

**MINISTRY OF HEALTH & FAMILY WELFARE,
GOVT. OF INDIA, NEW DELHI
(Department of AYUSH)**

Tender (Second Call)

For

Design, Supply, Installation, Testing & Commissioning of Sewage Treatment Plant (STP) and Effluent Treatment Plant (ETP) including Civil and other associated works in the existing All India Institute of Ayurveda Campus for Deptt of AYUSH at Sarita Vihar, New Delhi

Volume-V

BILL OF QUANTITIES

December '2013



**HSCC (INDIA) LTD.
(CONSULTANTS & ENGINEERS FOR MEGA HOSPITALS & LABORATORIES)
E-6(A), sector-1, NOIDA(U.P) 201301 (India)**

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Tender No. HSCC/AIIA/STP/2013

ABSTRACT

Name of Work: Construction of proposed STP (215 KLD) and ETP(20 KLD) for AIIA at Ayush Sarita Vihar, New Delhi.

S.No.	Description	Amount in figures(in Rs.)
1.00	Sewage Treatment Plant (STP)	
2.00	Operation and maintance Cost	
3.00	Effluent Treatment Plant(ETP)	
4.00	Civil Works	
	TOTAL	

Name of Work: Construction of proposed STP (215 KLD) and ETP(11 KLD) for AIIA at Ayush Sarita Vihar, New Delhi.						
Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
1.00	SEWAGE TREATMENT PLANT (STP)					
	Planning,Designing,Detailing,Supplying, Erection,Testing and Commissioning of Package Sewage treatment plant based on MBBR (Moving bed Bio Reactor)/FAB technology of average flow rate of 215cu.m/day for sewer including provision of recirculation of treated sewage/effluent for the use of horticulture/flushing/A/c purposes including design and execution of all civil,structural,electrical,mechanical, plumbing and processing,ancillary equipments and works etc required to complete the package, getting approval from state pollution control board and other statutory bodies as well as from consultant (consultant) /Client including the cost of STP building for electrical room, treated sewage under ground storage tank of 100 cu.m capacity etc.					
	All the water retaining structure shall be designed as water retaining structure as per provision of IS code and water proofing with fixed or any other approved chemical shall be carried out by approved agency with 10 year (minimum) garanty. All the unit shall be painted by epoxy or fixed with the white glazed tiles of approved make. The civil works of entair STP will be carried out by agency as per drawings prepared by STP E&M agency.					
i)	The shop drawings & design of STP shall be prepared by the agency . As per site condition/available space most of the unit will be placed below ground under road/green area/ as per site condition and equipment and pump room will be above the ground level as per approved drawings .The STP shall be comprising of the following units of required size as per detail process and hydraulic design.The structure design shall be carried as per provision of IS code.The agency has to get their structure drawing checked and approved by any govt. Engineering college approved by consultant.	Set	1.0			
ii)	RCC Suitable size Bar Screen chamber with minimum free board 300 mm and minimum size 1.5mx0.8mx0.3m SWD and suitable size SS Bar screen with minimum size of bar 5x25 mm is installed at suitable angle at the inlet of raw sewage sump before pumping and manual system to collect and transport the screening material . The unit shall be designed for peak flow , and one no. SS slotted fine screen 2 mm thick after bar screen to be fixed in chamber itself.					

Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
a)	Complete Bar Screen and SS slotted fine screen Electrical & mechanical Works , excluding civil works	Set	1.0			
iii)	RCC Oil & Grease trap with mechanical oil and grease removal arrangement at one end of the chamber operated at a fixed interval.	Set	1.0			
iv)	Supply, installing, testing and commissioning vertical fully floodable type submersible drainage pump of non-corrosive material with shredder/cutter in close coupled design single stage, suitable for handling 30-50 mm dia solids for transferring raw sewer from sump to outside the building with float switch for automatic start and stop arrangement with panel and wiring, chain and pulley, mechanical seal complete in all respect as per instruction of the Engineer in charge. (The shop drawing or the pumps along with its characteristics curves, model and technical data etc. are to be submitted for approval before purchase of pump).Star delta suitable starter complete in all respect for automatic/manual operation of pump,start and stop push button contactor with required overload production and single phase preventor.					
	Material of Construction (M.O.C): Corrosion Resistant in general : Casing — Cast Iron : Impeller — Ductile cast iron/SS : Bearings — Anti friction, prelubricated ball bearings, packed with grease for life.					
	Motor: — Dry Motor with built in over load protection Protection - IP68. Insulation Class - F					
	RAW SEWAGE PUMP Capacity -180LPM (min.) Head - 12 m Solid handing - 30-50mm					
a)	RAW SEWAGE PUMP Electrical & mechanical Works , excluding civil works	Set	2.0			
b)	Drainage Sump Pump-150LPM & 10 M head	Set	2.0			

Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
v)	RCC Equalisation tank with hydraulic retention time Min.4 Hrs HRT of STP designing Average flow with suitable Size free Board 500 mm,the effluent of equalisation tank is agitated with diffused air that is fed by an air blower, including pipe non-corrosive material and its complete system.					
a)	Equalisation tank Electrical & mechanical Works , excluding civil works	Set	1.0			
vi)	RCC Moving bed Bio Reactor (MBBR-2nos. minimum) with minimum 5hr. retention time of STP designing Average flow rate for each reactor of suitable size with Air grid CPVC/Gi pipe material of construction or corrosion resistant material,Air diffusers (fine bubble), HDPE approved make Bio media for each aeration tank,with minimum water depth of 3.8 m.					
a)	Moving bed Bio Reactor - Electrical & mechanical Works , excluding civil works	Set	2.0			
vii)	ROTARY AIR BLOWERS					
	Providing and Installation of Rotary air blowers for air scouring, driver through v-belt or directly coupled through flaxble coupling. Motor shall be of suitable HP for 400-440 volts, ,1500RPM, 3 phase, alongwith air filter, non-return valve, safetyvalve, base plate and necessary air piping fittings, valves, flowmeters etc.					
	(Blower capacity and pressure head shall be suitable to meet the requirement of equalisation tank and Bio reactor suitable for average flow rate of sewer of 11 cu.m per hr.)- 3 nos.(2working +1 stand by)					
a)	ROTARY AIR BLOWERS - Electrical & mechanical Works , excluding civil works	Set	3.0			
viii)	RCC secondary tube settler/Lamella Clarifier -1 no. maximum Hydraulic loading 1.75 cu.m/sq.m/hr /1.5 cu.m/sq.m./hr. respectively and with approved quality media with minimum water depth of 2.4 m.+ Free board & hopper bottom. The lamina clarifier media shall be of acarlac plate min. 10 mm thick					
a)	Tube settler - Electrical & mechanical Works , excluding civil works	Set	1.0			

Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
ix)	Providing and fixing of OxiLyte (Mixed Oxidant) Generation System, based on ECA Technology, producing non toxic mixed Oxidant Slution at 1000 ppm of Oxidant Concentration or any other approved disinfection method excepted by consultant. The solution should be at a pH 3+-0.5 suitable for 24x7 operations should produce 100litre per hour. The system should be supplied complete with appropriate dosing pumps , valves, piping, fittings, chemical dosing tank etc. complete in all respect.					
a)	OxiLyte (Mixed Oxidant) Generation System - Electrical & mechanical Works , excluding civil works	Set	1.0			
x)	RCC supernatant tank /Filter feed tank minimum 40cu.m capacity (1 unit) with following filter feed pumps -					
	FILTER FEED PUMPSETS					
	Providing and installation horizontal single/multistage centrifugal monoblock pumping set with CI body, SS impeller, coupled with totally enclosed fan cooled inlduction motor mounted on common structural base plate with all pump accessories complete as per specifications inclusive rubber vibration eleminators motor suitable for 415 volts, 1500RPM, 3 phase 50 HZ. A/c supply.					
	Type of pump - Horizontal					
	Capacity -300LPM					
	Head - 30 M					
	Nos.- 2 (min.) - nos.(1working +1 stand by) as one set					
a)	Filter feed tank & Pumps - Electrical & mechanical Works , excluding civil works	Set	1.0			
xi)	MULTI GRADE FILTER					
	Providing and installation of mild steel pressure vessel (as per IS:2825) 6 mm thick natural rubber lining fabrication standard multi grade filter complete in all respects, with dished ends, supporting legs, manhole cover, frontal pipe work fitting with valves. Plant shall be provided with inlet, outlet pressure gauge, sample cocks, charge of filter media graded sand and internals consisting of strainers fitted on plate for collection. (No. of unit-1)					
	Dia of vessel -1000mm (minimum)& 1.8 m height					
	Shell thickness -6mm (minimum.)					
	Filtration rate - 20,000 lph/sqm (min.) &					

Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
	Dish end thickness-8mm (minimum.)					
	Nozzie plate -10mm thick (minimum.)					
	Manhole -450mm					
	Total capacity -300LPM, complete					
a)	MULTI GRADE FILTER - Electrical & mechanical Works , excluding civil works	Set	1.0			
xii)	ACTIVATED CARBON FILTER					
	Providing and installation of mild steel pressure vessel (as per IS:2825) 6 mm thick natural rubber lining fabrication standard multi grade filter complete in all respects, with dished ends, supporting legs, manhole cover, frontal pipe work fitting with valves. Plant shall be provided with inlet, outlet pressure gauge, sample cocks, charge of approved quality activated carbon media. (No. of unit-1)					
	Dia of vessel -1000mm (minimum)& 1.8 m ht.					
	Shell thickness -6mm (minimum.)					
	Dish end thickness-8mm (minimum.)					
	Nozzie plate -10mm thick (minimum.)					
	Manhole -450mm					
	capacity -300LPM,					
a)	ACTIVATED CARBON FILTER - Electrical & mechanical Works , excluding civil works	Set	1.0			
xiii)	RCC sludge sump (30 cu.m minimum) and sludge pump set with CI body, SS impeller and shaft coupled with to a totally enclosed fan cooled iniduction motor complete with HDPED/F pipings, sluice valves, non return valves, fittings etc as required. Motor suitable for 415 volts, 3 phase 50Hz. A/c supply with control auto start float switch with return sludge line upto Bioreactor.					
	SLUDGE PUMP- (2 nos.)					
	Capacity -100 LPM(minimum)					
	Head - 8 m					
	Solid handing - 30mm (minimum)					
a)	sludge sump & Pump - Electrical & mechanical Works , excluding civil works	Set	1.0			
xiv)	Providing and fixing 24 plates 600 x 600mm size filter press - . with suitable sludge pump(screw type) alongwith piping, fittings valve etc. complete in all respects.					

Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
a)	Filter press & sludge pump(screw type) - Electrical & mechanical Works , excluding civil works	Set	1.0			
xv)	Providing and fixing dust and vermine proof cubical type motor control panel centre for the various pumps, blower etc. required. It is fabricated from 2mm thick CRCA sheet with stove enamelled finish and comprising of:Panel should have at least 20% spare feeders.					
a.	One incomming main MCCB of required capacity suitable rating					
b.	MCCB/MPCB, one for each motor					
c.	Fully automatic DOL/star delta starters suitable for different motors/pumps used in the ETP.Upto 7.5 HP DOL may be used and above star/delta starter used with push buttons one for each motor and on/off indicating neon lamps.					
d.	Single phasing preventors of appropriate rating for each motor.					
e	rotary type selector switch					
f	Panel type ampere meters, one for each motor shall be with rotary selector switch to monitor line currents.					
g	Panel type volt meters, on incoming main with rotary selecting switch to monitor voltage between phase to neutral and phase to phase.					
h	Neon phase indicating lamps and indicating lamp for each motor on incoming mains.					
l	Rotary switch for manual or auto operation for each pump					
j	Fully taped separate aluminium bus bar of required capacity for normal and emergency supply.					
k	The panel shall be pre-wired with coded wiring. All intercnnting wiring from incoming main to switchgear, meters and accessories within the switchboard panel shall have suitable copper ferrules					
xvi)	Electrical works (including supply, installation and termination of cables of suitable size as per HP of all pumps with all structural supports, clamps and cable trays as per approved design/specifications,installation will be as per relevant Indian standard and CPWD specification alongwith control cable of suitable size).(1 lot). Any other electrical and mechanical item required to complete the work.	Set	1.0			
xvii).	Providing and fixing digital type flow meter etc. complete in all respects. (1 no.)	Set	1.0			

Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
xviii)	Providing and fixing lab. Equipments including digital type pH meter, COD kit, TDS kit, bicker, conical flask etc. complete in all respects. (1 set)	Set	1.0			
xix)	Sludge drying beds (4.0X2.0.0X1.0) (minimum size)-2 nos. - Electrical & mechanical Works , excluding civil works.Filter press and Sludge drying bed both are to be provided	Set	1.0			
xx)	Rooms for Pumps & control panel (100 sq.m.) (minimum size) - Electrical & mechanical Works , Ventillation fan and lighting etc., excluding civil works.	Set	1.0			
xxi)	Supplying, installing, testing and commissioning monoblock centrifugal pumping set with mechanical seal, C.I. volute and SS impeller & SS shaft connected to a TEFC induction motor of suitable HP for 415 volts, 3 phase, 50 cycles A.C. supply with 150 mm dia pressure gauge with SS/gunmetal isolation cock, vibration eliminating pads, base plate wiring upto panel and equipment for water level controller to start and stop the pump automatically at predecided levels of the water in the tank with provision of protection for dry run etc. complete in all respect (The shop drawing or the pumps along with its characteristics curves, model and technical data etc. are to be submitted for approval before purchase of pump).					
	Domestic water pumps (Treated water transfer pump to terrace tank)/horticulture					
	Capacity 400 lpm					
	Head 45 M	Each	2.0			
	Note: The cost of chemical & manpower for trial run for period of two month from the date of handing over including the cost of consumables complete as specification as directed .Obtain required no. of test report of treated/raw sewer during trial run. No additional payment shall be made on this account.					
	SUB TOTAL(Sewage Treatment Plant)					

SI. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
2.00	Operation and maintance of STP & ETP					
i)	Testing charges of Raw and treated effluent for all the required parameter from approved lab (after defect and liability period of 12 months)	Set	6.0			
ii)	Providing chemical and consumables for satisfactory operation of STP & ETP etc. in all respect excluding cost of electricity and manpower and spare parts during defect liability period i.e. 1 year and also including the cost for providing the on plant training to the respective personnels for operation and maintenance of STP & ETP.	month	12.0			
iii)	Providing (operator & one Helper) i.e. manpower to operate the STP in shift. In case more than one shift required any day, the additional manpower/overtime shall be made accordingly.					
a)	Helper - 1 no./day	Month	24.0			
b)	technical operator - 1 no./day	Month	24.0			
iv)	AMC of all equipments, components and spares of STP & ETP after one year defect liability period.The consumables will be reimbursed by owner as per actual cost.	Year	1.0			
	SubTotal(O & M)					

