete.	Lot	4			
		PVC piping (10kg/sqcm) - For all submerged waste water piping.					
		GI (C class) for all other water piping.					
e		Providing and fixing all instrumentation eg. Pressure guages, level controllers, sensors, rotameters for air, water etc. for making the system complete.	Lot	4			
		EQUALIZED WASTE WATER TRANSFER PUMPS :					
f		Providing, installation, testing & commissioning of Horizontal / Submersible centrifugal pumps solid handling (min. 50 mm) pumps. The pumps shall be made of CI casing, bronze Impellar, SS shaft & sleeve, Mechanical Seal are connected to a TEFC induction motor mounted on a common channel base frame with coupling guard, 150 mm dia pressure gauge with GM isolation cock, suitable vibration eliminator pads of approved design. Motor to be suitable for 400/440 V, 3 Phase, 50 cycles AC power supply, including all necessary piping, valves and other accessories and concrete foundation complete as required.					
		Capacity : 2.5 M ³ /hr @ Discharge Head 15 M head (1 Working + 1 Standby)	Set	4			
g		Mono block centrifugal Sludge Transfer Pumps (2 Nos. - One working & one standby					
		(Solid handling cap. 6 mm)					
		Flow rate (each) = 5 m ³ / hr					
		Head = 8-10 Mtr	Set	4			
		DIGESTED SLUDGE DISPOSAL PUMP :					
h		Providing, installation, testing & commissioning of screw Sludge disposal pump for the disposal of sludge to tanker or to sludge dry beds. The pumps shall have CI casing, bronze Impeller & SS shaft & sleeve with mechanical rotary shaft seal connected by a flexible tier type coupling to TEFC induction motor mounted on a common channel base-plate with coupling guard, 150 mm dia pressure gauge with GM isolation cock, suitable vibration eliminator pads of approved design. Motor to be suitable for including all necessary piping, valves and other accessories and concrete foundation complete as required. (1 Working + 1 Stand-by) .(ROTO/HP/Positive)					
		Capacity 2 m ³ /hr @ 40 m head	Set	4			

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
i		Supply, installation, testing and commissioning of Baskete type centrifuge with interconnecting piping and poly dosing system all complete.	Set	4			
j		Providing and fixing lime/alum/polyelectrolyte dosing system consisting of ABS lime dosing pump (0-6 lph) with 100 l HDPE tanks including all piping from the dozer to the reaction tank etc. complete in all respects.	Set	12			
k		Supply, installing, testing & commissioning of Electrical system including Electrical Panel for all the above including all switchgear, cables, control wiring, multi function multimeters etc., also including the complete automation of the plant with level controllers and sensors in the HDPE and the MS tanks, control cabling, complete in all respects as required as per IS specifications.	Lot	4			
l		Supply, installation, testing and commissioning of Filter Press of plate size 30"x 30" x 35 Nos plate with screw feed pumps for required capacity (1Working+1Standby), with interconnecting piping system all complete.(this item for stp plant)	Set	4			
		Note:					
		Contractor shall include all electrical and mechanical items as required to operate the system automatically and also include in his rates any other components/tanks/ equipment/ etc. required to complete the job as required. Only main power supply with the earthing to be ETP main control panel shall be provided by the owner through other agencies. The electrical panel will also include all the required NO/NC contacts, contactors etc. required to provide BMS connectivity.					
m		Bypass arrangement shall be provided such that equalization tank pump can be used to pump out sewage to external manhole incase of maintenance of ETP.	Job	4			
		HOT WATER GENERATOR					
31	4	Boiler					
A		Supplying, installing, testing and commissioning of MS Vartical oil oprated type factory assembled hot water generators consisting of two closely wound, helical, concentric coils arranged to give three passes on flue gas side made of ERW tubes. Hot water Generator shall be capable on rated for delivery of 400,000 Kcal/hr with thermal efficiency 93+-2%, The unit shall be well factory insulated as per standards. (Hot water generators shall be IBR type).	Nos.	8			
		Hot water Circulation Pump					
a		Hot water primary Circulation pump, Centrifugal type with mechanical seal having flow rate of 0--cubic mtr per hr. .	Nos.	8			
b		Secondary circulation pump of flow ...m3/hr, ...m head with all valves, gauges and allied accessories.(1 W +1 S)	Nos.	8			
c		All interconnecting wiring / cabling between hot water generator and electrical panel.					
d		The HWG shall have an in-built facility to start / stop depending on variation in demand all different periods.					

SI.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
32		Supplying, installing, testing and commissioning of HSD storage tank 6 mm thick shell and 8mm thick plains ends including the following:	Set	8			
		Inlet and Outlet connections					
		Vent pipe with flame arrester					
		Dip pipe assembly with calibration chart, complete with cap, with locking arrangements, with dip, stick engraving in it.					
		500 mm internal dia manhole with cover.					
		Cleats for anchoring (4 Nos.)					
		Lifting Lugs					
		(The design, fabrication, pressure testing, corrosion protection, anchoring, earthing etc. will be done strictly as per IS: 10987-1992 and duly approved by 'CCOE' suitable for uderground installation.)					
		10 KL capacity HSD tank size (Approx.) 2.6 mm dia and 2.5 meter long, dimension shall be adjustable as per site conditions. Including anti-corrosive paint with primer, bitumin treatment.					
33		<u>Boiler Panel as Per Manufacture</u>					
		<u>Incoming</u>					
		i) One (1) no. 160 Amps MCCB (20KA).					
		ii) One (1) Set of phase indication lamps with fuses.					
		iii) One (1) No. of 0-200 Amps Ammeter with selector switch.					
		iv) One (1) no. 0-500 volts voltmeter with selector switch.					
		<u>Bus Bars</u>					
		i) One (1) set of 400 Amps, TPN+E, 415 V, Aluminium busbars.					
		<u>Outgoing</u>					
		i) 2 Nos. 32 A TP & N MCCB for fuel pumps (two working, one standby). Each MCCB compartment shall be equipped with suitable range ammeter, ameter selector switch, separate single phasing preventor, on/off/ trip indication lamps contorls, push button with indication lamps contactors, phase indication lamps, DOL starter for 3 HP pumps relays, control wiring between day oil storage tank & main panel for high level trip, low level & high level audio visual alarm.					
		ii) Three (3) No. 63 Amps MCCB for HWG.					
		iii) Four (4) Nos. 32 Amps MCCB (2 for Steam Boilers and 2 for 9KW outflow heaters)					
		iii) Five (3) Nos. DOL starter for 2.25 KW pump motors. (3 HW Secondary and 2 HW Recirc pumps)					
		<u>SPARE</u>					
		i) One No 63A MCCB					
		ii) One no. 32A MCCB					
		Control panel as described above.					
		Erection and commissioning charges for the above job	Job	4			
		<u>Note:</u>					
		<i>Cabling, wiring earthing shall be included in quoted prices from main panel to individual equipment.</i>					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
34		Supplying, installing, testing and commissioning of electrical driver rotary gear pumps (Two nos- One working and one standby) suitable for pumping of HSD consisting of following: (Pumps shall be suitable for automatic/manual operation). Self priming gear pump with weather protection cover for motor (Location: Inside HSD yard)	Nos.	4			
		Horizontally mounted single stage each capable of delivering 110 LPM at 30 meter head while running at required RPM, complete with tail pieces for proper connection to suction and delivery line.					
		Flame proof motor suitable for 415/-+ 10% V, 3 phase, 50 HZ AC supply and of suitable HP for the above pumps.					
		Common bed plate of required strength manufactured out of MS channel or of cast iron.					
		Suitable any vibration damping arrangement.					
		Coupling and coupling guard of direct coupling of pump and motor.					
		1 No. pressure gauge on the delivery side of each pump with isolation cock					
35		Providing and fixing MS class 'C' (heavy duty) pipes- and fittings like Tees, Elbows, Junctions, Unions, Bends, Plugs, Flanges etc. Clamps, Structural support as required at site.					
a		25 mm dia	RM	40			
b		32 mm dia	RM	80			
c		40 mm dia	RM	40			
d		50 mm dia	RM	20			
e		65 mm dia	RM	20			
f		80 mm dia	RM	40			
g		100 mm dia	RM	40			
h		150 mm dia	RM	20			
i		200 mm dia	RM	20			
j		250 mm dia	RM	40			
36		Providing installing and testing CI Bucket type strainer with SS Screen (80 mesh)					
a		40 mm dia	Nos.	12			
b		80 mm dia	No.	4			
37		Providing and fixing forged brass ball valves of the following sizes: tested to 15 Kg per sq.mm pressure.					
a		25 mm dia	Nos.	16			
b		32 mm dia	Nos.	12			
c		40 mm dia	Nos.	16			
d		50 mm dia	Nos.	16			
e		80 mm dia	Nos.	8			
38		Providing and fixing GM non return valve of the following sizes screwed ends.					
a		40 mm dia	Nos.	8			

SI.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
39		Providing and fixing oil flow meter on the pipes of following dia complete with bucket tpe strainer, bypass vavle and full way ball valves on each side with flanged joints.					
a		80 mm dia (Unloading)	Set	4			
b		40 mm dia (for DG set)	Set	4			
40		Providing and fixing rubber hose suitabe for HSD service at unloading point 3 meter length with coupling joints.					
a		80 mm dia	No.	4			
41		Supply, testing and commissioning of automatic level controller with low level and high level cut off and alarm indication.					
a		Day oil tank	Set	4			
42		Fire Protection Equipments					
a		Providing and fixing of fire bucket (6 nos.) with stand having capacity of 9 liters conforming to relevant BIS specifications.	Nos.	16			
b		Providing and fixing fire extinguisher mechanical foam type having capacity of 9 liters (for fighting oil fires) in accordance with OIS standard-117	Nos.	16			
c		Providing and fixing of 'No smoking and No Uauthorized Entry sign boards in English and Hindi.	Nos.	16			
		Overflow Tank and Pump					
43		Supply, installation, testing and commissioning of 990 ltrs. Capacity overflow storage tanks for HSD overflowing from day oil tanks installed in DG room., The tanks shall be fabricated from 5mm thick MS Plates.Tank shall include float operated level indicator, flanged:connections for inlet, outlet,vent,drain etc.Tank shall be placed at 450 mm below finished floor level inside plant room. The tank shall be having 550mm dia manhole for easy access to all equipments/instruments inside the tank. All equipments/instruments inside or ,near this tank to be of flame proof construction.					
a		HSD overflow tank 990 ltrs. (1000 x 1000 x 1000mm deep) with all accessories as above.	Set	4			
b		Rotary or semi rotary manual pump for pumping the overflow HSD back to day tanks complete with operating crank/handle etc.	Set	4			
		Note:-					
		(Piping, ball valve, NRV,strainer etc. included items 3,5,6 & 4 of this BOQ.)					
		Electrical Works:					
		Starter					
44		DOL starter panel in sheet metal enclosure (three phase) comprising of TPN MCB, overload relay with single phasing protection features, ON-OFF and trip indication lamps, contractors contacts for building automation system interlocking etc. suitable for 2 No. motors of motor of 2 HP each.	Set	4			
		Power & Control Cable end Termination					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
45		Supply and making end termination with brass, single compression glands for the following PVC insulated PVC sheathed ,and armoured 1100 volt grad cable including cost of crimping with crimping tools including, insulation tapes etc. complete as required.					
		<u>Suitable for following armoured cables.</u>					
a		4CX1.5 sq.mm copper control cable,	Nos.	400			
46		Supply, installation, testing and commissioning of mushroom head emergency stop flame proof push buttons with NC contact in sheet metal enclosure suitable for outdoor use. Push button shall have the features push to lock and turn to release.	Sets	8			
		Power / Control Cabling as per Specification					
47		Supply,installation testing and commissioning of following sizes of PVC sheathed insulated multi-core sizes of PVC sheathed insulated multi-core power control armoured , cable of 1.1 KV grade, copper/aluminium conductor cable in ground including digging the trench, (upto 1m depth) . laying the cable with sand and brick covering, back filling etc.or cable tray including cost of cable tray etc.					
a		3CX 16 sq.mm Aluminium power cable.	RM	700			
48		Supplying, installing, testing and commissioning of S.S. horizontal \vertical hot water storage tank (capacity 5000 lts) suitable for minimum 5 kg/cm2 operating pressure.Tank shall be provided with flowmeter at inlet (approved by department of weights & measures), Inlet/outlet, overflow/drain connection with M.H. cover (550 mm I.D.), 6 mm thick M.S. dished ends, 8 mm thick MS shell, temperature and pressure relief valves, thermometers & pressure gauge at inlet/outlet. Tank shall be mounted on 450 mm high steel structural supports with access ladder & painted with 2 coats of red oxide paint. Tank shall be insulated with 50 mm thick resin bonded rock wool (density 48 Kg/cum) or 50mm thick fiberglass insulation (density 24 Kg/cum). Insulation shall be covered with 500 g polythene sheet & 24 gauge aluminium sheet cladding giving proper overlaps & sealing the joints with suitable adhesive compound. Tank shall be internally lined with 20 gauge SS-304 sheet including 15 mm dia testing spout with valve.(inlet temperature to hot water storage tank 75-80 degree C).					
		(Tank shall be fabricated as per unfired pressure vessel code IS 2825 - 1969, IS 226/IS 2062). CW inlet and HW outlet piping shall be done in such a way as to prevent stratification of water within the tank.					
		Note :					
		<i>Cost of hot water storage tank shall include the following additional accessories :</i>					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		3 way modulating valve. - 1 No.(For Hot Water Storage Tank, to regulate Temperature in tank automatically)					
		Pressure relief valve - 1 No.					
		Dial type thermometer - 1 No.					
		Safety Valve - 1 No.					
		Thermowells for thermostat sensing elements.(3 Nos.)	Set	8			
49		Supplying, installing, testing & commissioning of plate type heat exchanger (water to water type) with plates & nozzles of SS-304. Heat exchanger shall be designed as per TEMA standard for Maximum working pressure of 5.0 kg/cm2 for domestic hot water, space heating.Heat exchanger shall be provided with inlet / outlet connections with flanges, MS frame & all other standard accessories & fittings. Inlet hot water & outlet temperature from secondary circuit (domestic hot water) shall be about 55/30 degree C complete. Space heating primary temperatures shall be 55 deg C and secondary outlet temp shall be 50 deg C (Cost shall include 2 Nos pressure gauges, & 2 Nos. thermometers). PHE shall be provided with strainers on inlet of both primary and secondary circuits and shall be provided with isolation valves on both inlet and outlet of primary and secondary circuits.					
		For domestic water system net output					
a)		4,00,000 kcal / Hr	Set	8			
		Supplying, installing, testing and commissioning of soft water tank (water holding cap. 2,000 Lts with 250 mm free board) for steam and Hot Water Generators installed on 2.5 m high red oxide coated steel structural frame including access ladder. Tank shall be fabricated out of 8mm thick MS plates and shall be insulated with 50 mm thick resin bonded rockwool (density 48 Kg/cum) or 50mm thick fiberglass insulation (density 24 Kg/cum). Insulation shall be covered with 500 g poly-thene sheet & 24 gauge aluminium sheet cladding giving proper overlaps & sealing the joints with suitable adhesive compound. Tank shall include 550mm ID manhole cover, inlets/ outlets, overflow, drain vent flanged connections including level controller, level indicator & solenoid valve with sensor having bypass piping & valves (Avcon or approved equal make) to control water level of tank					
50		Automatically. (Overflow shall be piped down to ground level from the tank). A gauge glass with isolation locks shall also be provided. A water flow meter approved by the department of weights and measures shall be provided on the cold water make-up line.	Set	4			
		<u>Chimney</u>					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
51		Supply and installation of Common MS chimney wall mounted or grouted, with hood on top and interconnecting ducting coated with red oxide with insulation within the boiler house .(Chimney Thickness 4 mm, Dia 350 mm, Height 40 mtrs.) Ducting with individual manual damper with limit switches(Thickness 3 mm, Length 3 mtrs., Dia 200 mm) . Battery limit of chimney (from Boiler to Terrace)	No.	4			
52		Providing and fixing bronze safety valves of tight lift type with lever for manual blow off of the following sizes:					
a		32 mm dia	Nos.	8			
b		50 mm dia	Nos.	8			
	4	<u>SOLAR HOT WATER GENERATOR</u>					
53		Supplying, installation, testing and commissioning solar water heating system comprising of requisite no of pannel, each panel capacity of 100 lpd with including comprising of ss-304 insulated storage tank with the cap of 2000 ltr,with heat exchanger & heating element,Cu fin solar collectors with all required accessory to complet system work.The system will be non pressurized.complete as per manufacturer's guideline .	Nos	60			
		<u>PUMPS & ALLIED WORKS</u>					
54	12	Variable Speed Pumping System (VSPS)					
		Supply, installation, testing & commissioning of variable speed hydropneumatic system mounted on a common base plate comprising of vertical inline multistage pumping set with Stainless steel-304 body, Stainless steel-304 impeller, Stainless steel-304 casing, shaft of Stainless steel-316 and C.I. base & head with mechanical seal, shaft directly coupled to a TEFC induction motor suitable for 400/440 volts, 3 phase, 50 cycles AC supply with 150 mm dia pressure gauge with gunmetal isolation cock, vibration eliminating pads under foundation, one No. microprocessor based controller, two Nos. variable frequency drives, one No.remote sensors, transmitters, sequence running cotroller, dry running Protection,motor control centre, necessary power and control cabling from MCC to pumps including required rating of MCB, two Nos. required capacity M.S diaphragam tank with interchangeable butyl rubber membrane,complete in all respects including suction and delivery headers of G.I "C" class pipe of required dia, isolation valves, NRV of PN-16 grade & vibration eliminators on both suction & delivery side of pumps, power box, equipped with fuses/ isolators/circuit breakers as required.					
		No. and capacity of Pressure Vessel - 01 Nos. x 200 litres min. (Or as per Manufacturer Calculations)					
		The system shall also comprise the following:-					

