

**MINISTRY OF HEALTH & FAMILY WELFARE,  
GOVT. OF INDIA, NEW DELHI**

**TENDER**

**FOR**

**Construction of Super Speciality Block at  
Dr.Rajendra Prasad Government Medical  
College, Kangra at Tanda, Himachal Pradesh  
under PMSSY**

**VOLUME –V**

**BILL OF QUANTITIES**

**MAY 2011**



**HSCC (INDIA) LTD.  
(CONSULTANTS & ENGINEERS FOR MEGA HOSPITALS & LABORATORIES)  
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**Tender No. MoHFW/HSCC/PMSSY/TANDA/SSB/2011**

# CIVILWORKS

**PROJECT NAME: CONSTRUCTION OF Super Speciality Block at Dr. Rajendra Government Medical College Kangra, Tanda  
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Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(RS)	Amount in Figures(Rs)
1	2	3	4	5	6	7
<b>1.00</b>	<b>EARTH WORK</b>					
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 upto 50m and lift upto 1.5m, disposed earth to be levelled and neatly dressed.					
a)	All kinds of soil	7343.00	cum			
1.02	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.					
a)	All kinds of soil.	266.00	cum			
1.03	Extra for every additional lift of 1.5 m or part there of in.					
a)	All kinds of soil.					
i)	1.5m to 3.0m	1869.00	cum			
ii)	3.0m to 4.5m	872.00	cum			



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<b>2.00</b>	<b>Concrete Work</b>					
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)	1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	41.00	cum			
b)	1:4:8 (1 Cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size).	510.00	cum			
c)	1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size)	341.00	cum			
2.02	Providing and laying cement concrete in retaining walls, return walls, walls (any thickness) including attached pilasters, columns, piers, abutments, pillars, posts, struts, buttresses, string or lacing courses, parapets, coping, bed blocks, anchor blocks, plain window sills, fillets etc. up to floor five level, excluding the cost of centering, shuttering and finishing:					
a)	1:2:4 (1 Cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	17.00	cum			

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2.03	Providing and laying damp-proof course 40mm thick with cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 12.5mm nominal size).	182.00	sqm			
2.04	Applying a coat of residual petroleum bitumen of penetration 80/100 of approved quality using 1.7kg per square metre on damp proof course after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil.	182.00	sqm			
2.05	Extra for providing and mixing water proofing material in cement concrete work @ 1 kg per 50kg of cement.	1055.00	per 50 kg cement			
<b>Total</b>						

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<b>3.00</b>	<b>REINFORCED CEMENT CONCRETE</b>					
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 centring, 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 410 kg. of cement per cum of concrete. All work up to floor V level.	8630.00	cum			
3.02	Extra for R.C.C. / B.M.C / R.M.C. work above floor V level for each four floors or part thereof.	680.00	cum			
3.03	Add or deduct for providing richer or leaner mixes respectively at all floor levels.					
i)	Providing M-30 grade concrete by using 420kg of cement per cum of concrete instead of M-25 grade B.M.C/ R.M.C..	1015.00	cum			

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3.04	Deduct for using less cement than the quantity as provided in the item of batch mix concrete/RMC as arrived as per mix design.	210.00	Qtl			
3.05	Centering and shuttering including strutting, propping etc. and removal of form for:					
a)	Foundations, footings, bases of columns, etc. for mass concrete.	1620.00	sqm			
b)	Walls (any thickness) including attached pilasters, buttresses, plinth and string courses etc.	2232.00	sqm			
c)	Suspended floors, roofs, landings, balconies and access platform.	11275.00	sqm			
d)	Extra for specially designed shuttering to support slab/beam ceiling, of thickness 1.0 to 2.4 mtr(the agency has to put up shop drawings along with proper structure design calculations of shuttering for vetting by the engineer in charge/client or by an agency as desired by the client, before erecting shuttering at site)	351.00	sqm			
e)	Shelves (Cast in situ)	150.00	sqm			
f)	lintels, beams, plinth beams. girders. bressumers and cantilevers.	11850.00	sqm			
g)	Columns, Pillars, Piers, Abutments, Posts and Struts.	7487.00	sqm			
h)	staircases (including landing).	474.00	sqm			