Sl. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
3.00	Effluent Treatment Plant(ETP)					
	Providing and fixing packaged type Effluent treatment plant of non-corrosive material. RCC/MS components with corrosive protection, including design shop drawing and obtain the approval, erection ,commissioning, construction of ETP including civil, mechanical, electrical ,piping work complete in all respect on turnkey basis .The system should be fully automatic with level control, compact, odor free and shall consume low power. ETP of suitable size for 20 KLD required to treat the effluent of Ayurveda hospital by using suitable technology complete in all respect including SS screen,RCC Oil & grease trap,MS flash mixer/tube settler/neutralisation chamber, including pumps and piping, filter, sludge transfer pump.					
	The ETP units shall be designed in such a way that the lab effluent does not effect the function of STP when treated hospital effluent mixed in the domestic sewer line. treated effluent shall meet the DPCC norms &also obtain adequacy report &treated effluent test report for DPCC. Agency has to maintain and operate the ETP during defect liability period including cost of manpower, chemical etc except electricity cost. The system will be below ground level in one corner of STP. The civil quantities will be paid as per actual under civil work head. However other than civil work all MS,SS unit, its paint,FRP inner coating,media,pipe valve, pump,electric panel and fitting,dosing pump,SS agitator, or any other item required for proper functioning of ETP will be considered as the part of ETP. The work shall be carried out as per approval of HSCC. Filter press/Sludge drying bed of STP will also used to handle the sludge of ETP.					
	The ETP has to be designed and installed through the approved vendor (Geo Miller, Ion Exchange, Aquaprocess, LN Tech,Thermax, Pollucon Technologies, AKAR Implex (P) Ltd, Fontus.) or any other approved agency having similar ETP experience	Each	1.0			
	Total for ETP					

SI. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7
	GRAND TOTAL					

SI. No.	Description of Item	Unit	Total Qty.	Rate in words(in Rupees)	Rate in figures(in Rs.)	Amount in figures(in Rs.)
1	2	3	4	5	6	7

Project Name: Civil & Electro-Mechanical works for STP & ETP at AIIA, Sarita Vihar, New Delhi Annexure-I

ABSTRACT OF COST

S.No	DESCRIPTION OF WORK		AMOUNT (Rs)
	Civil work		
1	EARTHWORK		
2	CONCRTE WORK		
3	RCC WORK		
4	BRICK WORK		
5	DOORS & WINDOWS		
6	STEEL WORK		
7	FLOORING		
8	CEILING & ROOFING		
9	FINISHING		
	TOTAL		

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures(in Rs)
1	2	3	4	5	6	7
1.00	EARTH WORK					
1.01	Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30cm in depth, 1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50m and lift up to 1.5m, disposed earth to be levelled and neatly dressed.					
a)	All kinds of soil	3619.00	cum			
1.02	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.	924.00	cum			
1.03	Supplying and filling in plinth with river sand under floors including, watering, ramming consolidating and dressing complete.	15.00	cum			
1.04	Extra for every additional lift of 1.5 m or part thereof of in					
a)	All kinds of soil.					
i)	1.5 to 3.0m	754.00	cum			
ii)	3.0 to 4.5m	754.00	cum			
iii)	4.5 to 6.0m	754.00	cum			
iv)	6.0 to 7.5m	603.00	cum			
1.05	Extra for disposal of excavated earth for additional lead beyond 50m or part thereof upto 9 such additional leads					
a)	All kinds of soil	2694.00	cum			

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures(in Rs)
1	2	3	4	5	6	7
	SubTotal(earth work)					

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures(in Rs)
1	2	3	4	5	6	7
2.00	Concrete Work					
2.01	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:					
a)	1:4:8 (1 Cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size).	40.00	cum			
b)	1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size)	15.00	cum			
	SubTotal(Concrete work)					

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures(in Rs)
1	2	3	4	5	6	7
3.00	REINFORCED CEMENT CONCRETE					
3.01	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete work including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement. including Admixtures in recommended proportions as per IS 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge. M-25 grade reinforced cement concrete by using 380 kg. of cement per cum of concrete. All work up to floor V level.	574.00	cum			
3.02	Centering and shuttering including strutting, propping etc. and removal of form for:					
a)	Foundations, footings, bases of columns, etc. for mass concrete.	51.00	sqm			
b)	Walls (any thickness) including attached pilasters, buttersesses, plinth and string courses etc.	1703.00	sqm			
c)	Suspended floors, roofs, landings, balconies and access platform.	487.00	sqm			
d)	lintels, beams, plinth beams. girders. bressumers and cantilevers.	5.00	sqm			
e)	Columns, Pillars, Piers, Abutments, Posts and Struts.	15.00	sqm			