SI.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		Control Panel with Programmable Logic Controller (PLC) with in-built PID controller with 16 inputs and 12 outputs, digital display with fluorescent screen with 2 lines of 20 character each equipped with 8 function keys and 9 service keys, 3 Phase, 415 V I/P, 4 KW, AC variable speed drive with in-built EN55011 Class A RFI Filters, having standard function of BI Loop , energy saving, catching a spinning load with speed search, auto hunting jog, preset speeds, controlled stop on loss of supply power loss side through, D.C. injection braking, fast stop. Drive should have selectable, rated input frequency 50/60 Hz and output frequency range of 0.5-32 HZ, contractors, overload relays and MCBs should confirm to IEC-898-1995 standards Ammeter, voltmeter. All strip indication should blink in case of trip and panel should only be accessible through an access code.					
		Type 8202 pressure transducer with SS pressure sensor and control electronic board. Output 4-20m A on two wires conforming BS-6134 standards and IP 55 protection class.					
a	12	Domestic Water Supply					
		Set of Two Pumps (1 Working + 1 Standby)					
		Capacity - 5.0 LPS (Each)					
		Head - 40 M.					
		H.P. - 5.0 HP (Approx.)	Set	4			
55		Supply, installing, testing and commissioning of fixed speed hydropneumatic system mounted on a common base plate comprising of vertical inline multistage pumping set with Stainless steel-304 body, Stainless steel-304 impeller, Stainless steel-304 casing, shaft of Stainless steel-316 and C.I. base & head with mechanical seal, shaft directly coupled to a TEFC induction motor suitable for 400/440 volts, 3 phase, 50 cycles AC supply with 150 mm dia pressure gauge with gunmetal isolation cock, vibration eliminating pads under foundation, sequence running controller, dry running Protection, motor control centre, necessary power and control cabling from MCC to pumps including required rating of MCB, one No. required capacity M.S diaphragm tank with interchangeable butyl rubber membrane complete in all respects including suction and delivery headers with G.I "C" class pipe of required dia, isolation valves, NRV & vibration eliminators on both suction & delivery side of pumps, valves power box, equipped with fuses/ng spout with valve.(inlet temperature					
	12	Hot Water Supply					
		Set of Two Pumps (1 Working + 1 Standby)					
		Capacity - 1.5 LPS (Each)					
		Head - 40.0 M.					
		H.P. - 1.5 HP (Approx.)	Set	4			

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
56		Supply, installation, testing & commissioning of vertical inline multistage pumping set (Imported) with Stainless steel-304 body, Stainless steel-304 impeller, Stainless steel-304 casing, shaft of Stainless steel-316 and C.I. base & head with mechanical seal, connected to a TEFC induction motor suitable for 415+/- 10% volts, 3 phase 50 cycles A.C. supply with 150 mm dia pressure gauge with gunmetal isolation cock, vibration eliminating pads under foundations, 80x40 mm I section base plate bolted to cement concrete foundations complete. Vendor to submit performance curves and technical catalogue of the proposed model for review and information.					
a	12	Filter Feed Pumps					
		Set of Two pumps (1 Working + 1 Standby)					
		Capacity - 6.0 LPS					
		Head - 25.0 Mtr.					
		H.P. - 4.0 HP (Approx.)	Set	4			
b	12	Flushing Water Transfer Pump					
		Set of two pumps (1 Working + 1 Standby)					
		Capacity - 2.0 LPS					
		Head - 40.0 Mtr.					
		H.P. - 2.0 HP (Approx.)	Set	4			
c		Garden Irrigation Pumps					
		Set of two pumps (1 Working + 1 Standby)					
		Capacity - 1.0 LPS					
		Head - 25.0 Mtr.					
		H.P. - 1.0 HP (Approx.)	Set	4			
d		Hot Water Return Pumps					
		Set of two pumps (1 Working + 1 Standby)					
		Capacity - 1.0 LPS					
		Head - 25.0 Mtr.					
		H.P. - 1.0 HP (Approx.)	Set	4			
57		Supply, installing, testing and commissining of submersible single stage single entry pumps with C.I.body and C.I. two vane enclosed type impeller connected to TEFC submersible motor for 415 ± 10% volts, 3 phase, 50 cycles A.C. power supply with mechanical seal, pump connector unit with rubber diaphram and bend, vertical discharge pipe, guide pipe and chain in built level controller, sequence running controller, dry running Protection complete in all respects.					
		(Pumps shall be installed in a set of two pumps One working and One standby)					
	12	Basement Drainage Sump Pumps					
		(Pumps to be suitable to handle solids upto 12 mm size)					
		Capacity - 4.0 LPS (Each)					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		Head - 10 M					
		H.P. - 1.0 HP Approx.	Set	4			
58	12	Providing and laying G.I. "C class" pipes and fittings conforming to IS: 1239 (Heavy class) with fittings, union and clamps including cutting holes in wall, makes chases in wall and making good the same in cement mortar 1:2 (1cement : 2 coarse sand) as directed by Project Manager complete in all respects for internal works including pipe supports with galvanised M.S. slotted angle iron, clamps, spacers as required and making good wherever required.					
a		50 mm dia	Metre	80			
b		65 mm dia	Metre	80			
c		80 mm dia	Metre	80			
d		100 mm dia	Metre	100			
e		150 mm dia	Metre	80			
59	12	Painting of G.I. pipes with two or more coats of synthetic enamel paint of approved quality over a coat of red oxide zinc chromate primer as directed by the Engineer-in-Charge (shade as per pipe colour code).					
a		50 mm dia	Metre	80			
b		65 mm dia	Metre	80			
c		80 mm dia	Metre	80			
d		100 mm dia	Metre	100			
e		150 mm dia	Metre	80			
60	12	Providing and fixing cast iron double flanged butterfly valves (PN-16) complete with 2 nos. matching flanges,bolts, nuts, 3.0 mm thick insertion neoprene gasket.					
a		50 mm dia	Each	32			
b		65 mm dia	Each	60			
c		80 mm dia	Each	40			
d		100 mm dia	Each	40			
e		150 mm dia	Each	32			
61	12	Providing and fixing of cast iron double flanged dual plate type check valves (PN-16) including 2 nos. matching flanges, nuts, bolts, 3.0 mm thick thick insertion neoprene gasket.					
a		50 mm dia	Each	4			
b		65 mm dia	Each	8			
c		80 mm dia	Each	16			
d		100 mm dia	Each	8			
62	12	Providing & fixing of resilient rubber neoprene lined style arch vibration eliminators suitable for raw water upto pressure 20 kg/cm ² .					
a		50 mm dia	Each	32			
b		65 mm dia	Each	100			
c		80 mm dia	Each	16			
63	12	Providing and fixing of CI Y type suction strainer with gunmetal or brass internal parts installed outside water tanks.					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
a		80 mm dia	Each	16			
b		100 mm dia	Each	8			
64	12	Providing and fixing forged brass ball valve of brass body with hard chrome plated steel ball inside PTFE (Teflon) seat & ring with chrome plated centre handle with female BSP threads complete in all respects.					
a		32 mm dia	Each	20			
b		40 mm dia	Each	20			
65	12	Controllers with low voltage relays, stainless steel probes and PVC shroud, wiring from tank top to probes of required length. (No of probes as required for function of each controller).					
a		For Filter Feed Pumps					
66	12	To cut off duty pump on low water level in the UG Raw water tank and high water level in the UG Domestic water tank and To start pump at low water level in the UG Domestic water tank.	Each	4			
a		For Drainage Sump Pumps.					
67	12	To cut off duty pump on low water level in the sump, To start pump at high water level in the sump and both pumps start when water over flowing.	Each	28			
68	12	Providing and fixing motor control centre fabricated from 14g M.S. sheet with stove enamelled finish and comprising of :-					
		For Water Supply Pumps (At Pump Room)					
		a) One incoming main MCCB unit of 63 amps rating.					
		b) Copper bus bar is separate chamber fully taped of 150 amps capacity.					
		c) Three MCB units of 16 amps.					
		d) Two MCB units of 25 amps.					
		e) Two MCB units of 32 amps spare.					
		f) Ten fully automatic DOL starters with push buttons and on/off indicating lights.					
		g) Seven rotary duty selector switch					
		h) Ten manual/auto/off switches.					
		i) Ten single phasing presenters.					
		j) One panel type voltmeter with rotary selector switch for reading voltage between phases.					
		k) Seven ampere meters one for each motor.					
		l) Three neon phase indicating lights on the incoming mains.					
		m) Space for Four liquid level controllers.					
		n) All internal wiring colour coded from incoming mains to various switchgear, starters, meters, indicating lamps and bus bar with a changeover facility to run each pump alternatively with an alarm bell in case of both pump's running at one time. Switchgear offered must be compatible with the HP of the motors offered.					
		Motor control centre as described above	Each	4			

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
69	12	Providing and Fixing of heavy duty PVC insulated copper armoured cables suitable water submerged condition, 1.1KVA grade including necessary support clamps at ceiling level and connection lugs complete in all respects.					
a		Control cable for liquid level controller 2 core 1.5 mm ²	Metre	600			
b		Power cable 3 core 4 mm ²	Metre	200			
c		Power cable 3 core 6 mm ²	Metre	200			
70	12	Copper earthing strip 25x3 mm size from all motors and M.C.C. panel to be connected in an approved manner to the general earthing system.	Metre	180			
71	12	Providing and fixing galvanized slotted cable trays supported from ceiling at intervals of 60 cms on both ends including cable clips with nuts and bolts welding of support rods with ceiling inserts or by drilling and installing expandable fasteners, cutting and making good complete					
a		300 mm wide (for horizontal at ceiling level)	Metre	100			
b		150 mm wide (For vertical drops)	Metre	100			

SI.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
72	12	Providing earthing station for pumps and MCC panel including excavation, C.I manhole cover and frame complete as per specifications and IE rules.	Each	8			
		<u>WATER TREATMENT PLANT</u>					
73	12	Supply, installation, testing & commissioning of vertical self supporting filtration unit fabricated from MS sheet as per IS: 2825, (minimum thickness of shell 6mm and dished end 8mm) pressure gauges, sample cock, GI class 'C' face piping, CI butterfly valves and all accessories, with initial charge of filter media including anthracite, 600 mm depth of graded sand gravel and 600 mm depth of anthracite painting inside with epoxy paint and outside with two coat of red oxide primer and two or more coat of synthetic enamel paint, testing and commissioning complete.					
a		Dual Media Filter					
		Capacity- 20500 lph					
		Filtration rate - 17500 lph/sqm					
		Filter dia approx. - 1250 mm					
		Working pressure : 3.0 Kg/sq cm.					
		Test pressure : 4. 5 Kg/sq cm	Each	4			
b	12	Activated Carbon Filter					
		Capacity- 20500 lph					
		Filtration rate - 17500 lph/sqm					
		Filter dia approx. - 1250 mm					
		Working pressure : 3.0 Kg/sq cm.					
		Test pressure : 4. 5 Kg/sq cm	Each	4			
74	12	Supply, installation, testing & commissioning of metering pump type chemical doser with motorize ajector, shaft & blade SS 304 material with 100 lits. PVC/HDPE solution tank, injection fitting assembly, suction and delivery hose upto the point of injection, capacity 0-6 lph, complete in all respects.	Each	4			
	12	<u>BORE WELL PUMPS</u>					
		Supply, installation testing & commissioning of submersible pumping set suitable to operate on 410 volts 3 phase 50 HZ A.C. power supply including water proof joint free cable, motor control panel, 50 mm dia, G.I. pipe (medium class) column with fittings, clamps etc. complete in all respect as per details given below :					
		Pump to be lowered below ground at : 170 M					
		Pump capacity : 15000 litres/hr					
		Head : 170 M					
		H.P : 15 (Approx)	Set	8			
		PART B (f) : SUB-TOTAL					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
NON-PRICED BILL OF QUANTITIES (Rate and Amount to be provided by the bidder) FOR FIRE PROTECTION SYSTEM							
PART B (g) : (Refer Clause 12 of ITB, Volume I, Section 2)							
75	7	Providing, laying, jointing and testing of following sizes of pipes conforming to IS-1239 with all accessories like all fittings including tees, elbows, reducers, flanges, rubber gaskets, nuts bolts, washer. And fixing the pipe on floor / wall /ceiling with suitable size clamps, hangers, structural steel supports as per specification. And G.I. pipe sleeve to be provided wherever the pipes are crossing the walls/floors and sealing the sleeves as per consultants requirements including cutting holes and chases in brick, R.C.C work and making good the same to original conditions complete in all respects. Pipe shall be MS black as per IS-1239 heavy grade and fitting for 40 mm and below be of screwed fittings and above BW 'C' class fittings					
		For Fire System - M.S. 'C' Heavy class pipe					
a		25 mm dia	RM	6380			
b		32 mm dia	RM	520			
c		40 mm dia	RM	880			
d		50 mm dia	RM	1620			
e		65 mm dia	RM	220			
f		80 mm dia	RM	740			
g		100 mm dia	RM	420			
h	150 mm dia	RM	1320				
76	7	Providing two coats of synthetic enamel paint of approved shade over a coat of primer. Including painting of legends both direction arrow as per the approval of the architects / consultants.					
a		25 mm dia	RM	6380			
b		32 mm dia	RM	520			
c		40 mm dia	RM	880			
d		50 mm dia	RM	1620			
e		65 mm dia	RM	220			
f		80 mm dia	RM	740			
g		100 mm dia	RM	420			
h		150 mm dia	RM	1320			
77	7	Providing, laying, jointing and testing in trenches the following sizes of M.S. class 'C' (heavy class) pipes conforming to IS:1239 with accessories like fittings including tees, elbows, reducers, flanges, rubber gaskets, G.I. nuts, bolts and washers and providing 150mm thick fine sand layer all around the pipe, including excavation in all kind of soil/ hard rock, refilling, ramming and removing the excavated surplus material and making good the same complete as required.and providing anti corrosive treatment (coating and wrapping) with 4 mm thick anti corrosive tape as per IS :10221 complete as required. (for external works)					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
a		80 mm dia	RM	80			
b		150 mm dia	RM	1160			
78	7	Providing and fixing Orifice plate made out of 8mm thick stainless plate for pipe to reduce pressure upto 3.5 kg/sqcm complete in all respects					
a		100 mm dia	Each	64			
79	7	Providing and fixing gun metal ball valve suitable for pressure 15 Kg/Cm ² and conforming to IS: 778 of the following size including providing necessary union / flange.					
a		25 mm dia	Each	120			
80	7	Providing & fixing of butterfly valve suitable for pressure 15 Kg/Sqcm. with flanges, nut bolts & gaskets complete required.					
a		100 mm dia	Each	4			
b		150 mm dia	Each	60			
81	7	Providing & fixing gun metal non-return valves (PN1.6) complete with matching flanges, rubber insertion, nuts, bolts and washer complete as required.etc. of following sizes.					
a		150 mm dia	Each	24			
82	7	Providing & fixing Air Cushion tank (Air - vessel) 250 mm dia x 1.0 M high with dished top made of minimum 6 mm thick M.S Sheet pipe/ plate complete with 25 mm dia brass . Air Valve (Ball type) 25 mm dia stopcock. Nipple tees. Elbows and all accessories as required including fixing brackets.	Each	28			
83	7	Providing & fixing double flanged flexicon rubber expansion joint with unit control of standard length as per manufacturers specs. Tested to a pressure of 15Kg/Sqcm including rubber gaskets, flanges, nuts, bolts and washers complete as required.					
a		100mm dia	Each	44			
b		150 mm dia	Each	44			
84	7	Supply, Installation, Testing & Commissioning of Single headed, Gunmetal ISI marked oblique pattern hydrant landing valve with 80 mm dia flange inlet and 63 mm dia instantaneous type female out let complete with gunmetal cap and G.I chain twist release type plug and all accessories as per IS:5290-1983	Each	140			
85	7	Providing & fixing swinging type First Aid hose reel in red colour with 36 mts long and 20 mm dia heavy duty rubber water hose, 20 mm dia globe valve stop cock, terminating with G.M. coupling & nozzle of 5mm outlet with shut off valve conforming to IS 8090 - 1976 complete with drum and brackets for fixing on wall, bolts & nuts conforming to IS:884-1969 complete as required.	Each	120			
86	7	Providing & fixing Controlled Percolating (CP) Hose ISI marked (IS:8423) 63 mm dia x 15 m long complete with instantaneous type gunmetal 63 mm dia ISI marked Male & Female couplings (IS:903) bound and riveted to hose pipe with copper rivets and 1.5 mm copper wire.brusting pressure not less than 22 Kg/Sqcm. (two nos. for each hydrant-valve)	Each	40			