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i)	Extra for shuttering in circular work (20% of respective centering and shuttering items).					
a)	Beams	473.00	sqm			
b)	Slab	105.00	sqm			
j)	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.	717.00	sqm			
k)	Edges of slabs and breaks in floors and walls. Under					
i)	20 cm wide	105.00	Metre			
ii)	Above 20 cm wide	53.00	sqm			
3.06	Extra for additional height in centering, shuttering where ever required with adequate bracing, propping etc. including cost of decshuttering 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> , landing, beams and balconies (Plan area to be measured).	10987.00	sqm			
3.07	Reinforcement for R.C.C. work including straightening. cutting, bending, placing in position and binding all complete.					



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<b>4.00</b>	<b>BRICK WORK</b>					
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)	145.00	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)	1816.00	cum			
4.03	Extra for brick work in superstructure above floor V level for each four floors or part thereof by mechanical means by lifting material using mobile crane.	252.00	cum			
4.04	Half brick masonry with F.P.S. brick of class designation 75 in foundations and plinth in.					
a)	cement mortar 1:4 (1 cement: 4 coarse sand)	53.00	sqm			
4.05	Half brick masonry with F.P.S. bricks of class designation 75 in superstructure above plinth level up to floor V level.					
a)	Cement mortar 1:4 (1 cement :4 coarse sand)	11232.00	sqm			

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4.06	Extra for half brick masonry in superstructure, above floor V level for every four floors or part thereof by mechanical means by lifting material using mobile crane.	1016.00	sqm			
4.07	Extra for providing and placing in position 2 Nos. 6mm dia. M.S. bars at every third course of half brick masonry (with F.P.S. bricks).	11232.00	sqm			
4.08	Extra for forming Cavity in cavity walls with necessary weep and vent holes including use of cores and cost of providing and fixing bitumastic coated M.S. ties 600 mm long of 25mmx3mm section at not less than 3 ties per sqm as per approved design.	53.00	sqm			
4.09	Brick edging 7 cm wide 11.4 cm. deep to plinth protection with bricks of class designation 75 including grouting with cement mortar 1:4 (1 cement : 4 fine sand)	394.00	metre			
<b>Total</b>						

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<b>5.00</b>	<b>DOORS &amp; WINDOWS</b>					
5.01	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular <i>sections</i> / 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. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / panelling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing and panelling to be paid for separately) :					
5.01.1	For fixed portion					
a)	Powder coated aluminium (minimum thickness of powder coating 50 micron)	5972.00	kg			

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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 PVC / neoprene gasket required (Fittings shall be paid for separately).					
a)	Powder coated aluminium (minimum thickness of powder coating 50 micron)	1951.00	kg			
5.02	Providing and fixing anodised aluminium (anodised transparent or dyed to required shade according to IS: 1868. Minimum anodic coating of grade AC 15) sub frame work for windows and ventilators a with extruded built up standard tubular sections of approved make conforming to IS: 733 and IS : 1285 fixed with rawl plugs and stainless steel screws etc.	1185.00	kg			

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
5.03	Providing and installation of fully insulated wooden fire rated shutter of 120min. fire rating conforming to BS: 476 part 22 and IS:3614 Part II as per the prototype tested and certified by CBRI Roorkee, of 55mm thickness, comprising of 75mm x 49mm hardwood internal timber frame work, with infill of 96 kg/m <sup>3</sup> , ceramic fiber blankets, coated with VIPER FR or equivalent intumescent coating on both sides for insulation. The coated insulation shall be sandwiched between 12mm thick, Non combustible Boards (Calcium Silicate) on both sides (edge to edge on internal Hardwood frame) and clad with 3mm thick commercial ply of approved quality & 1mm thick laminate of approved brand and manufacture on both sides, with 55mm x 14mm 2nd class teak wood lipping all round the shutter.					