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures(in Rs)
1	2	3	4	5	6	7
f)	Small lintels not exceeding 1.5m clear span, moulding as in cornices, window sills, string courses, bands, copings, bed plates, anchor blocks and the like.	1.00	sqm			
3.03	Extra for additional height in centering, shuttering wherever required with adequate bracing, propping etc. including cost of de-shuttering and decentering at all levels, over a height of 3.5 m, for every additional height of 1 metre or part thereof (Plan area to be measured)					
a)	Suspended floors, <i>roofs</i> , landings, beams and balconies (Plan area to be measured).	974.00	sqm			
3.04	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete (At all levels).					
a)	Thermo-Mechanically Treated bars	62094.00	Kg			
	SubTotal(R.C.C.)					

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures(in Rs)
1	2	3	4	5	6	7
4.00	BRICK WORK					
4.01	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in:					
a)	Cement mortar 1:6 (1 cement: 6 coarse sand)	5.00	cum			
4.02	Brick work with F.P.S. bricks of class designation 75 in superstructure above plinth level up to floor V level in all shapes and sizes in :					
a)	Cement mortar 1:6 (1 cement: 6 coarse sand)	18.00	cum			
	SubTotal(Brick work)					

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures(in Rs)
1	2	3	4	5	6	7
5.00	DOORS, WINDOWS AND FITTINGS					
5.01	Providing and fixing aluminium 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 EPDM rubber/neoprene felt etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium 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) :					
5.01.1	For fixed portion					
a)	Powder coated aluminium (minimum thickness of powder coating 50 micron)	55.00	kg			
5.01.2	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 EPDM rubber / neoprene gasket required (Fittings shall be paid for separately).					

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures(in Rs)
1	2	3	4	5	6	7
a)	Powder coated aluminium (minimum thickness of powder coating 50 micron)	28.00	kg			
5.03	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:					
a)	Profile C	5.70	metre			
5.04	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of engineer-in-charge. (Cost of aluminium snap beading shall be paid in basic item) :					
a)	With float glass panes of 5.50 mm thickness	6.00	sqm			

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures(in Rs)
1	2	3	4	5	6	7
5.05	Providing and fixing ISI marked flush door shutters conforming to IS: 2202 (Part I) non-decorative type, core of block board construction with frame of 1st class hard wood and well matched commercial 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters :					
a)	35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws.	3.00	sqm			
5.06	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. 5.09 above.	3.00	sqm			
	ALUMINIUM FITTINGS					
5.07	Providing and fixing IS : 3564 marked Aluminium die cast body tubular type universal hydraulic door closer with necessary accessories and screws etc. complete.	1.00	each			
5.08	Providing and fixing aluminium 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 with nuts and screws etc. complete:					
a)	300x16 mm	2.00	each			
b)	250x16 mm	2.00	each			

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures(in Rs)
1	2	3	4	5	6	7
5.09	Providing and fixing aluminium 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 with necessary screws etc. complete:					
a)	250x10 mm	2.00	each			
b)	150x10 mm	9.00	each			
5.10	Providing and fixing aluminium handles ISI marked anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade with necessary screws etc. complete :					
a)	125 mm	2.00	each			
b)	100 mm	2.00	each			
5.11	Providing and fixing aluminium 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 with necessary screws etc. complete.					
a)	Twin rubber stopper	2.00	each			
5.12	Providing and fixing bright finished brass 100 mm mortice latch and lock ISI marked with six levers and a pair of anodised (anodic coating not less than grade AC 10 as per IS : 1868) aluminium lever handles with necessary screws etc. complete (Best make of approved quality).	1.00	each			