SI.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
87	7	Providing & fixing Non per colating flexible hose (RRL type – A) ISI marked (IS:636 Type A) 63 mm dia x 15 m long complete with ISI marked Male and female coupling (IS:903) bound and riveted to hose pipe with copper rivets and 1.5 Sq.mm.copper wire.brusting pressure not less than 22 Kg/Sqcm. (two nos. for each hydrant-valve)	Each	240			
88	7	Providing & Fixing Gun-metal 63 mm dia short size branch pipes with 20 mm dia nozzle with 63 mm instantaneous coupling ISI marked (IS:903)	Each	140			
89	7	Providing and fixing standard firemans axe with heavy rubber handle.	Each	140			
90	7	Providing and fixing inlet breeching having C.I. body four 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.	Each	4			
91	7	Providing & fixing Gunmetal fire Brigade Suction hose coupling (Draw out Connection) with nut for female coupling as per IS:902-1974 complete with 100mm dia. 1 No C.I Foot valve flanged (to be connected to static water tank)	Each	4			
92	7	Providing and fixing 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 in Down Comer Riser	Each	16			
93	7	Providing and fixing weather proof cabinet of size not less than 0.75 x 0.6 x 0.25 mtr made out of M.S. sheet not less than 1.5 mm thick having central opening and 4 mm thick glazed glass doors (Two nos.) suitably marked on the outside 'with the letters "FIRE HOSE" including necessary locking arrangement and painting in red colour suitable to accommodate, external yard hydrant valve, 2 nos 15 mtr long Hose pipe, branch pipe, nozzle and fire man's axe. It shall be mounted on boundary wall complete as required.	Each	20			
94	7	Providing and fixing 4mm thick glass door of size 2.1m x 0.9m with anodized aluminium frame of size 0.10 x 0.05 M with centre opening for fire hose cabinet. Suitable marked on the outside with the letters "FIRE HOSE" including locking arrangement. All aluminium work to be in Red P.O. colour.	Each	120			
95	7	Providing and fixing suction & delivery headers of required length fabricated from 6mm thick M.S. rolled and welded pipe suitable for 15 Kg/Sqcm working pressure with end flange connections having inlet&outlet flanged connections as per drawing. 150 mm dia pressure gauge with stop cock. Including supports from wall, floors & ceiling complete as required.					
a		150 mm dia	RM	100			
b		200 mm dia	RM	60			
c		250 mm dia	RM	40			
d		300 mm dia	RM	40			

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
96		Providing and laying Cement concrete for anchor / thrust blocks of 1:4:8 [1 cement : 4 fine aggregate : 8 coarse aggregate, 40 mm nominal size as per standard design.	Cum	356			
97	8	Providing and fixing Fire Extinguishers (A, B, C type powder) complete with all accessories as per manufacturers specifications.					
a		Capacity 2 Kg	Each	120			
b		Capacity 5 Kg	Each	120			
c		Capacity 9 Kg	Each	120			
98	8	ISI marked fire extinguisher Mech. Foam type capacity 50 litres with gunmetal cap and nozzle, trolley mounted and complete in all respects including initial fill.	Each	4			
99	8	ISI marked (IS:2878) Fire and wall suspension bracket, Extinguisher, Trolley mounted carbon-dioxide type capacity 22.5 Kg. Flat base including valve, discharge hose of not less than 10mm dia 1m long complete in all respects including wheeled trolley, carrying handle and initial fill with CO2 gas as per IS: 307-1996 filled to a filling ratio of not more than 0.667.	No.	4			
100	7	Providing and fixing dial type pressure gauge with isolation cock and copper pipe on main header Dial diameter 100 mm celebration 0-14 / sq. cm.	Each	140			
101	7	Providing and fixing C.I. 'POT' strainer with bronze perforated sheet basket tested to a pressure of 15 Kg/sqcm including rubber gasket, flanges, nuts, bolts and washers, complete as required.					
a		200 mm dia	No.	8			
102	7	Providing and fixing Chrome finish quartzoid bulb sprinklers of size 15mm dia (Pendent / upright / side wall) to be Operated at 68 Deg C. Including two piece of adjustable C.P. Rosset complete as required.					
a		Pendent through type	Each	2640			
b		Side wall extended through type	Each	160			
103	7	Providing & fixing installation Control Valve assembly comprising of vertical wet alarm valve, including butterfly valve, hydraulic alarm motor & gong, 15 mm dia .Test valve and all necessary trimming connections including 2 nos. pressure gauge as per manufacturer 's catalogue (UL/FM/LPC/TAC listed approved).					
a		150 mm dia	Each	4			
104	7	Providing and fixing 25 mm dia inspection & testing assembly with gunmetal valve sight gas, valve & connected to drain line.	Each	20			
105	7	Providing & fixing Electrically operated Flow indicating Switches with threaded connection for a minimum flow of 90 lpm for indicating water flow in sprinkler's branch line with necessary junction box installed complete with tee glands and other accessories as per specifications.					
a		150 mm dia	Each	20			
		Fire Pumps & Equipments (Wet Riser System)					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
106	9	Supply (installation, testing and commissioning) of electrically driven fire-pump, suitable for automatic operation consisting of the following :					
		Horizontally mounted end suction centrifugal pump, suitable for operation on 415 volts \pm 10%, 3 phase, 50 HZ A.C supply, complete with flexible coupling and coupling guard as required. Fire pump having C.I. body, bronze impeller and S.S. Shaft with mechanical seal, capable for delivering 2280 Lpm water at 60 mts. head to ensure a minimum pressure of 4kg/cm ² at the farthest hydrant. Complete with necessary pressure gauge with gun metal shut off cock on delivery side. The pump should meet the condition of Local fire Authority).					
		Squirrel cage induction motor, TEFC type suitable for operation on 415 volts, 3 phase 50 HZ A.C supply, for the above pump with synchronous speed of 2900 RPM.					
		Common base plate for (a) and (b) from M.S. Channel for required size.					
		Suitable cement concrete foundation with cement concrete plaster complete with antivibration arrangement of cushy foot mountings.	Set	8			
107	9	Supply, installation, testing and commissioning of Diesel Engine driven fire pump suitable for automatic operation comprising of the following :					
		Horizontally mounted end suction centrifugal pump, suitable for operation on 415 volts \pm 10%, 3 phase, 50 HZ A.C supply, complete with flexible coupling and coupling guard as required. Fire pump having C.I. body, bronze impeller and S.S. Shaft with mechanical seal, capable for delivering 2280 LPM of water at 60 mts. head to ensure a minimum pressure of 4kg/cm ² at the farthest hydrant. Complete with necessary pressure gauge with gun metal shut off cock on delivery side. The pump should meet the condition of Local fire Authority).					
		Water Cooled Diesel engine of speed 1800 RPM for the above pump with automatic starting mechanism and other accessories including fuel tank (fabricated from 3mm MS sheet painting with two coats of synthetic enamel paint over a coat of primer) capacity 600 lts (fitted with Magnetic oil level indicator, MH with cover drain valve, Air vent hydraulic pumps including structural supports (painted with approved shade), 2 Nos. x 12 volt battery, heat exchanger with necessary piping connections & fittings flexible coupling, coupling guard & exhaust pipe as per drawing complete as required.					
		Common base plate for (a) and (b) from M.S. channel of required size.					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		Suitable cement concrete foundation with plaster, Antivibration arrangement of cushy foot mountings.					
		24 volts, 180 AH Lead battery - Exide make (12 volts-2 Nos) with boost / trickle charger for starting the engine automatically as required.	Set	4			
108	9	Supply, installation, testing and commissioning of jockey pump comprising of the following :					
		Horizontally mounted end suction centrifugal pump, suitable for operation on 415 volts \pm 10%, 3 phase, 50 HZ A.C supply, complete with flexible coupling and coupling guard as required. Fire pump having C.I. body, bronze impeller and S.S. Shaft with mechanical seal, capable for delivering 180 LPM of water at 60 mts. head to ensure a minimum pressure of 4kg/cm ² at the farthest hydrant. Complete with necessary pressure gauge with gun metal shut off cock on delivery side. The pump should meet the condition of Local fire Authority).					
		Squirrel cage induction motor TEFC type for operation on 415 V, 3 phase 50 HZ AC supply for the above pump with a synchronous speed of 2900 R.P.M. with flexible coupling and coupling guard etc. as required.					
		Common base plate for (a) and (b) from M.S. channel as required size.					
		Suitable cement concrete foundation with plaster, Antivibration arrangement of cushy foot mounting.	Set	4			
109	9	Providing, fixing, testing and commissioning of pressure vessel (450 mm dia & 2000 mm height) for pressurization of fire system complete with pressure switches with isolation valves, pressure gauge with isolation valve, valves at outlet / drain to operate as per operating sequences including 25 mm dia drain valve, air release valve with stop cock on the top Duly painted from inside and outside complete as required.	Set	4			
110	11	Fire Fighting Pump Panel					
		<u>Incomer</u>					
		1No. 160A TP&N MCCB(25 KA)					
		1No. 160A FP C.O.S					
		<u>Metering Indication</u>					
		1 set of phase indicating lamps					
		1 set of Voltmeter (0-500V) with Built-in VSS with 3 nos. 2A SP MCB					
		1 set Ammeter (0-160A) with ASS and 3 nos.160/5A, CT's					
		<u>Bus Bar</u>					
		1 Set of 200A TPN Aluminium Bus Bar with colour coded PVC Sleeves					
		<u>Outgoing</u>					
		2 Nos. 125A TP MCCB (25 KA)					
		2 No. 32A TP MCB (10 KA) C curve					
		1 No. 20A DP MCB (10 KA) C curve					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		1 No. 32A FP MCB (10 KA) C curve					
		1 Nos. of S/D starter with self illuminated Push button for ON & OFF and suitable rating of contactor and O/L relays, suitable for 50 HP Pump.					
		1 No. DOL starter with self illuminated Push button for ON & OFF and suitable rating of contactor and O/L relays, suitable for 5 HP Motor.					
		1 No. AMF Panel for diesel engine, interlocked with Fire Pump motor with all control wiring complete.					
		Note:					
		<i>The starters of Fire Fighting Pump shall be interlocked with the Pressure switch.</i>					
		Providing, Fixing, Testing & Commissining of Fire Fighting Pump Panel as described above	Set	4			
		Note:					
		Contractor shall include in his rates for providing level controllers, switches, wiring, cabling from level controller to panel etc. complete as required to operate the system automatic/manual and pump shall be protected against running dry.					
		PART B (g) : SUB-TOTAL					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
NON-PRICED BILL OF QUANTITIES (Rate and Amount to be provided by the bidder) FOR ELECTRICAL WORKS							
PART B (h) : (Refer Clause 12 of ITB, Volume I, Section 2)							
A.	CIRCUIT CUM POINT WIRING						
111	1 & 2	Wiring for the following light points with 2.5 sq. mm PVC insulated copper conductor 1100 volts grade stranded flexible FRLS wires of approved make in concealed or surface mounted 25 mm dia medium class PVC Conduit including providing and controlled by SPMCB provided in the DB. (Cost of MCB not to be included here).					
a		Primary point controlled by one MCB.	Pt.	244			
b		Same as item above but <u>Secondary point</u> . i.e. Points to be looped with Primary point.	Pt.	936			
	CABLES, MAINS AND SUB MAINS						
112	3	Supply of Aluminium Cables					
		Supplying of following 1100 volt grade XLPE insulated PVC inner sheathed and HR PVC outer sheathed aluminium conductor armoured cables as per specification.					
a	3	3.5 Core 300 Sq.mm	Mtr.	14800			
b	3	3.5 Core 150 Sq.mm	Mtr.	660			
c	3	3.5 Core 120 Sq.mm	Mtr.	60			
d	3	3.5 Core 70 Sq.mm	Mtr.	1440			
e	3	3.5 Core 50 Sq.mm	Mtr.	220			
f	3	3.5 Core 35 Sq.mm	Mtr.	1760			
g	3	4 Core 16 Sq.mm	Mtr.	3660			
h	3	4 Core 10 Sq.mm	Mtr.	4320			
	3	Supply of Copper Cables					
113		Supplying & laying of following 1100 volt grade PVC insulated sheathed copper conductor armoured cable as per specification in existing trenches, cable trays ducts over bed of sand, clamped includes anchor fastners to wall with suitable clamps, saddles fixing bolts including connecting testing and commissioning.					
a	3	4 Core 6 Sq.mm	Mtr.	3960			
b	3	4 Core 4 Sq.mm	Mtr.	420			
c	3	2 Core 6 Sq.mm	Mtr.	400			
d	3	1 Core 70 Sq.mm	Mtr.	3520			
	3	End Termination of Cables					
114		Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.					
a	3	1 Core 70 Sq.mm. (Copper Unarmoured Cable)	Each	360			
b							
c	3	2 Core 6 Sq.mm. (Copper Unarmoured Cable)	Each	16			
d	3	4 Core 4 Sq.mm. (Copper Unarmoured Cable)	Each	24			

SI.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
e	3	4 Core 6 Sq.mm. (Copper Unarmoured Cable)	Each	152			
		DG SYNCHRONISATION/ CHANGEOVER/ MAIN LT PANEL/ SUB LT PANEL/ MDB & SDB					
115		Design, fabrication, assembling, wiring, testing, supply, forwarding to site, unloading, shifting to location, inspection, installation, testing and commissioning of DG Synchronisation/ DG AMF/ DG Changeover Panel, Main LT Panel/ Sub LT Panel, MDB & SDB, fabricated out of 14 gauge CRCA sheet steel in cubicle formation, compartmentalized, from 3b consutruction, free standing floor mounted, dust and vermin proof with reinforcement of suitable size angle iron, channel, 'T' sections and/ or flats wherever necessary. 16 gauge CRCA sheet steel shall be used for final distribution panels. 3 mm thick cable gland plates shall be provided on top as well as at the bottom of the panels. Panels shall be treated with all anticorrosive process before powder coating as per specifications and final approved shade. 2 No. earthing terminals shall be provided for all distrtribution panels. Panels shall be suitable for 415V, 3 phase, 4 wire, 50 HZ supply system. Lifting hooks shall also be provided in case of large panels. Approval shall be taken for each panel in the form of shop drawings before fabrication.					
		Galvanised hardware with zinc passivation shall be used in fabrication of panels.					
	4	MAIN LT CUM DG CHANGEOVER PANEL					
		SECTION-I					
A.		Incoming Air Circuit Breaker from 625 kVA DG Set - 1					
		1000 Amps 4 pole electrically operated manually draw out type air circuit breaker with microprocessor release unit for short circuit, over current and earth fault protection with adjustable setting as per specification and with following accessories:					
		Engine Generator control package relay type EGCP - 32 of woodward/ PCC-3.3 of Cummins or equivalent make at alternator with all accessories. - 1 Set					
		Digital VAF meter (Conserve – EM 6459 or equivalent)with 3 No. 1000/ 5 amps 15VA CTs with inbuilt selector switch -1 Set					
		Suitable rating Battery charger with voltmeter of range 0-50 volts and ammeter of range 0-50 amps for trickle and boost charging as per specifications					
		3 No. phase indicating lights with control MCB's.					
		Breaker ON/ OFF/ Trip indicating lights with control MCB's.					
		Excitor field DC voltmeter and ammeter.					
		Breaker control switch.					
		Differential protection relay (87) with PS class CT's on both side (3 No.)					
		Master trip relay.					
		Trip circuit supervision relay.					
		24 V DC shunt trip.					