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	The shutter is suitable for mounted on the door frame, as per the item given below.. Both frame and shutter shall be fitted with fire & smoke intumescent seal of Viper or equivalent make of size 20 x 4mm on all the three sides except bottom. The pasting of the ply/veneer/laminate should be done using automatic machine and should be free from any nails or perforations. The board shall be Resistant to vermin, mould growth, minor impact, abrasion and short term water attack. The shutter shall be fixed with the frame with the help of SS 304 grade ball bearing hinges of size 100x76x2mm with necessary screws and making cut out for vision panel. Provisions/reinforcement for fixing all fixtures shall be built in on the door prior to the supply.					
a)	Single/Double Shutter	76.00	sqm			



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1	2	3	4	5	6	7
5.04	Providing and fixing door frames as per BS: 476 part 22, IS:3614 Part II as per the prototype certified by CBRI Roorkee made out of 2nd class C.P. Teak Wood frame of section 140x65mm for fire resistant doors of 120 minutes fire rating, with heat activated intumescent fire seal strips of size 20 x 4 mm( for smoke sealing) provided in grooves on all three sides of the frame with one coat of approved brand of fire retardant primer including two coats of fire retardant paint FR 881or equivalent un thinned on cleared hard wood surface of door frames (@3.5 sq.m. per litre per coat) including preperation of base surface as per recommendations of manufacturer to make the surface fire retardant, including fixing the frame with 8 nos. 100 mm long, 10 mm dia metal dash fastners complete as per directions of the Engineer in charge NOTE:- cost of fire seal strips, dash fastners are included in the item. Nothing extra shall be paid if size of any component of material exceeds the limit mentioned in the item. The rebate shall be of 20mm x 57mm in Door Frame to accommodate the shutter in frame	112.00	Metre			

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5.05	Providing and fixing of UL listed fire rated single/double leaf panic exit devices tested in accordance with BS EN 1125: 1997 & BS EN 179: 1997, EN 1670 (Corrosion Resistant), & BS 476 Part 22 (for fire rating) with 5 years warrantee.					
a)	Single/Double Leaf	18.00	Each			
5.06	Providing and fixing of fire rated door closer tested in accordance with BS:476 Part 22 for fire rating) and BS EN 1154 with 10 year warranty.	18.00	Each			
5.07	Providing and fixing 2 hrs, fire rated mortice lock with lever handle tested in accordance with BS:476 Part 22.with 7 year warranty.	18.00	Each			
5.08	Providing and fixing stainless steel grade 304 D type pull handle with screws complete.	18.00	Each			

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5.09	Supply and fixing of Fire Retardant board to be fixed at bottom with necessary screws etc. and filling of vermiculite based cementitious type fire proof sealing system mixed with concrete of retrofit design for sealing of openings through floors shafts etc. duly tested and certified at CBRI, Roorkee as per IS : 1245 (1988) and other national and international standards. The Joints etc shall also be sealed with similar material.	5.00	sqm			
5.10	Providing and fixing 6 mm thick piroshield fire rated clear glass of approved make, of 120 minutes fire rating having a minimum 13 mm square electrically welded chemically treated steel wire mesh of dia 0.51 mm sandwiched in the centre during the continuous rolling process to be fixed in vision panel including cost of fire rated gasket channel and moulding/beading all complete	5.00	sqm			

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5.11	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 1 st 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 N.S.n thick including ISI marked Stainless Steel butt hinges with necessary screws.	777.00	sqm			
5.12	Providing & Fixing decorative high pressure laminated sheet of plain / wood grain in gloss / matt / suede finish with high density protective surface layer and reverse side of adhesive bonding quality conforming to IS : 2046 Type S including cost of adhesive of approved quality					
a)	1.0 mm thick.	1554.00	sqm			
5.13	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)	777.00	sqm			