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures(in Rs)
1	2	3	4	5	6	7
5.13	Providing and fixing stainless steel (SS 304 grade) adjustable friction windows stays of approved quality with necessary stainless steel screws etc. to the side hung windows as per direction of Engineer-in-charge complete.					
a)	255 X 19 mm	8.00	each			
5.14	Providing and fixing aluminium casement windows fastener of required length for aluminium windows with necessary screws etc. complete.					
a)	Powder coated minimum thickness 50 micron aluminium.	8.00	each			
SubTotal(doors, windows and fittings)						

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures(in Rs)
1	2	3	4	5	6	7
6.00	Steel Works					
6.01	Providing and fixing M.S. grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. all complete.					
a)	Fixed to steel windows by welding.	500.00	kg			
6.02	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing and staircase railing including applying a priming coat of approved steel primer.					
a)	M.S. tube.	100.00	Kg			
	SubTotal(Steel works)					

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures(in Rs)
1	2	3	4	5	6	7
7.00	Flooring					
7.01	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.					
a)	40mm thick with 20mm nominal size stone aggregate.	120.00	sqm			
7.02	Cement plaster skirting (up to 30 cm height) with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement.					
a)	18 mm thick.	23.00	sqm			
7.03	Providing and fixing glass strips in joints of <i>terrazo</i> / cement concrete floors.					
a)	40 mm wide and 4 mm thick.	300.00	Metre			
	SubTotal(Flooring)					

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures(in Rs)
1	2	3	4	5	6	7
8.00	CEILING & ROOFING					
8.01	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 300mm height including cleaning the surface before treatment. b) Laying brick bats with mortar using broken bricks/brick bats 25 mm to 115mm 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 to IS : 2645 and approved by Engineer - in - charge to required slope and treating similarly the					

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures(in Rs)
1	2	3	4	5	6	7
	adjoining walls upto 300 mm height including rounding of junctions of walls and slabs c) After two days of proper curing applying a second coat of cement slurry using 2.75kg/ sqm of cement admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge. d) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 (1 cement: 4 coarse sand) admixed with water proofing compound conforming to IS: 2645 and approved by Engineer-in-charge including laying glass fibre cloth of approved quality in top layer of plaster and finally finishing the surface with trowel with neat cement slurry and making pattern of 300x300 mm square 3mm deep. e) The whole terrace so finished shall be flooded with water for a minimum period of two weeks for curing and for final test. All above operations to be done in order and as directed and specified by the Engineer-in-Charge :					
a)	With average thickness of 120mm and minimum thickness at khurra as 65 mm.	25.00	sqm			
8.02	Water proofing treatment by Chemical Injection system(preconstruction)					
a)	HORIZONTAL SURFACE (RAFT SLAB)					
	A. Before the raft reinforcement is placed in position:					

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures(in Rs)
1	2	3	4	5	6	7
	i) Applying Cement slurry (cement and polymer based water proofing compound) in proportion as per manufacturer specifications is spread on already laid PCC.					
	ii) Providing and laying 20mm thick cement mortar 1:4 (1 cement: 4 coarse sand) mixed with polymer based water proofing compound is over the slurry. Stone aggregates 12mm and down size is embedded at random.					
	iii) After 24 hours, spreading cement slurry (cement and polymer based water proofing compound) on the 1st layer of mortar.					
	iv) Providing and laying 2nd layer of 20mm thick cement mortar 1:4 (1cement:4 coarse sand) mixed with polymer based water proofing compound. Stone aggregate 12mm down is embedded at random.					
	v) After curing for two days, spreading cement slurry mixed with water proofing compound over the 2nd layer of cement mortar. Thereafter, the 3rd and final layer of 20mm thick cement mortar in 1:4 (1 cement: 4 coarse sand) mixed with water proofing compound is laid and finished smooth to receive raft foundation.					
	vi) The total thickness of the treatment from operation i to v will be about 60mm.					
	B. After The reinforcement of raft is placed in position:					