SI.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		Mains supply voltage sensing relay.					
		Emergency stop push button.					
		Selector switch for Auto/ Manual/ Test					
		Selector switch for engine control OFF/ ON.					
		Five push buttons – start, stop, reset, test and accept.					
		Three indicating lamps “load on set”, ‘Load on Mains’ and “ Set fail to start’.					
		16 Window alarm annunciators panel with hooter, push buttons, aux. Contactors etc as required as per specification.					
		Temperature scanner (Messi Bus/Procon)					
B.		<u>Incoming Air Circuit Breaker from 500 kVA Transformer - 1</u>					
		800 Amps 4 pole electrically operated manually draw out type air circuit breaker with microprocessor release unit for short circuit, over current and earth fault protection with adjustable setting as per specification and with following accessories:					
		Digital load manager (conserve – EM 6400 with RS-485 or equivalent) of accuracy class-I, with 3 No. 800/5 amps 15VA CTs.					
		Phase indicating light shall be protected by 2 amps MCB's. - 3 Set					
		Three Phase Under voltage relay MV12 or equivalent (27) - 1 Set					
		Three Phase Over voltage relay MV 12 or equivalent (59) - 1 Set					
		Breaker ON/ OFF/ TRIP indicating lights with control MCB's. - 1 Set					
		24 V DC Shunt trip coil. - 1 Set					
		240 V AC under voltage release. - 1 Set					
		Auto-manual / test selector / switch - 1 Set					
		Breaker control switch - 1 Set					
		Auxiliary contacts required for necessary interlocking of breakers.					
		Three phase Voltage sensor relay shall be protected by 2 amps TP MCB's 1 Set					
		Transient voltage surge suppressor (Class - B stage - I) for power category with 10/ 350 wave, 1.5 kV protection level, 100 nano second response time, 100 kA discharge capacity, 600 Vrms max. continuous operating voltage, 63 Amp TPN control MCB's - 1 Set.					
		Digital voltmeter with inbuilt selector switch- 1 set					
C.		<u>Bus Bar</u>					
		1250 A TPN electrolytic Al bus bar with heat shrinkable insulation sleeve.					
D.		<u>Outgoings</u>					
		630 Amps TPN Moulded Case Circuit Breaker (Icu = Ics) with built in microprocessor based release for short circuit, over current, earth fault protection with adjustable settings and ON/ OFF/ Trip indication lamp including control MCB's etc. as per specifications & SLD - 3 No.					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		400 Amps TPN Moulded Case Circuit Breaker (Icu = Ics) with built in microprocessor based release for short circuit, over current, earth fault protection with adjustable settings and ON/ OFF/ Trip indication lamp including control MCB's etc. as per specifications & SLD - 2 No.					
		250 Amps TPN Moulded Case Circuit Breaker (Icu = Ics) with built in microprocessor based release for short circuit, over current, earth fault protection with adjustable settings and ON/ OFF/ Trip indication lamp including control MCB's etc. as per specifications & SLD - 2 No.					
		160 Amps TPN Moulded Case Circuit Breaker (Icu = Ics) with built in thermal magnetic release for short circuit, over current, earth fault protection with adjustable settings and ON/ OFF/ Trip indication lamp including control MCB's etc. as per specifications & SLD - 2 No.					
		100 Amps TPN Moulded Case Circuit Breaker (Icu = Ics) with built in thermal magnetic release for short circuit, over current, earth fault protection with adjustable settings and ON/ OFF/ Trip indication lamp including control MCB's etc. as per specifications & SLD - 3 No.					
E.		Bus Coupler					
		1000 Amps 4 pole electrically operated manually drawout type Air Circuit Breaker with ON/ OFF/ TRIP indicating lamps including control MCB's with fuse, shunt trip, U/ V release & breaker control switch etc. complete as per specs and SLD - 1 No.					
		SECTION-II					
A.		Incoming Air Circuit Breaker from 625 kVA Transformer - 2					
		800 Amps 4 pole electrically operated manually draw out type air circuit breaker with microprocessor release unit for short circuit, over current and earth fault protection with adjustable setting as per specification and with following accessories:					
		Digital load manager (conserve – EM 6400 with RS-485 or equivalent) of accuracy class-I, with 3 No. 800/5 amps 15VA CTs.					
		Phase indicating light shall be protected by 2 amps MCB's. - 3 Set					
		Three Phase Under voltage relay MV12 or equivalent (27) - 1 Set					
		Three Phase Over voltage relay MV 12 or equivalent (59) - 1 Set					
		Breaker ON/ OFF/ TRIP indicating lights with control MCB's. - 1 Set					
		24 V DC Shunt trip coil. - 1 Set					
		240 V AC under voltage release. - 1 Set					
		Auto-manual / test selector / switch - 1 Set					
		Breaker control switch - 1 Set					
		Auxiliary contacts required for necessary interlocking of breakers.					
		Three phase Voltage sensor relay shall be protected by 2 amps TP MCB's - 1 Set					
		Transient voltage surge suppressor (Class - B stage - I) for power category with 10/ 350 wave, 1.5 kV protection level, 100 nano second response time, 100 kA discharge capacity, 600 Vrms max. continuous operating voltage, 63 Amp TPN control MCB's - 1 Set.					
		Digital voltmeter with inbuilt selector switch- 1 set					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
B.		<u>Incoming Air Circuit Breaker from 625 kVA DG Set - 2</u>					
		1000 Amps 4 pole electrically operated manually draw out type air circuit breaker with microprocessor release unit for short circuit, over current and earth fault protection with adjustable setting as per specification and with following accessories:					
		Engine Generator control package relay type EGCP - 32 of woodward/ PCC-3.3 of Cummins or equivalent make at alternator with all accessories. - 1 Set					
		Digital VAF meter (Conserve – EM 6459 or equivalent)with 3 No. 1000/ 5 amps 15VA CTs with inbuilt selector switch -1 Set					
		Suitable rating Battery charger with voltmeter of range 0-50 volts and ammeter of range 0-50 amps for trickle and boost charging as per specifications					
		3 No. phase indicating lights with control MCB's.					
		Breaker ON/ OFF/ Trip indicating lights with control MCB's.					
		Excitor field DC voltmeter and ammeter.					
		Breaker control switch.					
		Differential protection relay (87) with PS class CT's on both side (3 No.)					
		Master trip relay.					
		Trip circuit supervision relay.					
		24 V DC shunt trip.					
		Mains supply voltage sensing relay.					
		Emergency stop push button.					
		Selector switch for Auto/ Manual/ Test					
		Selector switch for engine control OFF/ ON.					
		Five push buttons – start, stop, reset, test and accept.					
		Three indicating lamps "load on set", 'Load on Mains' and " Set fail to start".					
		16 Window alarm annunciators panel with hooter, push buttons, aux. Contactors etc as required as per specification.					
		Temperature scanner (Messi Bus/Procon)					
C.		<u>Bus Bar</u>					
		1250 Amp TPN electrolytic Al bus bar with heat shrinkable insulation sleeve.					
D.		<u>Outgoings</u>					
		630 Amps TPN Moulded Case Circuit Breaker (Icu = Ics) with built in microprocessor based realese for short circuit, over current, earth fault protection with adjustable settings and ON/ OFF/ Trip indication lamp including control MCB's etc. as per specifications & SLD - 2 No.					
		400 Amps TPN Moulded Case Circuit Breaker (Icu = Ics) with built in microprocessor based realese for short circuit, over current, earth fault protection with adjustable settings and ON/ OFF/ Trip indication lamp including control MCB's etc. as per specifications & SLD - 2 No.					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		200 Amps TPN Moulded Case Circuit Breaker (Icu = Ics) with built in thermal magnetic release for short circuit, over current, earth fault protection with adjustable settings and ON/ OFF/ Trip indication lamp including control MCB's etc. as per specifications & SLD - 2 No.					
		160 Amps TPN Moulded Case Circuit Breaker (Icu = Ics) with built in thermal magnetic release for short circuit, over current, earth fault protection with adjustable settings and ON/ OFF/ Trip indication lamp including control MCB's etc. as per specifications & SLD - 1 No.					
		100 Amps TPN Moulded Case Circuit Breaker (Icu = Ics) with built in thermal magnetic release for short circuit, over current, earth fault protection with adjustable settings and ON/ OFF/ Trip indication lamp including control MCB's etc. as per specifications & SLD - 3 No.					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		Note:					
		All outgoing feeders shall have suitable range of followings:					
		i. All breakers shall be electrically interlocked as per schematic diagram.					
		ii. All ACB's/ MCCB's shall be suitable for 50 KA breaking capacity.					
		iii. PLC for load management and supervision.					
		iv. 2 kVA UPS for 30 Minutes Backup for control wiring.					
		v. Three phase indicating lamps shall be protected by 6 amps SP MCBs.					
		vi. 1 No. 800/400/ 5, 15 VA dual ratio CT's shall be provided for APFCR on each transformer's incomer.					
		vii. All outgoing feeders shall be provided with built-in short circuit & earth fault relay module.					
		viii. All outgoing shall have dual Electronic energy meter (EM-6438 with RS-485 or equivalent) with required number of CT's as required.					
		ix. Wiring and supply, installation of space heater, humidistat and control MCB's shall be provided all vertical sections.					
		x. Suitable danger board shall be provided.					
		xi. All bus bar section/ backside panels shall have pad locking facility and hinged type door.					
		xii. 9 W fitting with CFL lamp, switch shall be provided in each vertical section.					
		xiii. Incoming breakers shall have suitable provision for busduct connection..					
		xiv. All Electronic Energy meter shall be pre wired for BMS connection upto central point within the panel with sheilded cable.					
		Main LT cum DG Changeover Panel as described above.	Set	4			
116	4	HVAC PANEL					
A.		Incoming					
		630 Amps 4P Moulded Case Circuit Breaker (Icu = Ics) with built in microprocessor based release for short circuit, over current, earth fault protection with adjustable setting, ON/ OFF/ Trip indication lamp including control MCB's and following accessories as per specifications & SLD - 1 No.					
i.		VAF digital electronic meter with inbuilt selector switch and 630/5 Amps suitable VA, CL 1 CTs . -1 Set					
ii.		Phase indicating light shall be protected by 2 Amps SP MCB's - 3 Sets					
iii.		Transient voltage surge suppressor (Class - C stage - II) for power category with 8/ 20 wave, 2.5 kA protection level, 25 nano second response time, 25 kA discharge capacity, 600 Vrms max. continuous operating voltage, 63 Amp TPN control MCB's - 1 Set.					
B.		Bus Bars					
		800 Amps TPN Aluminium bus bars (25 kA) with heat coloured shrinkable insulation sleeve. - 1 Set					
C.		Outgoing					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		250 Amps TP + adequate neutral link Moulded Case Circuit Breaker (Icu = Ics) with built in microprocessor based realse for short circuit, over current, earth fault protection with adjustable settings and ON/ OFF/ Trip indication lamp including control MCB's etc. as per specification & SLD - 4 No.					
		100 Amps TP + adequate neutral link Moulded Case Circuit Breaker (Icu = Ics) with built in thermal magnetic realse for short circuit, over current, earth fault protection with adjustable settings and ON/ OFF/ Trip indication lamp including control MCB's etc. as per specification & SLD - 2 No.					
		63 Amps TP + adequate neutral link Moulded Case Circuit Breaker (Icu = Ics) with built in thermal magnetic realse for short circuit, over current, earth fault protection with adjustable settings and ON/ OFF/ Trip indication lamp including control MCB's etc. as per specification & SLD - 3 No.					
		25 Amps TP + adequate neutral link MCB - 4 No.					
		16 Amps TP + adequate neutral link MCB - 4 No.					
		Notes:-					
		<i>All MCCB's shall be of 25 kA (Ics) breaking capacity.</i>					
		<i>All MCB's shall be of 10 kA (Ics) breaking capacity.</i>					
		HVAC Panel described as above	Set.	4			

SI.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
117	4	<u>TERRACE VENTILATION PANEL (TVP)</u>					
A.		<u>Incoming</u>					
		2 No. 250 Amps 4P Moulded Case Circuit Breaker (Icu = Ics) with built in microprocessor based release for short circuit, over current, earth fault protection with adjustable setting, ON/ OFF/ Trip indication lamp including control MCB's including 2 No. 250 Amp TP Contactor and following accessories as per specifications & SLD:					
i.		VAF digital electronic meter with inbuilt selector switch and 250/5 Amps suitable VA, CL 1 CTs . -1 Set					
ii.		Phase indicating light shall be protected by 2 Amps SP MCB's - 3 Sets					
iii.		Transient voltage surge suppressor (Class - C stage - II) for power category with 8/ 20 wave, 2.5 kA protection level, 25 nano second response time, 25 kA discharge capacity, 600 Vrms max. continuous operating voltage, 63 Amp TPN control MCB's - 1 Set.					
B.		<u>Bus Bars</u>					
		300 Amps TPN Aluminium bus bars (25 kA) with heat coloured shrinkable insulation sleeve. - 1 Set					
C.		<u>Outgoing</u>					
		32 Amps TP + adequate neutral link MCB - 2 No.					
		25 Amps TP + adequate neutral link MCB - 16 No.					
		20 Amps TP + adequate neutral link MCB - 2 No.					
		<u>Notes:-</u>					
		All MCCB's shall be of 25 kA (Ics) breaking capacity.					
		All MCB's shall be of 10 kA (Ics) breaking capacity.					
		Terrace Ventilation (TVP) Panel described as above	Set.	4			
118	4	<u>MDB - LIFT</u>					
A.		<u>Incoming</u>					
		100 Amps TP + adequate neutral link Moulded Case Circuit Breaker (Icu = Ics) with built in thermal magnetic release for short circuit, over current, earth fault protection with adjustable setting, ON/ OFF/ Trip indication lamp including control MCB's and following accessories as per specifications & SLD - 1 No.					
i.		VAF digital electronic meter with inbuilt selector switch and 100/5 Amps suitable VA, CL 1 CTs . -1 Set					
ii.		Phase indicating light shall be protected by 2 Amps SP MCB's - 3 Sets					
iii.		Transient voltage surge suppressor (Class - C stage - II) for power category with 8/ 20 wave, 2.5 kA protection level, 25 nano second response time, 25 kA discharge capacity, 600 Vrms max. continuous operating voltage, 63 Amp TPN control MCB's - 1 Set.					
B.		<u>Bus Bars</u>					
		125 Amps TPN Aluminium bus bars (25 kA) with heat coloured shrinkable insulation sleeve. - 1 Set					
C.		<u>Outgoing</u>					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		40 Amps TP + adequate neutral link MCB - 4 No.					
		25 Amps SP + adequate neutral link MCB - 3 No.					
		Notes:-					
		All MCCB's shall be of 25 kA (lcs) breaking capacity.					
		All MCB's shall be of 10 kA (lcs) breaking capacity.					
		MDB - Lift described as above	Set.	4			
119	4	MDB - UPS - 1					
A.		Incoming					
		630 Amps TP + adequate neutral link Moulded Case Circuit Breaker (lcu = lcs) with built in microprocessor based release for short circuit, over current, earth fault protection with adjustable setting, ON/ OFF/ Trip indication lamp including control MCB's and following accessories as per specifications & SLD - 1 No.					
i.		VAF digital electronic meter with inbuilt selector switch and 600/5 Amps suitable VA, CL 1 CTs . -1 Set					
ii.		Phase indicating light shall be protected by 2 Amps SP MCB's - 3 Sets					
iii.		Transient voltage surge suppressor (Class - C stage - II) for power category with 8/ 20 wave, 2.5 kA protection level, 25 nano second response time, 25 kA discharge capacity, 600 Vrms max. continuous operating voltage, 63 Amp TPN control MCB's - 1 Set.					
B.		Bus Bars					
		800 Amps TPN Aluminium bus bars (25 kA) with heat coloured shrinkable insulation sleeve. - 1 Set					
C.		Outgoing					
		160 Amps TP + adequate neutral link Moulded Case Circuit Breaker (lcu = lcs) with built in thermal magnetic release for short circuit, over current, earth fault protection with adjustable setting, ON/ OFF/ Trip indication lamp including control MCB's as per specifications & SLD - 6 No.					
		Notes:-					
		All MCCB's shall be of 25 kA (lcs) breaking capacity.					
		All MCB's shall be of 10 kA (lcs) breaking capacity.					
		MDB - UPS - 1 described as above	Set.	4			
120	4	MDB - UPS - 2					
A.		Incoming					
		160 Amps TP + 2N Moulded Case Circuit Breaker (lcu = lcs) with built in thermal magnetic release for short circuit, over current, earth fault protection with adjustable setting, ON/ OFF/ Trip indication lamp including control MCB's and following accessories as per specifications & SLD - 5 No.					
i.		VAF digital electronic meter with inbuilt selector switch and 160/5 Amps suitable VA, CL 1 CTs . -5 Set					
ii.		Phase indicating light shall be protected by 2 Amps SP MCB's - 15 Sets					

SI.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
iii.		Transient voltage surge suppressor (Class - C stage - II) for power category with 8/ 20 wave, 2.5 kA protection level, 25 nano second response time, 25 kA discharge capacity, 600 Vrms max. continuous operating voltage, 63 Amp TPN control MCB's - 5 Set.					
B.		Bus Bars					
		800 Amps TPN Aluminium bus bars (25 kA) with heat coloured shrinkable insulation sleeve. - 1 Set					
C.		Outgoing					
		160 Amps TP + adequate neutral link Moulded Case Circuit Breaker (Icu = Ics) with built in thermal magnetic release for short circuit, over current, earth fault protection with adjustable setting, ON/ OFF/ Trip indication lamp including control MCB's as per specifications & SLD - 4 No.					
		125 Amps TP + adequate neutral link Moulded Case Circuit Breaker (Icu = Ics) with built in thermal magnetic release for short circuit, over current, earth fault protection with adjustable setting, ON/ OFF/ Trip indication lamp including control MCB's as per specifications & SLD - 2 No.					
		100 Amps TP + adequate neutral link Moulded Case Circuit Breaker (Icu = Ics) with built in thermal magnetic release for short circuit, over current, earth fault protection with adjustable setting, ON/ OFF/ Trip indication lamp including control MCB's as per specifications & SLD - 3 No.					
		63 Amps TP + adequate neutral link Moulded Case Circuit Breaker (Icu = Ics) with built in thermal magnetic release for short circuit, over current, earth fault protection with adjustable setting, ON/ OFF/ Trip indication lamp including control MCB's as per specifications & SLD - 4 No.					
		Notes:-					
		All MCCB's shall be of 25 kA (Ics) breaking capacity.					
		All MCB's shall be of 10 kA (Ics) breaking capacity.					
		MDB - UPS - 2 described as above	Set.	4			
121	4	MDB - EXTERNAL LIGHTING					
A.		Incoming					
		63 Amps 4 Pole Moulded Case Circuit Breaker (Icu = Ics) with built in thermal magnetic release for short circuit, over current, earth fault protection with adjustable settings, ON/ OFF/ Trip indication lamp including control MCB's and with following accessories as per specifications & SLD - 1 No.					
i.		VAF digital electronic meter with inbuilt selector switch and 60/5 Amps suitable VA, CL 1 CTs . - 1 Set					
ii.		Phase indicating light shall be protected by 2 Amps SP MCB's - 3 Sets					
iii.		Transient voltage surge suppressor (Class - C stage - II) for power category with 8/ 20 wave, 2.5 kA protection level, 25 nano second response time, 25 kA discharge capacity, 600 Vrms max. continuous operating voltage, 63 Amp TPN control MCB's - 1 Set.					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
B.		Bus Bars					
		100 Amps TPN Aluminium bus bars (25 kA) with heat coloured shrinkable insulation sleeve. - 1 Set					
C.		Outgoing					
iii.		40 Amp FP MCB - 6 No.					
		Notes:-					
i.		All MCCB's shall be of 25 kA (lcs) breaking capacity.					
ii		All MCB's shall be of 10 kA breaking capacity.					
		MDB - External Lighting described as above	Set	4			
122	4	EXTERNAL LIGHTING FEEDER PILLAR (IP 65)					
A.		Incoming					
		40 Amps 4 pole MCB isolator as incomer with 100 Amps 4 pole copper bus bars.					
B.		Outgoing					
		2 Set each having (2 x 4 way TPN DB 6 No. 10 amps SP MCB per phase as outgoing with 2 x 3 No. 32 amps DP RCCB of 30 mA leakage current, 2 No. 32 amps TP Contactor, push button etc. controlled through 2 No. 0-24 hour timer, photo sensor complete as required).					
		Notes:-					
ii		All MCB's shall be of 10 kA breaking capacity.					
		External Lighting Feeder Pillar described as above	Set	12			
123	5	125 KVAR CAPACITOR AUTOMATIC CONTROL PANEL					
A.		Incoming					
		400 amps TPN manually operated fully drawout type air circuit breaker as per specification and with following accessories:					
		96 x 96 mm sq. 0-500 Volt digital voltmeter with selector switch					
		Phase indicating light shall be protected by 2 Amps SP MCB's. - 3 Sets					
		Power factor compensating relay (including power factor meter) in 12 steps for automatic cut off or add on capacitor units to keep the power factor at 0.97 with variation of loads. All associated auxiliary contactors/ relays/ timer/ auto manual selector switches to be provided - 1 Set.					
B.		Bus Bars :					
		500 amps TPN Aluminium bus bars with coloured heat Shrinkable insulated sleeves. - 1 set					
C.		Outgoings - I:					
		Outgoing feeders consisting of following accessories.					
		20 amps TPN MCCB - 2 Set					
		20 amps or capacitor duty 440 volts 50 Hz contactors - 2 Sets					
		"ON"/ "OFF" push buttons and indicating lamps - 2 Sets					
		5 kVA, 440 volts capacitor unit as specified - 2 Sets.					
D.		Outgoings - II:					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		Outgoing feeders consisting of following accessories.					
		32 amps TPN MCCB - 4 Set					
		32 amps or capacitor duty 440 volts 50 Hz contactors - 4 Sets					
		"ON"/ "OFF" push buttons and indicating lamps - 4 Sets					
		10 kVA, 440 volts capacitor unit as specified - 4 Sets.					
E.		<u>Outgoings - III:</u>					
		Outgoing feeders consisting of following accessories.					
		40 amps TPN MCCB - 6 Set					
		40 amps or capacitor duty 440 volts 50 Hz contactors - 6 Sets					
		"ON"/ "OFF" push buttons and indicating lamps - 6 Sets					
		12.5 kVA, 440 volts capacitor unit as specified - 6 Sets.					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		Note:					
		All MCCB's shall be of 50 KA breaking capacity.					
i.		Fast response time of 'ON' capacitors 40-60 milliseconds.					
ii.		Necessary control card with proper wiring and lugs of the required rating to be provided.					
iii.		Heavy duty exhaust fans to be provided for cooling Thyristors.					
iv.		LED indication for number of capacitor banks 'ON'.					
v.		LED indication of Power Factor lagging or leading.					
vi.		The APFC system shall be provided with following :					
		<u>Protections :</u>					
		a. Over voltage.					
		b. Voltage imbalance.					
		c. Over temperature-system should be in standby mode & automatically restart after above condition restored.					
		d. Earth leakage.					
		e. 7% value reactors with iron core.					
		Capacitor automatic control panel (125 kVAr) as described above.	Set	8			
		SUPPLY OF LIGHTING FIXTURES					
	2	Supply of the following lighting fixtures with all fixing accessories etc. as required.					
124	2	Recess mounted direct/ indirect lighting fixture with special seamlessly integrated frame and centrally mounted diffused lighting UFD optics with 4x14 W CFL Lamp. PHILIPS Cat. No. TBS 570 4xTL5 14 W EBP OD DF WH or equivalent.	No.	3296			
25	2	Surface/ Wall mounted Fluorescent light fixture 1x28 W with fluorescent lamp. PHILIPS Cat. No. TMS 022 1 x T5 -28 W HFB including reflector or equivalent.	No.	976			
126	2	Surface mounted with mirror optics compact fluorescent light fixture 1x18 W with CFL Lamp. PHILIPS Cat. No. FCS 518 2xPL-L 18 W I 240 V or equivalent.	No.	540			
127	2	Surface mounted compact fluorescent light fixture 2x11 W with CFL Lamp. PHILIPS Cat. No. FCS 031 2xPL-S/ 2P 11W I 240V or equivalent.	No.	360			
128	2	Bulk Head lighting fixture Philips make FXC-101 1xPL-S/ 2P 9W AC GR or equivalent complete with PL-9 lamp.	No.	244			
129	2	Recess mounted compact fluorescent light fixture 2x18 W with CFL Lamp. PHILIPS Cat. No. FBH 145 M 2xPL-C/ 2P 18W I 240V LH or equivalent	No.	440			
130	2	Surface mounted fluorescent light fixture 1x14 W with T5 Lamp. PHILIPS Cat. No. VECTOR 14 W TCH 207 or equivalent.	No.	1844			
131	2	1200 mm Sweep Ceiling Fan	No.	1852			
132	2	450 mm dia Domestic Exhaust Fan	No.	648			
133	2	Aviation obstruction light cluster of LED's with step down transformer Bajaj make or equivalent complete as required	No.	4			