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5.14	Providing and fixing glazing in aluminium door, window, ventilator shutters , Canopy and partitions etc. with PVC/ 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	600.00	sqm			
b)	with Toughened & Translucent glass panels of 12mm thickness	200.00				
5.15	Providing and fixing IS : 3564 marked Aluminium die cast body tubular type universal hydraulic door closer with necessary accessories and screws etc. complete.	175.00	each			
5.16	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)	250x16 mm	175.00	each			
5.17	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:					

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a)	250x10 mm	420.00	each			
b)	150x10 mm	1274.00	each			
5.18	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. c.complete :					
a)	125 mm	840.00	each			
b)	100 mm	663.00	each			
5.19	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	420.00	each			
5.20	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	1274.00	each			

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5.21	Providing and fixing aluminium tubular handle bar 32 mm outer dia, 3.0 mm thick & 2100 mm long with SS screws etc .complete as per direction of Engineer-in-Charge.					
a)	Powder coated minimum thickness 50 micron aluminium tubular handle bar.	4.00	each			
5.22	Providing and fixing 100mm brass locks (best make of approved quality) for aluminium doors including necessary cutting and making good etc. complete.	2.00	each			
5.23	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).	175.00	each			
5.24	Providing fixing aluminium round shape handle of outer dia 100mm with SS screws etc. complete as per direction of Engineer-in-charge					
a)	Powder coated minimum thickness 50 micron aluminium	2.00	each			

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5.25	Providing and fixing double action hydraulic floor spring of approved brand and manufacture IS : 6315 marked, for doors including cost of cutting floors as required, embedding in floors and cover plates with brass pivot and single piece M.S. sheet outer box with slide plate etc. complete as per the direction of Engineer-in-charge.					
a)	With stainless steel cover plate	4.00	each			
5.26	Supply, Design, fabrication and installation of semi unitised Structural glazing system in the form of fixed panels, using specially designed aluminium extruded sections, mullions and transoms having 25 micron Anodised of approved colour and shade and make with mullions fixed on the RCC beams/columns through adequately designed brackets including providing masking tape on the profiles for safety against external scratches on site complete with approved silicon sealant EPDM gasket etc. to make the structural glazing air tight and water tight as per standards and as per Architect's drawings and specifications. The design to be as per BIS code for required wind pressure IS: 875 part III and use of aluminium section alloy as per IS:8147.					



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a)	System design to strictly consider for thermal movements, air infiltration, water penetration, seismic movement and structural movement. Contractor to furnish shop drawings along with sequence of work and for approval of Engineer-in-charge.The minimum section shall be 131x66x2mm and per sqmt weight shall be 10kg approx, the item shall be measured and paid for actual surface area of structural glazing/aluminium composite panel supported on the frame.(Cost of glass/ACP to be paid seperately under respective items)	1319.00	SqM			

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5.27	Providing & fixing 24mm th. insulated glass over above corresponding item hermetically sealed with 6mm heat strengthend toughened solar control off line coated high performance temperable glass of approved colour having reflective soft coating and 6mm clear toughned float glass inside with 12mm dry air cavity between two glass panes separated by a hollow aluminium spacer bar with twin lines of micro holes as approved filled with molecular desiccant of approved make and using primary hot meld duly and secondary polysulphide or silicon sealant of approved make all complete over above item. (U value less than 2.85w/sqm k, shading cofficent less than 0.55, solar factor less than 0.50, light transmition minimum 40%)	1319.00	Sqm			
5.28	Providing and fixing powder coated aluminium grills made out with special extruded sections fixed with suitable means approved and as directed by Engineer in Charge including all complete.	2001.00	kg			
5.29	Extra of providing vision panal not exceding 0.1sqm in all type of flush doors. (Cost of glass excluded) over all area of doors shutters to be measured.					