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures(in Rs)
1	2	3	4	5	6	7
	i) Providing and fixing 25mm dia GI threaded grouting nozzles of adequate length at the specified locations @ 1.50 metre c/c or as shown in the drawing all over the slab. The grouting nozzles are tied with reinforcement in such a manner as not to choke its end during concrete operations. The top of these nozzles protrudes above the raft concrete.					
	ii) After minimum 7 days of concreting, cement grout of cement and polymer based water proofing compound (non shrinkage grouting compound) in proportion as specified is injected, through these nozzles at a pressure of 2.5 to 3.0 Kg/Sq.cm.					
	iii) After grouting, top of the nozzles is cut and the space is filled with cement mortar 1:2 (1 cement: 2 coarse sand) mixed with polymer based water proofing compound. Area of raft treated shall be measured for payment					
	(leveling course to be paid separately). Joints sealed and grouted with cement slurry mixed with water proofing compound. ii) 2nd layer of 25mm 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 10mm to 12mm nominal size spreading @ 8 cudm/sqm thoroughly embedded in the 2nd layer.	320.53	SQM			
b)	Retaining Wall					

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures(in Rs)
1	2	3	4	5	6	7
	i) Preparing the external surface and cement slurry mixed with polymer based water proofing					
	ii) Providing and laying 25mm thick cement mortar in 1:4 (1 cement : 4 coarse sand) mixed with polymer based water proofing compound in two layers with chicken wire mesh 26 or 24 gauge 25mm size in between the two layers.					
	iii) Placing G.I. pipes at 1.5m c/c and at location as directed or indicated as in drawing and securely fastened to the reinforcement prior to shuttering and concreting or alternately by drilling holes (25mm to 32mm dia) in the concrete upto a depth as directed or as shown in the drawing all over the wall surface @ 1.50mt. c/c and as shown in the drawing. Treatment along all construction joints by providing nozzles, as above, shall also be executed.					
	iv) Fixing 25mm dia G.I. threaded nozzles in these holes with cement mortar 1:4(1 cement: 4 coarse sand) mixed with water proofing compound.					
	v) Injecting cement grout of cement and polymer based water proofing compound (non shrinkage grouting compound) in proportion as per manufacturer specification or as specified in these nozzles at a pressure of 2.5 to 3.0 Kg/Sq.cm.					
	vi) After the grout the nozzles are cut and filled with cement mortar 1:2 mixed with polymer based water proofing compound in proportion as specified and finished smooth.					

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures(in Rs)
1	2	3	4	5	6	7
	Area of walls treated shall be measured for cement	486.20	Sqm			
	SubTotal(ceiling and flooring)					

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures(in Rs)
1	2	3	4	5	6	7
9.00	Finishing					
9.01	12 mm cement plaster of mix:					
a)	1:6 (1 cement: 6 fine sand)	156.00	sqm			
9.02	15 mm cement plaster on the rough side of single or half brick wall of mix:					
a)	1:6 (1 cement: 6 fine sand)	191.00	sqm			
9.03	18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1:5 (1 cement: 5 coarse sand) finished with a top layer 6mm thick cement plaster 1:6 (1 cement: 6 fine sand).	20.00	sqm			
9.04	6 mm cement plaster of mix:					
a)	1:3 (1 cement: 3 fine sand)	188.00	sqm			
9.05	Distempering with oil bound washable distemper of approved brand and manufacture to give an even shade					
a)	New work (two or more coats) over and including priming coat with cement primer.	535.00	sqm			
9.06	Finishing walls with Acrylic Smooth exterior paint of required shade:					
a)	New work (Two or more coat applied @ 1.67 ltr/10 sqm over and including base coat of water proofing cement paint applied @ 2.20 kgl10 sqm).	10.00	sqm			

Item No	Description Of Item	Total Qty	Unit	Rate in Figures(Rs)	Rate in Words(in Rs)	Amount in Figures(in Rs)
1	2	3	4	5	6	7
9.07	Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade:					
a)	Two or more coats on new work over an under coat of suitable shade with ordinary paint of approved brand and manufacture.	8.00	sqm			
	SubTotal(finishing)					