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
134	2	300 mm x 200 mm Self illuminated "Autoglo" double sided exit sinage for wall/ ceiling/ pendant cantilever mounting Prolite Make or equivalent.	No.	80			
		RECEIVING, HANDLING, STORING, INSTALLATION, TESTNG & COMMISSIONING OF SUB-STATION EQUIPMENT.					
135	9	Unloading, forwarding, shifting from stores to site, storing, inspection, handling, assembling, installation in correct assigned position, making proper connections, testing and commissioning of 11 kV, 350 MVA (18.4 kA), 630A, 3 (Three) Panel HT Vacuum circuit breaker Switchboard (One incomer & Two outgoing Vacuum circuit Breaker Panel), complete in all respect as per site requirement.	Set	4			
136	9	Receiving, unloading, inspection, handling, storing, shifting to foundation, installation, testing and commissioning of Oil Type outdoor Power Transformer of continuous ratings, 11 kV/0.433 kV, 500 kVA, 3 phase 50 Hz having Vector group Dyn-11 with Off Load Tap Changing on HV side complete in all respect as required as per specification.	Set	4			
137	8	Supply, installation, testing and commissioning of 180 AH capacity 24 volts DC hermetically sealed maintenance free lead acid batteries duly charged including battery charger unit with provisions of Boost Charing, and Float charging. Suitable for 240 V, including DC DB single phase + 10% AC, 50 Hz supply as per specifications	No.	4			
138	8	Supply and fixing in position the approved "Shock Treatment Charts" written in English and Local Language. These charts shall be framed in teak wood frame and covered with glass.	No.	16			
139	8	Supply and fixing in position the fire extinguishers carbon-di-oxide type 4.5 Kgs capacity.	No.	24			
140	8	Supply and fixing of in position the fire extinguishers dry chemical power (ABC) 5 kg capacity.	No.	16			
141	8	Supply and fixing of in-position the fire extinguishers dry chemical power (ABC) 2 kg capacity.	No.	16			
142	8	Supply and fixing in position 1000 mm wide rubber matting of 11 kV grade as per electricity rules. Thickness of rubber mat shall be not less than 2.5 mm.	RM	40			
143	8	Supply of fire buckets 5 No. in each set duly filled with fine sand and fixed on an angle iron frame as per requirement of local authorities. Fire buckets shall be painted red from outside and white from inside with additional handle at the bottom and suitable for outdoor installation.	Set	8			
144	8	Supply and fixing position the approved single line diagram framed in 1000 x 800 mm size glass frame and installed in main switch room.	No.	12			
145	8	Supply of First Aid box of approved make as per specification.	No.	40			
146	8	Supply of tool kit with 1 pair 11 KV rubber hand gloves of approved make.	Set	4			
		HT CABLES & LT CONTROL CABLES					
147	10	Supplying of following size 11 kV grade XLPE (E) aluminium conductor armoured cables as per specifications.					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		3 C x 240 sq.mm 11 kV XLPE (E) cable	RM	260			
148	3	Supplying and laying of following 1100 volts grade PVC insulated sheathed copper conductor armoured control cables in existing trenches cables trays, clamped on wall with suitable saddles, fixing bolts, including testing and commissioning.					
a		12 Core 2.5 sq mm PVC insulated copper conductor armoured control cables	RM	540			
b		7 Core 2.5 sq mm PVC insulated copper conductor armoured control cables	RM	540			
149	3	Cable end termination of the following PVC insulated sheathed aluminium conductor armoured cables of 1100 volt grade including supplying and fixing of crimping lugs. Double compression glands, cable sockets etc as required.					
a		12 Core 2.5 sq.mm Control cable	No.	48			
b		7 Core 2.5 sq.mm Control cable	No.	48			
150	3	Supplying, laying GI sleeves of following sizes:					
a		150 mm dia	RM	40			
b		250 mm dia	RM	20			
c		300 mm dia	RM	420			
		<u>EARTHING FOR SUB-STATION EQUIPMENT</u>					
151	6	Supplying, fixing, testing and commissioning of following bare Copper/ GI flat including all necessary fixing accessories and effecting connections.					
a		50 mm x 6 mm thick Cu flat	RM	1000			
b		32 mm x 6 mm thick Cu flat	RM	200			
c		50 mm x 6 m thick GI flat	RM	1400			
152	6	Supply and laying medium class GI pipe under road/paved areas/wall crossing etc. including earth excavations refilling, ramming and making good as approved.					
a		150 mm dia GI pipe	RM	200			
153	6	Supplying, fixing, testing and commissioning of following size PVC sleeve for bare Copper/GI tapes including all necessary fixing accessories and effecting connections.					
a		For 50 mm x 6 mm thick Cu. tape.	RM	200			
b		For 32 mm x 6 mm thick Cu. tape.	RM	40			
		<u>ACCESSORIES FOR DATA NETWORK SYSTEM</u>					
154	12	Supply, installation, testing and commissioning of following Category 6 IDC patch panel prepackaged with wiring block with legs insert labels, label holders, jumper troughs, metal back panel, duct assembly, screws, washers and an instruction sheet for termination of incoming pairs. Quoted price shall include suitable lockable enclosure etc. as required.					
a		8 port jack panel	No.	8			
b		16 port jack panel	No.	16			
c		24 port jack panel	No.	16			

SI.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
d		32 port jack panel	No.	4			
155	12	Supply, installation, testing and commissioning of flush mounted information outlets and face plate as per EIA / TIA - 568 - B.2-1 and IEC 60603-7-4. The plastic shall be high impact, flame-retardant, UL rate thermoplastic. Dust cover/ blank shall be provided to protect unused faceplate openings. Termination caps and plastic over should be provided to protect jack wiring. Quoted price shall be inclusive of 1.6 mm thick GI Boxes.					
a		Single outlet faceplate with RJ-45 jack	No.	300			
b		Duplex outlet faceplate with RJ-45 jack	No.	60			
		<u>ACCESSORIES FOR TELEPHONE NETWORK SYSTEM</u>					
156	11	Supply, installation, testing and commissioning of following Telephone cable on existing cable trays. The cable shall be as per the specifications laid down in the tender					
a		10 pair 0.61mm cable	RM	260			
b		20 pair 0.61mm cable	RM	840			
c		50 pair 0.61mm cable	RM	440			
d		100 pair 0.61mm cable	RM	720			
157	11	Supply, fixing, cable termination, testing and commissioning of Tag Blocks of Krone make or equivalent and boxes with lockable doors made out of 1.2 mm CRCA sheet with epoxy polyester coating as required.					
a		10 pair tag box	No.	8			
b		20 pair tag box	No.	8			
c		50 pair tag box	No.	20			
d		200 pair tag box	No.	4			
		<u>ACCESSORIES FOR MATV NETWORK SYSTEM</u>					
158	13	Supply, erection, testing and commissioning of splitter / tap off mounted in suitable sizes MS boxes for MATV system and shall be suitable for interactive system.					
a		Two Way (S-2)	No.	4			
b		Four way Tap Off (T4)	No.	128			
c		Two way tap off (T2)	No.	12			
		<u>SUPPLY & INSTALLATION OF LIGHTING FIXTURES AND SUPPLY & INSTALLATION OF CABLES FOR EXTERNAL / LANDSCAPE LIGHTING</u>					
159	2	Supply, forwardig to site, unloading, forwarding, shifting from stores to site, storing, inspection, handling, assembling, installation in correct assigned position, making proper connections, testing and commissioning of the following lighting fixtures or approved equal:					
a	2	1 X 150 SON - T W Fixture with lamp, accessories etc as approved by Architect.	No.	40			
b	2	1 X 70 SON - T W Fixture with lamp, accessories etc as approved by Architect.	No.	40			
c	2	Flood lighting fixture with 250 watts Metal Halide lamp including ballast capacitor and other accessories as approved by architect.	No.	16			

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
d	2	Bollard Lighting Fixture with 1 X 18 W PL lamp as approved by architect.	No.	80			
e	2	Bulkhead lighting fixture with 9 watts PL lamp and other accessories etc as approved by architect.	No.	200			
f	2	Spike luminaire with lamp, accessories etc as approved by architect	No.	40			
g	2	Micro Bollard lighting fixture with 1 x 10 watt CFL lamp, accessories etc as approved by architect.	No.	40			
h	2	Post top lantern with lamp, accessories etc as approved by architect	No.	16			
		Poles					
160	14	Supply, forwardig to site, unloading, forwarding, shifting from stores to site, storing, inspection, handling, assembling, installation in correct assigned position, making proper connections, testing and commissioning of 20 Meter High Mast (pole in 2 section) Lighting system (as per CP3-TRT/1996 of ILE,UK) consisting of totally hot dip galvanised by single dip method high mast, lantern, carriage suitable for upto 12 nos. Luminares, mast-head assembly, 2 nos. Aviation obstruction Neon lights, double drum type self sustaining winch, integral power tool (winch motor with control circuit), hot dip galvanised heavy duty pipe Lightning Finial, suitable ropes and Cement concrete foundation of M-15 grade complete as required. The mast is constructed from M.S. plate (as per BS-EN 10025) cut & folded to form a polygonal section, telescopic jointed and welding as per BS-5135. The complete work shall be supervised and certified by the manufactures for satisfactory supply, erection, testing & commissioning of high mast.	No.	4			
161	14	Supply, forwardig to site, unloading, forwarding, shifting from stores to site, storing, inspection, handling, assembling, installation in correct assigned position, making proper connections, testing and commissioning of 7 meter high aluminium painted MS pole with 300mmx300mmx5mm thick base plate and cap welded at bottom complete as required with painting of approved colour including erection of G.I. pole (5.5 meter above and 1.5 meter)in 1:2:4 cement concrete (1 cement : 2 coarse sand : 4 graded stone aggregate 40mm nominal size) including excavation & refilling etc as required below ground complete as per requirement with all accessories.	No.	60			
162	14	Supply, forwardig to site, unloading, forwarding, shifting from stores to site, storing, inspection, handling, assembling, installation in correct assigned position, making proper connections, testing and commissioning of 4.5 meter high Aluminium Painted MS pole with 300mmx300mmx5mm thick base plate and cap welded at bottom complete as required including erection of G.I. pole (3.6 meter above and 0.9 meter)in 1:2:4 cement concrete (1 cement : 2 coarse sand : 4 graded stone aggregate 40mm nominal size) including excavation & refilling etc as required below ground complete as per requirement with all accessories.	No.	40			

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
163	14	Supply, forwardig to site, unloading, forwarding, shifting from stores to site, storing, inspection, handling, assembling, installation in correct assigned position, making proper connections, testing and commissioning of 3 meter high Aluminium Painted MS pole with 300mmx300mmx5mm thick base plate and cap welded at bottom complete as required including erection of G.I. pole (2.4 meter above and 0.6 meter)in 1:2:4 cement concrete (1 cement : 2 coarse sand : 4 graded stone aggregate 40mm nominal size) including excavation & refilling etc as required below ground complete as per requirement with all accessories.	No.	60			
164	14	Providing, installation of 200 x 150 x 125 mm polycarbonate weather proof (IP-55) junction box and SP MCB's and terminal block. Supplying and laying cable through GI pipe upto junction box including excavation and back filling, wiring with 2 x 2.5 sq.mm PVC insulated 1100 volts grade copper conductor wires from junction box to lighting fixture complete.	No.	160			
165	3	Supply, laying, testing and commissioning of following size PVC insulated copper conductor 1100 V grade armored cable including excavation sand filling providing brick protection, back filling of earth, watering, ramming and consolidating of earth, complete:					
a		a. 3 C x 4 Sq. mm	RM	2800			
b		b. 3 C x 6 sq.mm	RM	1000			
166	3	Making end termination of following size PVC insulated copper conductor 1100 V grade armored cable including cost of crimping lugs, insulation tapes, double compression glands etc. complete.					
a		a. 3C x 4 Sq. mm.	No.	40			
b		b. 3C x 6 Sq.mm	No.	80			
167	3	Wiring with 2 x 2.5 sq. mm. PVC insulated copper conductor 1100 V grade wires in existing pole including connecting at the lighting fixtures complete.	RM	8400			
168	3	Wiring with 2 x 2.5 sq. mm. PVC insulated copper conductor 1100 V grade wires in 16 gauge 25 mm dia GI conduit including connecting at the lighting fixtures complete. The cost shall include supply and installation of conduit pipe, chasing of wall and making good.	RM	1000			
169	3	Supply and laying RCC (NP-2 Class) hume pipe under road crossing, paved area etc. With connecting collars with cement motor etc. including excavation, refilling of earth, ramming and making good as approved complete.					
a		150 mm dia ID	RM	400			
b		75 mm dia ID	RM	660			
170	3	Supply, installation, testing and commissionin of following polycarbonate weather proof (IP-55) junction boxes including terminal / connector block complete as required.					
a		One way	No.	40			
b		Two way	No.	60			
c		Three way	No.	60			

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		<u>NURSE CALL SYSTEM</u>					
171		Supply, Installation,testing & commissioning of Microprocessor controlled Nurse Call Station system as per specification.					
a		Master Nurse Call Station Console suitable for 4 Beds & 1 Toilet	Set	4			
b		Master Nurse Call Station Console suitable for 5 Beds	Set	4			
c		Master Nurse Call Station Console suitable for 6 Beds	Set	4			
d		Master Nurse Call Station Console suitable for 6 Beds & 1 Toilets	Set	16			
e		Master Nurse Call Station Console suitable for 8 Beds & 2 Toilets	Set	4			
f		Master Nurse Call Station Console suitable for 9 Beds & 1 Toilets	Set	8			
g		Master Nurse Call Station Console suitable for 12 Beds	Set	40			
h		Master Nurse Call Station Console suitable for 12 Beds & 2 Toilets	Set	16			
i		Master Nurse Call Station Console suitable for 12 Beds & 3 Toilets	Set	16			
j		Master Nurse Call Station Console suitable for 12 Beds & 4 Toilets	Set	16			
172		Supply, Installation, testing & commissioning of of following as per specification.					
a		Bedside Module consisting of Call and Cancel Push button, indication lamp, Beep audible alarm & Input Jack for Hand held module	Set	1180			
b		Hand Held Module consisting of Call & Cancel button & indication lamp including 2 meters of Cat-5 UTP cable with jack.	Set	160			
c		Toilet Call Module consisting of Call & Cancel button.	Set	140			
d		Double faced Corridor Indication Module	Set	40			
		<u>UPS SYSTEM</u>					
173	15	Supply, installation, Testing and commissioning of the following rating UPS as per specifications and complete in all respects.					
a	15	5 x 80 KVA UPS (in parallel redundant mode) in N+1 configuration 3 phase (415 V + 15%) Volts input & 3 phase output (415 V + 1%), 50 Hz, Input harmonic Current THD 3% typical at 100% load, 6% maximum at 50% load with Isolation Transformer and 20 min battery backup for each UPS along with battery cabinet complete in all respect including supporting steel structure for UPS and Battery as required. Quoted price shall be inclusive of approved rating single core copper conductor cable connecting UPS, batteries and transformer	Set	4			
b	15	1 x 40 KVA UPS (in parallel redundant mode) in N+1 configuration 3 phase (415 V + 15%) Volts input & 3 phase output (415 V + 1%), 50 Hz, Input harmonic Current THD 3% typical at 100% load, 6% maximum at 50% load with Isolation Transformer and 20 min battery backup for each UPS along with battery cabinet complete in all respect including supporting steel structure for UPS and Battery as required. (For Server) Quoted price shall be inclusive of approved rating single core copper conductor cable connecting UPS, batteries and transformer	Set	4			

SI.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
c	15	1 x 15 KVA UPS (in parallel redundant mode) in N+1 configuration 3 phase (415 V + 15%) Volts input & 3 phase output (415 V + 1%), 50 Hz, Input harmonic Current THD 3% typical at 100% load, 6% maximum at 50% load with Isolation Transformer and 90 min battery backup for each UPS along with battery cabinet complete in all respect including supporting steel structure for UPS and Battery as required. (For Operation Theatre) Quoted price shall be inclusive of approved rating single core copper conductor cable connecting UPS, batteries and transformer	Set	16			
		D.G. SETS					
		SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF DG SET INCLUDING ALL ACCESSORIES					
174	1	DG Sets					
A	1	Manufacture, supply, testing at works, forwarding to site, unloading, inspection, shifting to base, installation, testing and commissioning of 625 kVA prime continuous (actual) rating radiator cooled diesel generating set in acoustic enclosure along with AMF module (PCC 3.3 or equivalent) with PMG, base frame, Alternator, Static Excitation System, Lube Oil System, Electronic Governor, Batteries & Battery charger, Instrumentation, inbuilt oil fuel tank, residential type Silencer with Bellows, Alarms, Engine Control Panel, AVM Pads, AVR Panel, Terminal Arrangements including cable termination box with all associated equipment/ work as per specifications. Alternator shall have class H insulation and rated for 500 kW output. Engine shall not be derated upto 50°C ambient.	Set	8			
175		EXHAUST PIPE & CHIMNEY					
1	1	EXHAUST PIPE					
	1	Supply, installation, testing and commissioning of exhaust pipe fabricated out of 6 mm thick MS pipe with all fixing accessories and hardwares. The exhaust pipes shall be dual insulated with first layer of 25 mm thick ceramic fibre wool insulation (128 Kg/ cubic metre density) and second layer of 50 mm thick mineral wool (150 Kg/ cubic metre density) insulation wrapped in chicken mesh and clad with 24 gauge aluminium sheet including all support as required.					
a		200 mm dia	RM	80			
b		125 mm dia	RM	48			
		FIRE ALARM SYSTEM					
		INTELLIGENT ADDRESSABLE FIRE DETECTION & ALARM SYSTEM					
	2	FIRE ALARM PANELS					
176		Supply, installation, testing and commissioning of the following as per specifications :					

SI.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
A	2	Microprocessor based intelligent analogue addressable, modular, expandable networkable, following loop (each loop shall be loaded maximum upto 80% of the loop capacity) fire alarm control panel with minimum 640 character LCD display, multiple access levels, event history file in non-volatile memory (EEPROM). The panel shall have a built-in integrated voice command center with suitable rating amplifier for suitable speaker zones. The panel shall have facility to interface with Public Addressing system and tripping command to background music. The panel shall support programmable relay for controlling lifts, staircase pressurizations fans, lift shaft & lift lobby pressurization fans, toilets exhaust fans, ventilation fans, monitoring of fire sprinkler and fire hydrant pump controlled by powerful Boolean logic equation. The panel shall have minimum five independent hazard release circuit built-in the panel. The panel shall have 240 volts AC power supply, automatic battery charger, 24 volts, sealed lead acid maintenance free batteries sufficient for 24 hours normal working and then be capable of operating the system for 4 hours during emergency condition. The panel shall be UL/EN listed.					
		Tenderer to provide interfacing connectivity (BAC Net/ Modbus gateway) in Fire Panel for integrating with building management system, PA system and Music system (for selected zones) complete as per specification.					
a	2	Fire Detection & Alarm Control Panel suitable for 425 No. detectors.	No.	4			
B	2	Network Display Control Annunciator, 640 characters; The LCD shall display all events/ detectors, device status of complete systems in the network. The NCA shall be equipped with the QWERTY keypad. Mounting options include an annunciator box, and blank modules as required for mounting. Quoted price shall be inclusive of wire in conduit between main panel and repeater panel.	No.	4			
a	2	Supplying, Installing, Testing & Commissioning of the Central Control Station for FAS detection system consisting of the following					
b	2	Pentium P 4 Duo Machine as per specification with cordles mouse and cordless keyboard as per specification.	No.	4			
c	2	21" color monitor flat screen LCD display as per specifications.	No.	4			
d	2	Laser Jet Printer (A3 size) as per Specification.	No.	4			
e	2	Supply, installation, testing and commissioning of software for Remote programming of Fire Detection and Alarm System through central control station. The software shall be capable of the following function including licence as per specification.					
-		Uploading and downloading of information to FACP					
-		Graphics including autocad drawings.					
-		Uploading and downloading of information to FACP					
-		Software as described above.	No.	4			
177		ALARM INITIATING DEVICES, MODULES & CONTROLS :					
		Supplying, installing, testing and commissioning of following items.					

SI.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
a	3	Analog addressable Photoelectric smoke detector with mounting based LED, address switch to programme the detectors complete as required.	No.	860			
b	3	Analog addressable Multicriteria (Photothermal) smoke detector with mounting based LED, address switch to programme the detectors complete as required.	No.	840			
c	3	Analog addressable rate of rise cum fixed temperature heat detector with mounting based LED, address switch to programme the detectors complete as required.	No.	20			
d	3	Analog addressable duct detector with mounting based LED, address switch to programme the detectors complete as required.	No.	40			
e	3	Fault Isolators for isolating shorted, dewired and loose circuits between two successive fault isolators with automatic resetting arrangement complete as required.	No.	120			
f	3	Addressable control relay modules etc complete as required as per specifications.	No.	80			
g	3	Addressable monitor modules for Sprinkler Flow Switch, Fire doors, magnetic contacts complete as required as per specifications.	No.	40			
h	3	Addressable Manual Call Points	No.	40			
i	3.0	EXIT POINT Directional Sounders with strobes with minimum 8 distinct sound patterns to indicate corridors, Exit doors, Move upward, move down ward etc. to direct Occupants for fast & safe Evacuation as per specification	No.	60			
j	3.00	Fire panel supervised 70db-84db Ceiling Mounted multi tap 2 Watt Speaker as specified & same make as of panel.	No.	860			
k	3.00	2 way communication Fire Fighter's Telephone Jack as per specifications complete as required.	No.	40			
l	3.00	2 way communication Fire Fighter's Handset	No.	8			
		CONDUITING AND CABLING					
178	4	Supply & laying of following grade with copper conductor armoured FIRE SURVIVAL cable with (EPR) Ethylene Propylene rubber insulation as per BS 7846:2009 & IEC-60502:2004 Part-1 (Armoured), Retain circuit integrity as per BS 6387 C.W.Z (armoured), BS-8491:2008, BS 8434-2: 2009 (armoured), (Resistance to fire at 950° C for 3 hours), as per specifications in existing trenches, cable trays, ducts over bed of sand, clamped including anchor fastners to wall with suitable clamps, saddles fixing bolts complete in all respect as required as per specifications.					
a	4	2 core 1.5 sq. mm	RM	19580			
b	4	2 core 1 sq. mm	RM	8500			
		SUPPLY OF HT PANEL					
	1	11 kV HT 3 PANEL SWITCHBOARD					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
179		Design, fabrication, assembling, supply, loading and forwarding to site of 11 kV, 350 MVA (18.4 kA), 630A, HT, 3 (Three) Panel Vacuum circuit breaker Switchboard (One Incomer & Two outgoing with Vacuum circuit Breaker Panels), cubicle type, made out of 2 mm thick sheet steel, totally enclosed, IP 4X, 50 deg. C ambient temperature, free standing, floor mounting, dust and vermin proof, indoor, compartmentalised, powder coated painting, suitable for operation on 11 kV, 3ph, 50 Hz +/- 5% AC system with copper busbars, Vacuum circuit breaker mounted on horizontally withdrawable truck including supply and installation of the following components as per Technical specifications, Technical particulars.					
a.		Incomer 1 No. 11 kV HT supply comprising of:					
		1 No. incomer Vacuum Circuit Breaker - 630 A, 3 pole, 18.4 kA breaking capacity for 1 second.					
		Breaker control switch.					
		24 V DC Tripping Coil.					
		24 V DC Closing Coil.					
		240 V AC spring charge motor.					
		Set of ON/ OFF indicating lamps.					
		Set of Phase indicating lamps (RYB).					
		Clear lamp for trip circuit health supply.					
		Digital electronic multi function meter with RS485 port (Conserve Model-EM 6400 or equivalent)					
		Digital Frequency Meter					
		Aux. relays for Anti Pumping & indication.					
		Trip circuit supervision relay.					
		3 No. Over current and Earth fault IDMT numeric type relay with instantaneous high set element range 500 – 2000%					
		3 No. Cast resin CTs of dual ratio 35 - 70/ 5 Amps CL:0.5, 5P10, 15 VA.					
		3 No. Cast resin drawout type PTs 11 kV/ $\sqrt{3}$ / 110 $\sqrt{3}$, class 1, 100 VA.					
		Suitable space for termination of 1 No. 3C x 240 sq.mm XLPE cable as incoming.					
b.		Outgoing 2 No. 11 kV HT supply each comprising of:					
		1 No. outgoing Vacuum Circuit Breaker - 630 A, 3 pole, 18.4 kA					
		Breaker control switch.					
		24 V DC Tripping coil					
		24 V DC Closing coil					
		240 V AC spring charge motor					
		Set of ON/ OFF indicating lamps.					
		Clear lamp for trip circuit health supply.					
		Digital ammeter with selector switch.					
		Aux. relays for Anti Pumping & indication.					

SI.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		Tripping relay for each transformer fault.					
		Trip circuit supervision relay & Lockout relay.					
		3 No. Over current and Earth fault IDMT numeric type relay with instantaneous high set element.					
		3 No. Cast resin CTs of dual ratio 15 - 30/ 5 Amps CL:0.5, 5P10, 15 VA.					
		Suitable space for termination of 1 No. 3C x 240 sq.mm XLPE cable as outgoing.					
		Note : Cable entry shall only be from BOTTOM.					
		11 kV HT Switch Board complete as required	Set	4			
		SECURITY SYSTEM					
	A	CLOSE CIRCUIT TELEVISION SYSTEM (COLOURED)					
180	A	Supply, installation, testing and commissioning of outdoor IP UL/FCC Listed 36X optical and 12X digital Pan/ Tilt/ Zoom Day Night cameras including integrated Housing, Connectors, Lens, Camera Mounts, Power Supply and all Ancillary Equipment & all accessories including Remote Receiver Unit and Pan Tilt Unit (including driver cables)					
a	A	Pole Mounted including cost of 3 M high GI pole	No.	16			
181	A	Supply, installation, testing and commissioning of IP Fixed indoor veri focal lences, 3.5-8mm auto iris cameras including integrated housing (dome type), Connectors, A.I.Lens, Camera Mounts, Power Supply and all Ancillary Equipment & all accessories.	No.	20			
182	A	Supply, installation, testing and commissioning of IP digital video management and Access Control system software complete with compatible server grade PC for the software, complete with licenses equal to the number of cameras, five client licenses, and all other licenses including failover channel license (for 100% redundancy) required to integrate keyboards, monitors etc. The set shall come with RAID backup device sufficient to store all cameras at 4CIF/D1 resolution for minimum 30 days Backup complete in all respect as per specifications. Software module for seamless integration with Access Control System shall be included. Software shall include the cost of PC for Server and One Workstation without Monitors as per Technical specifications.	Set	4			
183	A	Cisco Layer 3 switch with 24 ports as to support all cameras and having 20% spare ports completw with supply. The switch shall have 1 GB port to communicate with other switches on fibre cable including Passive components comprising of connector, patch cords, RJ-45 cable/connectors, racks, mountings, SMPS power supply, other accessories as per site requirement.	No.	4			

SI.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
184	A	Cisco Layer 2 switch with 12 ports as to support all cameras and having 20% spare ports complete with supply. The switch shall have 1 GB port to communicate with other switches on fibre cable including Passive components comprising of connector, patch cords, RJ-45 cable/connectors, racks, mountings, SMPS power supply, other accessories as per site requirement.	No.	4			
185	A	Supplying and installation of 19" 42U APW Rack with glass front door, steel rear door, power supply, MCB, cable manager, drawer shelves and wiring channels to accommodate CCTV systems equipment and accessories as mentioned in the BOQ above and including all connections and terminations as required	No.	4			
186	A	Supply, laying, termination and testing of 42" CCTV colour Plasma screen including all accessories	No.	4			
187	A	Supply, laying, termination and testing of 21" CCTV colour Plasma screen including all accessories	No.	8			
188	A	Supply, installation, testing and commissioning of keyboard/ joystick for PTZ cameras complete with encoder/ power supply unit if required	No.	4			
189	A	Supply & drawing of optical fibre cable in existing 25mm dia PVC conduit as required to connect and operate the system	RM	1000			
190	A	Supply & drawing of 2 core 2.5 sq.mm twisted pair shielded cable for communication in existing 25 mm dia PVC conduit	RM	1000			
		ACCESS CONTROL SYSTEM					
191	B	Supply, installation, testing & commissioning of smart card readers as per specification suitable for mounting on metal surface/metal frames or wooden frames wall or as required based on site conditions including all accessories	No.	40			
192	B	Supply, installation, testing and commissioning of Finger print (Biometrics) readers with keypad suitable for mounting on metal surface/ metal frames or wooden frames or wall or as required based on site conditions including all accessories.	No.	20			
193	B	Supply, installation, testing and commissioning of Smart Cards type re-programmable and site printable proximity cards with inbuilt memory of 4 KB complete as per specification	No.	600			
194	B	Supply, installation, testing and commissioning of Two Door Controller for Controlling the above card readers with LAN onboard, TCP/IP interface as per specification mentioned including all accessories. (Tenderer to mention quantity of controllers based on their system and all controllers shall be installed in the BMS room only.) Central access control controller complete with tamper switch, power electronics tamper switch etc. which will connect to the door controllers as stated above, if required	Lot	8			
195	B	Supply, installation, testing and commissioning of electromagnet door holder (fail safe type) of 15 lb holding force for the following doors :					
a	B	Double Leaf Door (Drop Bolt)	No.	20			

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
196	B	Supply, installation, testing and commissioning of Door Contact	No.	40			
197	B	Supplying, Installation & Commissioning of Boom Barriers unit with 6 mtr Boom length complete with base unit, mounted on suitable Civil foundation. The unit shall also include suitable loop sensor and long range readers for automatic opening of the barrier for authorised cars complete with controller and to be integrated into main access control system for reporting. Any power supply unit required for the above unit shall be included in the price.	No.	8			
198	B	Supplying, Installation & Commissioning of Flap Barriers unit complete with base unit, mounted on suitable Civil foundation. The unit shall also include suitable loop sensor and long range readers for automatic opening of the flap for authorised entry/ exit for the people complete with controller and to be integrated into main access control system for reporting. Any power supply unit required for the above unit shall be included in the price.	No.	8			
199	B	Supply, installation, testing and commissioning of long range RFID proximity vehicle mounted tags with inbuilt memory of 4 KB, complete as per specification	No.	200			
200	B	Supply, installation, testing and commissioning of door open break glass switch for individual access control door. This shall be located in a powder coated lockable enclosure housed in control room. Quoted price shall be inclusive of wires running in 25 mm dia MS conduit between door and this switch.	No.	8			
201	B	Supply, installation, testing & commissioning of Card Printer as per specifications.	No.	4			
202	B	Supply, installation, testing & commissioning of Card Programming Unit for field programming of proximity cards.	No.	4			
203	B	Supply, installation, testing & commissioning of SQL Server Software and SP 2 with five client software for intergration with Owner's SAP based system for Attendance/ Payroll records complete with all accessories as required. (All the softwares shall be licences version. High end Server shall be provided by the client. The Tenderer shall quote the system complete as required.	No.	4			
204	B	Supply, installation, testing and commissioning of master switch for opening all access control door. Quoted price shall be inclusive of wire in 25 mm dia MS conduit between doors and switch.	No.	4			
205	B	Supply, laying, testing and commissioning of the following cables in existing 25 mm dia MS conduits					
a	B	8 Conductor, 18-24 AWG, with sheild	RM	1000			
b	B	3 Pair, 20 AWG shielded cable	RM	900			
c	B	3 x 1.5 sq.mm power twisted pair copper cable	RM	1200			
		TRANSFORMER					
		DISTRIBUTION TRANSFORMERS					

SI.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
206	1	Design, manufacture, testing at works, supply, loading and forwarding to site store of 500 kVA 3 phase, 11 kV/ 0.433 kV outdoor type oil filled Transformer copper wound with Dyn 11 connection and neutral brought out for earthing. The transformer shall be provided with (-) 15% and (+) 5% in step of 1.25% each ON load tap changer on HT side. HT side cable termination box shall be suitable for 11 kV, 3 C x 240 Sq. mm XLPE cable and 3 Run of 3.5 core 300 Sq. mm XLPE Aluminium Armoured cable on low voltage side.. The transformer shall be supplied with all standard fitting viz dial type winding oil Temperature Indicator, Bucholz relay with trip Alarm and temperature indicator, alarm contacts, thermistors for Alarm and Trip, winding temperature relay unit with Alarm and trip, lifting lugs, earthing studs and marshalling box, drain oil point etc. complete in all respect with all accessories as required as per specification.	Set	8			
207		BMS Workstation with minimum PC configuration Intel i7, 2.9 GHz, 1 TB HDD, 8 GB RAM, 16X DVD drive, 21 " LED colour monitor and Colour laserjet printer of A4 size. The system shall have 1000 VA UPS with 30 minutes run time.	No.	4			
208		BMS Software with following requirement					
a		Network Management Tool - shall be compatible with Microsoft Windows 8 pro and a complete set of integrated LONWORKS network/ BACnet management tools for working with LONWORKS/ BACnet networks.	No.	4			
b		Graphical Programming Software - A set of tools for the development of the DDC control logic, point management, global properties such as alarm, trend and scheduling with 15 user licenses.	No.	4			
c		System programming software & hardware provided shall comply with the current release version of the AX Niagara Framework platform.	No.	4			
209		System Interface Controller (should be capable of connecting to TCP/IP network) and must provide hardware features as must provide the following hardware features as a minimum: a) One Ethernet Port -10 / 100 Mbps b) One RS-485 port c) One LONWORKS Interface Port – 78KB TP/FT-10 d) Battery Backup e) Flash memory for long term data backup (If battery backup or flash memory is not supplied, the controller must contain a hard disk with at least 1 gigabyte storage capacity) f) capable of Calendar functions,Scheduling, Trending,Alarm monitoring and routing,Time synchronization, Integration of LONWORKS controller data,Integration of BACnet MS/TP and BACnet IP controllers.	No.	4			

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
a		Digital Electrical Meters Integration	No.	4			
b		Chiller Integration	No.	4			
c		DG Integration	No.	4			
d		FAS Integration	No.	4			
210		DDC Controllers with Enclures panels and must provide hardware features as must provide the following hardware features as a minimum: a) shall have a minimum of 64K of Non-volatile Flash memory for control applications and 128K non-volatile flash memory for storage b) 16 bit A to D resolution c) Outputs shall have an adjustable range of 2 seconds to 15 minutes d) All controllers shall be LONMARK/ Bacnet Certified e) Each controller shall be provided with a XIF file that is fixed from the manufacture & such XIF file shall be a part of the manufactures normal product offering.					
A		HVAC					
a		AHUs	Lot	4			
b		Ventilation System	Lot	4			
c		Plant Room	Lot	4			
B		Electricals					
a		Main LT & HT panel	Lot	4			
b		DG's	Lot	4			
c		Internal Lighting	Lot	4			
d		External Lighting	Lot	4			
211		Water Supply System	Lot	4			
212		Lifts	Lot	4			
213		Fire Fighting	Lot	4			
214		Field Equipments					
a.		Oil Level Transmitter	No.	4			
b.		Electro magnetic Type Flow Meter	No.	4			
c.		Flow Switch	Nos.	20			
d.		Immesrsion Type Temp Sensor	Nos.	24			
e.		Differntial Pressure Air Flow switch for AHU runs status and Filter Status	Nos.	120			
f.		Differntial Pressure Water Flow Switch for Pumps	Nos.	32			
g.		Duct Temperature Senosr	Nos.	240			
h.		Current Relay	Nos.	80			
i.		Level Switch with High/Low	Nos.	40			
j.		Pressure Transmitter for water	Nos.	8			
k.		LUX Sensor	Nos.	12			
l.		Occupancy Sensor	Nos.	20			
m.		Ambient Temp Sensor	No.	4			

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
n.		Ambient Humidity Sensor	No.	4			
o.		Voltage Transducer	No.	4			
p		Portable operator terminal	No.	4			
215		Cables & conduit					
a.			RM	4400			
		PART B (h) : SUB-TOTAL					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
NON-PRICED BILL OF QUANTITIES (Rate and Amount to be provided by the bidder) FOR MEDICAL GAS PIPELINE SYSTEM							
PART B (i) : (Refer Clause 12 of ITB, Volume I, Section 2)							
		Supply Installaton Testing and Commissioning of Medical Gases Pipeline system.					
		Oxygen System.					
216	1	6+6 size Oxygen manifold extendable type complete with pig tail pipe, middle frame with chain and NRV's.	set	8			
217	2	Fully Automatic Control Panel For Oxygen with inlet from Liquid Oxygen Tank as per HTM 02-01	set	8			
218	3	2 Cylinders Emergency Oxygen Manifold with double stage pressure regulator and complete with pig tail pipe, middle frame with chain and NRV's	set	8			
219	4	Oxygen Terminal Unit (Gas Outlets) with probes/Adaptors as per HTM 02-01	each	528			
220	5	Oxygen Flowmeter with Humidifier Bottle	each	352			
221	6	H.P Tubing Flexible having antistatic Core as per ISO with Proper colour coded	Rmt	160			
		Nitrous Oxide System					
222	7	1+1 size Nitrous Oxide manifold extendable type complete with pig tail pipe, middle frame with chain and NRV's.	set	8			
223	8	Fully Automatic Gas Control Panel For Nitrous Oxide as per HTM 02-01	set	8			
224	9	1 Cylinder Emergency Nitrous Oxide Manifold with double stage high pressure regulator and complete with pig tail pipe, middle frame with chain and NRV's	set	8			
225	10	Nitrous Oxide Terminal Unit (Gas Outlets) with probes/Adaptors as per HTM 02-01	each	56			
226	11	H.P Tubing Flexible having antistatic Core as per ISO with Proper colour coded as per Technical Specification enclosed.	Rmt	160			
		Vacuum System					
227	12	Vacuum System with Duplex V X 7 of Ingersoll-Rand Pump with 900 Ltrs capacity reservoir complete with bacteria filters	set	8			
228	13	Vacuum Terminal Unit (Outlets) with probes/Adaptors as per HTM 02-01	each	1056			
229	14	Ward Vacuum Unit with Regulator, Collection Jar of 600 ml with bracket.	each	352			
230	15	Theater Suction Unit Trolly mounted with 2 nos. 2000ml collection jars jar selector unit and Suction Controller.	set	16			
231	16	H.P Tubing Flexible having antistatic Core as per ISO with Proper colour coded as per Technical Specification enclosed.	Rmt	320			
		Compressed Air System					
232	17	Compressed Air System including Duplex 36.66 CFM,air cooled, oil free compressors and Air Drier, Moisture Saprater and Air Receiver (900 ltrs) & Filtration system complete with 4 stage bacteria filters	set	8			
233	18	M.Air Terminal Unit (Outlets) with probes/Adaptors as per HTM 02-01	each	288			
234	19	H.P Tubing Flexible having antistatic Core as per ISO with Proper colour coded as per Technical Specification enclosed.	Rmt	640			

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
235	20	Electrical Control Panel for vacuum pump system and compressed air system	set	8			
236	21	Medical Grade Copper pipe with fittings.					
a		28mm OD X 0.9 mm thk	Rmt	640			
b		22mm OD X 0.9 mm thk	Rmt	4000			
c		15mm OD X 0.9 mm thk	Rmt	4640			
d		12mm OD X 0.7 mm thk	Rmt	1840			
237	22	Valve with Valve Box and pressure gauge					
a		4 Services	set	8			
b		3 Services	set	40			
c		2 Services	set	8			
238	23	Medical Gas Master Alarm	set	8			
239	24	Medical Gas Area Alarm					
a		4 Services	set	8			
b		3 Services	set	20			
		PART B (i) : SUB-TOTAL					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
NON-PRICED BILL OF QUANTITIES (Rate and Amount to be provided by the bidder) FOR PRE FABRICATED MODULAR OPERATION THEATER							
PART B (j) : (Refer Clause 12 of ITB, Volume I, Section 2)							
240	1	Wall and ceiling System :	Lot	16			
		Supply Installation testing & commissioning of Stainless Steel (304 Grade 1.5 mm) Pre Fabricated Modular Operation Theatre					
		Wall & Ceiling Panel backed with 12mm thick. gypsum with proper supports. Filling of all joints & cavities with epoxy filler, sanded flush for seamless finishing with one primer and three coats of antibacterial & antifungal paint that is equivalent to a dry film thickness of 300 micron					
241	2	Automatically Operated hermetically sealed Sliding Doors 1500mm x 2100mm (WXH) with glass vision window of 300mm x 300mm (WXH) along with all accessories.	No.	16			
242	3	Laminar Planair Ceiling system with unidirectional airflow with "S" class Hepa filter with an efficiency 99.97% down to 0.3 micron. The holding structure & top plenum are made up of Aluminium Sheet with a thickness of 1.6mm. It should be sealed with gasket conforming to DIN 4799 standards for the air distribution system. 2 layer diffuser with monofilament precision woven polyester of uniform porosity with an open area of sufficient resistance to create laminar from diffusers face and integral lighting provides an illumination level in excess of 15000 Lux in operating area and 10000 Lux other with flickerless digitally controlled stepless dimming down to 5%.	No.	16			
243	4	Operation Theatre Control Panel (6 service Tiles) mounted. Flushed in the theatre wall with complete distribution board with all accessories. Following are the controls/display available:- * 1 no Day Time Digital Clock. * 1 no Elapsed Time Digital Clock. * 1 no Hands Free Telephone. * Peripheral Light Control * Medical Gas Alarm for 4 gases. * Temperature & Humidity Indicator . * Alarm for Vacuum.	No.	16			
244	5	Electrical Distribution Board With Electrical Conducting & Wiring Supply and Installation of Electrical Distribution board complete with all accessories. Internal wiring with FRLS wires, wiring for 250 volts single phase 6/16 Amps switched socket outlet with 4sqmm. PVC insulated copper conductor 1100 volts grade stranded flexible wires in concealed or surface mounted 25mm dia 16 guage MS Conduit included providing and fixing of 6/16 amps. 5 Pin switched sockets of approved make and design in 2mm thick GI Box with grid plates and earthing the third pin of each socket with 4sqmm. PVC insulated copper conductor stranded flexible wire two socket shall be connected to one circuit. Distribution Board included all the required accessories along with transformers.	Lot	16			

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
245	6	Two Plate X-Ray viewing screen with flicker free dimming range from 3 to 100% with complete accessories.	No.	16			
246	7	Pressure Relief Damper. Made up of 304 graded stainless steel blades with all accessories.	No.	16			
247	8	Antistatic Flooring: 2mm thick Antistatic, conductive dissipative flooring tile laid on a semi conductive adhesive base resistant to mechanical stress and dynamic load and washable.	No.	16			
248	9	Magnetic writing Board.	No.	16			
249	10	Peripheral Light: Recess mounted IP 54 protocol, non-hygroscopic Peripheral Lights for clean room application. Each light set having 2nos of 36 watt flouracent lamps with digitaly controlled dimmable ballast.	No.	128			
250	11	Double Arm Pendent with weight carrying capacity of 100Kg. The pendant should have electrical sockets, one monitor shelf and 6 nos. imported gas outlets.	No.	32			
251	12	Scrub Sink: 3-Bay Scrub station made up of Stainless steel grade 304 with all accessories inclusive of photo sensors with timer, thermostatic mixing valve & bypass system, with foot switch.	No.	16			
252	13	Ceiling mounted Dual Dome LED OT lights (imported and as per EN standard) with following features. - 160000 lux, - each Dome should have multiple steps dimming, - Focus - Light field dia - 180-320mm, - Colour temp. 4300k, - Endoscopy/ Leproscopy green light, - Should have minimum 216 LEDs, - Should have colour rendering Index Ra>93, - Should have safety glass, - Light emitting surface, - Should have satin finish cover glass.	No.	16			
253	14	Dirty Hatch Box: 2 door dirty hatch box made up of Stainless steel grade 304. One door will be opened at one time , indicator on both sides.The hatch will be designed in such a way that only one door will be opened at one time. The UV light will glow when both the doors are in closed position.	No.	16			
254	15	Medical Gas pipeline system inside OT for Medical gases including all fittings and fixtures.	Lot	16			
		PART B (j) : SUB-TOTAL					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
NON-PRICED BILL OF QUANTITIES (Rate and Amount to be provided by the bidder) FOR HVAC							
PART B (k) : (Refer Clause 12 of ITB, Volume I, Section 2)							
	2	AIR COOLED WATER CHILLING UNIT					
255		Supply, installation, testing and commissioning of Scroll/ Screw type air-cooled chilling unit of 60 TR actual capacity at the parameters indicated below. complete with Semi-hermetic / hermetic Helical Rotary Screw compressors, motor, insulated chiller, air cooled condenser, vibration isolators, integral refrigerant piping and wiring, first charge of refrigerant and lubricant, microprocessor based control panel, accessories as required and called for, automatic and safety controls and all mounted on a steel frame as per specifications. Motor shall be suitable for 415 ± 10% V, 50Hz, 3ph AC supply as per specification and drawings. The quoted rate shall also include foundation alongwith MS girder section to install on ground floor, starter, cables, cable tray to the panels etc. Motor alongwith VI pads shall be suitable for 415 ± 10% V, 50Hz, 3ph AC supply as per specification. (one chiller will be with desuperheater of 30 KW and remaining two chillers without desuperheater).					
a		With desuperheater	No.	4			
b		Without desuperheater	Nos.	8			
		Chiller					
		Chilled water in : 54° F					
		Chilled water out : 44° F					
		Chilled water flow rate: 144 USGPM					
		Fouling Factor : 0.0005 (FPS)					
		(1 No. Standby Chiller included in above quantity)					
	3	PUMPS					
256		Supply, installation, testing and commissioning of End Suction Back pull out centrifugal pumps complete with motor, base frame, vibration isolators, drain valves and other accessories (except suction and discharge shut off valves, suction strainer, discharge check valves and drain piping which are covered under separate item). Pumps shall have mechanical seal and Bronze Impeller. The pump motor shall be suitable for 415 Volts ± 10%, 50 cycles, 3 phase power supply. The quoted price shall include cost of thermal insulation and cladding for chilled water pumps as well as M.S base frame for mounting both pump and motor along with VI pads. The quoted rate shall also include starter, cables, cable tray to the panels etc. Pumps shall be complete as per specifications and shall have operating parameters as given below:					
		Water flow rate : 144 USGPM					
		Head : 100 ft					
		Motor HP : 7.5 HP(suggested)	Nos.	12			
		(1 No. standby pump included in above quantity)					
257		Hot water pumps for OTs (Monoblock)					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		Water flow rate : 30 USGPM					
		Motor HP : 3.0 HP(suggested)	Nos.	8			
		(1 No. standby pump included in above quantity)					
	4	HOT WATER GENERATOR					
258		Supply, installation, testing & commissioning of Hot Water Generator complete in all respect with all accessories and mountings as per specifications. The quoted rate shall also include starter, cables, cable tray to the panels etc.					
a		Capacity : 40 KW	Nos.	4			
		Water temp in at 122 ⁰ F & temp. out at 112 ⁰ F with flow rate of 60 USGPM.					
	4	HOT WATER GENERATOR (FOR OTs)					
259		Supply, installation, testing & commissioning of Hot Water Generator complete in all respect with all accessories and mountings as per specifications.					
a		Capacity : 20 KW (For OT's)	Nos.	8			
		Water temp in at 122 ⁰ F & temp. out at 112 ⁰ F with flow rate of 30 USGPM.					
		(1 No. standby HWG included in above quantities)					
	5	AIR HANDLING UNITES FOR OT AREAS (WITH VFD)					
260		Supply, installation, testing and commissioning of double skin modular construction, draw through Sectional, Air Handling Units consisting of 0.8 mm Thick aluminium sheet inside and 0.8 mm thick preplastisized GSS Sheet from outside with 40 mm thick puf insulation in between them . AHU Shall be complete with VFD, imported DIDW Backward curved Centrifugal fan (plug fan/belt driven), Squirrel cage induction motor, cooling coil (Copper tubes and Aluminium fins 12-13 fin./inch), pre-filter (Washable Synthetic fibre of efficiency 90% down to 10 micron), Filter frame Flange type, drain pan, V belt drive, fireproof double canvass connection and other accessories as per specifications (except water shut off valves, drain piping and pressure gauges which are covered under separate item). Motor shall be suitable for 415 ± 10% volts, 50 cycle, 3 Phase AC supply as indicated below. AHU shall include the cost of fine and HEPA filter wherever mentioned. Fine & HEPA Filters shall be installed in the Double skin plenum above AHU.					
a		Second Floor, OT 4, 3800 CFM (FM) AHU, 27 TR, 6+2 row deep cooling coil, 125 mm Static Pressure with 7.5 HP/ 3 Phase motor	Nos.	4			
b		Second Floor, OT 3, 3000 CFM (FM) AHU, 8 TR, 6+2 row deep cooling coil, 125 mm Static Pressure with 7.5 HP/ 3 Phase motor	Nos.	4			
c		Second Floor, OT 1 & 2, 2800 CFM (FM) AHU, 7.5 TR, 6+2 row deep cooling coil, 125 mm Static Pressure with 7.5 HP/ 3 Phase motor	Nos.	8			
	7	Air Handling Units For ICUs (With VFD)					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
261		Supply, installation, testing and commissioning of double skin modular construction, draw through Sectional, Air Handling Units with 0.8 mm thick plain GSS from inside and 0.8 mm thick preplastisized GSS from outside with 40 mm thick puf insulation in between them. AHU shall be complete with VFD, imported DIDW Forward / Backward curved Centrifugal fan (plug fan/belt driven), Squirrel cage induction motor, cooling coil (Copper tubes and Aluminium fins 12-13 fin./inch), Heating Coil, pre-filter (Washable Synthetic fibre of efficiency 90% down to 10 micron), Filter frame Flange type, drain pan, V belt drive, fireproof double canvass connection and other accessories as per specifications (except water shut off valves, drain piping and pressure gauges which are covered under separate item). Motor shall be suitable for 415 ± 10% volts, 50 cycle, 3 Phase AC supply as indicated below. AHU shall include the cost of fine filter. Fine filters shall be installed in the Double skin plenum above AHU.					
a		Second Floor, MICU & NICU, 4500 CFM (FM) AHU, 12 TR, 6 row deep cooling coil, 50 mm Static Pressure with 5.0 HP/ 3 Phase motor	Nos.	8			
	7	<u>AIR HANDLING UNITS FOR OTHER AREAS (With VFD)</u>					
262		Supply, installation, testing and commissioning of double skin modular construction, draw through Ceiling Suspended (CS) / Floor Mounted Horizontal type (FM) Air Handling Units of 0.8 mm thick Plain GSS Sheet from inside & 0.8 mm thick Preplasticized GSS Sheet from Outside with 40 mm thick puf insulation in between them. AHU Shall be complete with VFD, DIDW Centrifugal fan (plugfan/belt driven), Squirrel cage induction motor, cooling coil (Copper tubes and Aluminium fins), pre-filter (Washable Synthetic fibre of efficiency 90% down to 20 micron), drain pan, V belt drive, fireproof double canvass connection and other accessories as per specifications (except water shut off valves, drain piping, Thermometer and pressure gauges which are covered under separate item). Motor shall be suitable for 415 ± 10% volts, 50 cycle, 3 Phase AC supply as indicated below.					
a		First Floor, Super Speciality ward 1 & 2, 3000 CFM (CS) AHU, 8 TR, 4 row deep cooling coil, 40 mm Static Pressure with 3.0 HP/ 3 Phase motor	Nos.	8			
b		First Floor, Microbiology Room & Accounts Section, 2000 CFM (CS) AHU, 4.5 TR, 4 row deep cooling coil, 40 mm Static Pressure with 3.0 HP/ 3 Phase motor	Nos.	8			
c		First Floor, Path Lab & Conference room , 1500 CFM (CS) AHU, 8 TR, 4 row deep cooling coil, 40 mm Static Pressure with 3.0 HP/ 3 Phase motor	Nos.	8			
d		Second Floor, Common Area (OTs), 3000 CFM (CS) AHU, 8 TR, 4 row deep cooling coil, 40 mm Static Pressure with 5.0 HP/ 3 Phase motor	Nos.	4			
e		Second Floor, Common Area (OTs), 2200 CFM (CS) AHU, 5 TR, 4 row deep cooling coil, 40 mm Static Pressure with 3.0 HP/ 3 Phase motor	Nos.	12			

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
f		Second Floor, Common Area (NICU & MICU), 1000 CFM (CS) AHU, 2.5 TR, 4 row deep cooling coil, 40 mm Static Pressure with 1.0 HP/ 3 Phase motor	Nos.	4			
	7	TREATED FRESH AIR					
263		The AHU shall be of double skin construction complete with filter, cooling coil and constant volume supply air fan sections. The unit shall be of uniform cross section throughout and free standing type. Construction shall be prefabricated individual framed sections bolted together with neoprene gaskets between to make a complete unit. All AHU's shall be ceiling suspended type. The AHU casing to have a "Penta-Post" perimeter frame with wholly be easily removable. Formed from galvanised sheet externally powder coated, rigidly reinforced with 50mm thick foam or fibreglass insulation. The outer skin of casing panels shall be of minimum 1.0mm thick galvanised steel sheet and the internal skin shall be of minimum 0.8mm thick galvanised steel sheet. All air handling units shall include thermal breaks on casing framework, and wherever required to prevent condensation on the casing. Thermal breaks shall be in the form of profiled rubber inserts between internal and external surfaces.					
a		First Floor, All Areas, 2000 CFM (CS) TFA, 8 TR, 8 row deep cooling coil, 50 mm Static Pressure with 3.0 HP/ 3 Phase motor	Nos.	4			
b		First Floor, Small rooms, 1000 CFM (CS) TFA, 4 TR, 8 row deep cooling coil, 50 mm Static Pressure with 2.0 HP/ 3 Phase motor	Nos.	4			
	8	FAN COILS UNITS (CEILING SUSPENDED TYPE)					
264		Supply, installation, testing and commissioning of ceiling suspended type fan coil units complete with fan motor, cooling coil, ball valves, filter plenum with filters, supports, etc. as per specifications and drawings.					
a		1200 CFM (3.0 TR)	Nos.	24			
b		1000 CFM (2.5 TR)	Nos.	16			
c		800 CFM (2.0 TR)	Nos.	20			
d		600 CFM (1.5 TR)	Nos.	36			
e		400 CFM (1.0 TR)	Nos.	32			
	8	FAN COIL UNIT CONTROLS					
265		Supply, installation, testing and commissioning of controls for fan coil units consisting of Pressure independent Balancing Valve, control wiring etc.					
a		Water Flow Rate 7.2 GPM	Nos.	24			
b		Water Flow Rate 6.0 GPM	No.	16			
c		Water Flow Rate 4.8 GPM	Nos.	20			
d		Water Flow Rate 3.6 GPM	Nos.	36			
e		Water Flow Rate 2.4 GPM	Nos.	32			
	9	AIR WASHER - DOUBLE SKIN					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
266		Supply, installation, testing and commissioning of double skin Air washer unit with 200 mm thick impregnated cellulose paper media (Celdek pads) of imported Origin (Munter's make) of minimum 90% efficiency, factory assembled, distribution header, GI 'B' class piping, makeup, quickfill and drain connections, Butterfly/Gate valves for Pumps, make up, drain & quickfill connections of Sump, 2 Nos. pumps of suitable capacity (1W +1 S), Y strainers and necessary fittings etc.. The quoted price shall also include GI frame and supporting structure for Celdek pads, washable synthetic fibre filters (of 90% efficiency down to 10 micron) and SS(18 gauge) sump, TEFC Motor (IP:55) Control panel complete with necessary Switchgear, Starters, metering, power and control wiring between Control panel and Motor/Pump etc. & drive unit complete with Pulley, Belts, Fresh air Louvers with bird screen (GI Construction) etc as per specification.					
		<u>Duty: Kitchen Fresh Air</u>					
		Air Qty : 10,000 CFM					
		Static Pressure : 50 mm wg					
		Fan Motor HP :7.5 HP(Suggested)					
		Pump Motor HP : 1.0 (Suggested)	Nos.	4			
	10	SCRUBBER (DOUBLE SKIN)					
267		Providing and fixing of Double skin kitchen scrubber having 18 G G.I. sheet metal fan section, with powder coated 18 G G.I. sheet enclosure, pre filter section for removal of oil grease, followed by intake louvers, impingement plate section, high pressure water atomisation section, mist eliminator and outlet cone section, expansion chamber, nozzles, strainer, belt drive with guard, gasket tight access door, eliminators, water circulation pump, isolation valve for pumps, vibration isolators for blower distribution panel etc. complete as per specifications and drawings. (Motor efficiency class EFF-2)					
		<u>Duty: Kitchen Exhaust (Ground Floor)</u>					
		Air Qty : 12,000 CFM					
		Static Pressure : 65 mm wg					
		Fan Motor HP : 2 X 10 HP					
		Pump Motor HP: 2.0 HP	Nos.	4			
	13	AXIAL FLOW FANS					
268		Supply, installation, testing and commissioning of Axial Flow Fans as shown in drawings. Fan motor shall be suitable for 3 phase, 50 Hz AC supply. The capacity of the fan given as under:-					
a		<u>Duty : Smoke Exhaust & Make up air (Ground Floor)</u>					
		Air Quantity : 10,000 CFM					
		Static Pressure : 20 mm wg					
		Motor Rating : 7.5 HP (Suggested)	Nos.	8			
b		<u>Duty : Smoke Exhaust & Make up air (First to Fourth Floor)</u>					
		Air Quantity : 4,000 CFM					
		Static Pressure : 20 mm wg					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		Motor Rating : 3.0 HP (Suggested)	Nos.	32			
	11	INLINE FANS					
269		Supply, installation, testing and commissioning of inline ducted Fans as shown in drawings. Fan motor shall be suitable for single phase, 50 Hz AC supply. The capacity of the fan given as under:-					
a		Air Quantity : 1200 CFM					
		Static Pressure : 12 mm wg					
		Motor rating : 550 Watt					
		Floor : First	Nos	4			
b		Air Quantity : 950 CFM					
		Static Pressure : 12 mm wg					
		Motor rating : 500 Watt					
		Floor : Terrace	Nos	4			
c		Air Quantity : 800 CFM					
		Static Pressure : 12 mm wg					
		Motor rating : 500 Watt					
		Floor : Ground,First,Third & Fourth	Nos	16			
d		Air Quantity : 750 CFM					
		Static Pressure : 12 mm wg					
		Motor rating : 450 Watt					
		Floor : Second	Nos	4			
e		Air Quantity : 700 CFM					
		Static Pressure : 12 mm wg					
		Motor rating : 450 Watt					
		Floor : First & Second	Nos	12			
f		Air Quantity : 500 CFM					
		Static Pressure : 12 mm wg					
		Motor rating : 300 Watt					
		Floor : Ground, First & Second	Nos	12			
g		Air Quantity : 450 CFM					
		Static Pressure : 12 mm wg					
		Motor rating : 250 Watt					
		Floor : Third & Fourth	Nos	16			
h		Air Quantity : 400 CFM					
		Static Pressure : 12 mm wg					
		Motor rating : 250 Watt					
		Floor : First	Nos	8			
i		Air Quantity : 350 CFM					
		Static Pressure : 12 mm wg					
		Motor rating : 250 Watt					
		Floor : Ground, Third & Fourth	Nos	24			
j		Air Quantity : 300 CFM					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
		Static Pressure : 12 mm wg					
		Motor rating : 200 Watt					
		Floor : Second	Nos	4			
k		Air Quantity : 200 CFM					
		Static Pressure : 12 mm wg					
		Motor rating : 100 Watt					
		Floor : First	Nos	4			
l		Air Quantity : 150 CFM					
		Static Pressure : 12 mm wg					
		Motor rating : 100 Watt					
		Floor : First	Nos	4			
m		Air Quantity : 100 CFM					
		Static Pressure : 10 mm wg					
		Motor rating : 75 Watt					
		Floor : Ground to Fourth	Nos	52			
	12	FAN SECTIONS					
270		Supply, Installation, Testing and commissioning of single skin Fan Section as shown in drawing and as per specifications. Each unit shall be complete with casing (16G) DIDW centrifugal fan, belt drive, motor, starter, louvers etc. Fan motor shall be suitable for 3 Phase, 415 ± 10% V, 50 Hz AC supply.					
a		Duty: Lift Well Pressurisation					
		Air Quantity : 21,500 CFM					
		Static Pressure : 40 mm wg					
		Motor Rating : 12.5 HP					
		Location : Terrace Floor	No.	4			
b		Duty: Lift lobby Pressurisation					
		Air Quantity : 14,500 CFM					
		Static Pressure : 40 mm wg					
		Motor Rating : 7.5 HP					
		Location : Terrace Floor	Nos.	8			
c		Duty: Staircase Pressurisation					
		Air Quantity : 12,000 CFM					
		Static Pressure : 40 mm wg					
		Motor Rating : 7.5 HP					
		Location : Terrace Floor	Nos.	8			
d		Duty: Lift Well Pressurisation					
		Air Quantity : 10,500 CFM					
		Static Pressure : 40 mm wg					
		Motor Rating : 7.5 HP					
		Location : Terrace Floor	Nos.	4			
	11	PROPELLER FANS					

SI.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
271		Supply, installation, testing and commissioning of direct driven Propeller fans for exhaust air as shown on drawings and as per specifications. Each fan shall be complete with permanent split capacitor or shaded pole motor, mounting plate, accessories like wire guard, bird screen and fixed louvers for weather protection as required. Fan capacities and Electrical characteristics shall be as follows:					
a		Duty: Exhaust					
		Air Quantity : 1500 CFM					
		Static Pressure : 10 mm wg					
		Motor Rating : 500 watt	Nos.	4			
b		Duty: Exhaust					
		Air Quantity : 1000 CFM					
		Static Pressure : 10 mm wg					
		Motor Rating : 500 watt	No.	4			
		Expansion Tank					
272		Providing and installation of expansion tank, fabricated out of 6 mm thick M.S. plate construction, duly insulated as per the specifications and shall be complete with 50mm dia outlets for system connection and overflow, make up connection, overflow connection, drain connection, drain valve, vent connections, valves and fittings as required. Expansion tank shall be complete with insulation as per specifications.					
		SIZE : 1000 mm X 1000 mm X 1000 mm (high)	No.	4			
273	19	CHILLED WATER PIPING INSULATED WITH NITRILE RUBBER					
a		20 mm dia MS Pipes	RM	920			
	14	PICB Valve (Pressure Independent Control & Balancing Valve)					
274		Supply,Installation Testing and Commissioning of PICB Valves with electronic,modulating, 3- way control device,adjustable to 51 different setting within the range of valve size.					
a		85-60 USGPM	No.	4			
b		32-17 USGPM	Nos.	8			
c		16-09 USGPM	Nos.	28			
d		8.0 - 6.0 USGPM	Nos.	36			
e		8.0 - 6.0 USGPM (For FCU)	Nos.	28			
f		5 - 2.5 USGPM (For FCU)	Nos.	88			
275	19	Providing and fixing in position the following Ball Valves with Strainer duly insulated as per specifications and drawings					
a		32 mm dia	Nos.	24			
b		25 mm dia	Nos.	40			
c		20 mm dia	Nos.	88			
276	19	Providing and fixing in position the following Ball Valves without strainer duly insulated as per specifications and drawings					
a		32 mm dia	Nos.	24			
b		25 mm dia	Nos.	40			

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
c		20 mm dia	Nos.	88			
277	3	Providing and fixing in position the following Flexible coupling (with control rods) for the chilled water pumps.					
a		100 mm dia	Nos.	24			
b		50 mm dia	Nos.	16			
278	14	Providing and fixing in position the following water flow switch as per specifications:					
a		32 mm dia	Nos.	16			
279	14	Supply, installation, testing and commissioning of cooling thermostats for various Air Handling Units and Fan Coil Units as per specifications including all accessories ,mountings,wiring between thermostat & unit, terminations etc.					
a		Proportional thermostats for Air Handling Units	Nos.	76			
b		Snap acting thermostates for Fan Coil Units	Nos.	116			
280	19	Providing and fixing in position the following Drain Valves (For Drain) duly insulataed as per specifications and drawings					
a		25 mm dia	Nos.	240			
b		20 mm dia	Nos.	160			
281	19	Providing and fixing in position the following Purge Valves duly insulataed as per specifications and drawings					
a		25 mm dia	Nos.	80			
b		20 mm dia	Nos.	120			
282		Auto air vents of following size					
a		20 mm dia.	Nos.	20			
	19	DRAIN PIPE					
283		Providing and fixing in position the following GI medium class cut to required length and installed with screw joints including the necessary fittings (bends, tees, unions, sockets etc) duly insulated with 25 mm thick TF quality thermocole pipe section as per specifications.					
a		40 mm dia	RMT	520			
b		32 mm dia	RMT	440			
c		25 mm dia	RMT	340			
	15	AIR DISTRIBUTION DUCT FOR AIRCONDITIONG OF OTS)					
284		Supply, fabrication, installation and testing of Aluminium ducts for OT's in accordance with the approved shop floor drawing complete with all accessories, bends, fittings, specials, chutes, vanes, necessary supports etc. as per specification.					
a		20 gauge Aluminium Ducting	Sqm.	3200			
	15	AIR DISTRIBUTION (FOR AIRCONDITIONING)					

Sl.No	Technical Specification Clause No.	Description of work	Unit	Quantity	Rate (Rs.)		Amount (Rs)
					In Figure	In Words	
285		SITC Pre-Insulated Fiberglass wool Duct Board-Plus –R for duct thermal insulation is having 25mm thickness with both side factory laminated aluminum foil, outer facing foil is having - Reinforced aluminum + Kraft+ glass veil and inner facing foil - Aluminum + Kraft + glass veil. Duct Board Size: 1.19mtr (W) X 2.9mtr (L)	Sqm.	3320			
	15	LAMINAR FLOW DIFFUSER					
286		Supply, Installation, Testing and commissioning of laminar flow plenum as per drawing and specification. Plenum shall be of precoated GI sheets and openable from front and shall be made of 18 gauge Aluminium. It shall be insulated and have Aluminium volume control damper on each entry level. It shall have Aluminium perforated grills for air outlets.	Nos.	192			
287	15	Supply, installation, testing and commissioning of extruded aluminium powder coated linear grills of approved shade and make as per specifications including any framework required for fixing of linear grilles.					
a		150 mm wide Linear Grilles	RMT	100			
b		100 mm wide Linear Grilles	RMT	320			
288	15	Supply, installation, testing and commissioning of volume control damper of Anodised Aluminum material for Linear grilles.	Sqm.	40			
289	15	Supply, installation and balancing of extruded aluminium powder coated air louvers complete with aluminium wire mesh birdscreen & volume control dampers as per specifications.					
a		Fresh air louvers	Sqm.	12			
b		Exhaust air louvers(without volume control dampers)	Sqm.	16			
290	20	Underdeck insulation as per specifications					
a		50 mm thick (Fiberglass)	Sqm.	5600			
		PART B (k) : SUB-TOTAL					