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<b>Item No</b>	<b>Description Of Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Rate in Figures(Rs)</b>	<b>Rate in Words(RS)</b>	<b>Amount in Figures(Rs)</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
a)	Rectalgar of square	777.00	sqm			
5.30	Providing glass panes, with wooden fillets wherever necessary.					
a)	4mm thick Glass panes weighing 10 kg./sqm.	10.00	Sqm			
5.31	Providing and fixing Aluminium Composite sheet cladding using 4 mm thick of approved make consisting of a core of 3 mm natural polyethylene core sandwiched between two skins of 0.5 mm each of aluminium alloy with outer surface in all colour coating of PVDF paint in fully automatic coil coating process . The PVDF coated finish surface to be factory protected with self adhesive peel off foil tested to withstand at least 6 months exposure to local weather conditions The composite sheet cut and bend to shape profile as required, including perimeter extrusion base frame frame extruded stiffners expansion fastners & silicon sealent ( Dow Corning 789) required for installation as per approved elevation drawing work included accessories complete	100.00	sqm			

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Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(RS)	Amount in Figures(Rs)
1	2	3	4	5	6	7
5.32	Extra for Providing etching on glass panes in doors, windows shutters, partition etc in desired pattern complete as per drawing and as directed.(Area of etching shall be measured for payment)	20.00	sqm			
5.33	Providing, Fixing, Supply, Installation, and Commissioning of Fully Automatic Hermetically Seal Sliding Doors of size <b>1500mm width and height 2100mm</b> and doorframe of high quality anodised aluminium consisting of reinforced plasterboard panels faced with same laminate as the doors and the door panel of compact laminate vision panels (300x300mm) to be provided in the doors .The door moves on nylon wheels within a single piece aluminium extruded track for smooth sliding . Microprocessor based electronic automation unit <b>(CE Marked)</b> for controlling door movement with low noise level level motor.The acceleration and speed of the door can be adjusted .The controller will be capable of either being operated by elbow switches/foot switches,radar switch (touch less sensor ).All doors will be able to be operated manually in the event of failure of the power supply or the automation unit	9.00	Nos			

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
5.34	Radar Switch - Touchless Sensor for opening and closing of Hermetically Sealed Sliding Door	18.00	Each			
	<b>Total</b>					

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Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(RS)	Amount in Figures(Rs)
1	2	3	4	5	6	7
<b>6.00</b>	<b>Steel Works</b>					
6.01	Steel work welded in built up sections/ framed work including cutting ,hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.					
a)	In stringers, treads ,landings etc of stair cases including use of chequered plate wherever required, all complete.	525.00	Kg			
b)	In gratings, frames, guard bar, ladder, railings, brackets, gates ,canopy and similar works.	16338.00	Kg			
6.02	Providing and fixing circular Hexagonal cast iron or M.S sheet box for ceiling fan clamp of internal dia 140mm, 73mm height, top lid of 1.5mm thick M.S. sheet with its top surface hacked for proper bonding , top lid shall be screwed into the cast iron / M.S. sheet box by means of 3.3mm dia. round headed screws, one lock at the corners. Clamp shall be made of 12mm dia M.S. bar.bento shape as per standad drawing.	729.00	Each			

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
6.03	Providing & fixing in position SS Railing at staircase made out of 304 grade 16 SWG SS handrail -50 mm dia with SS end Cap and fixed into wall at end: Midrail -12mm dia X 3 Row 1st Balustrade 75mm X 2Nos. and other Balustrade -38 mm dia X 5 Steps per side with base plate of 5 mm with SS base cover and complete with all fittings as per design and diagram	261.00	Metre			
6.04	Providing & fixing in position SS guard railing in passages made out of 304 grade 16 SWG SS pipe/builtup section with SS end Cap and fixed into wall at suitable intervals wiith base plate connector, cover plate of SS and fixing etc all complete with buffing and polishing as per design and diagram(Wt. of S.S. shall be measured for payment)	5670.00	Kg			

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
6.05	Providing and fixing pressed steel door frames conforming 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 B	1932.00	Mtr			
6.06	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 27.5cm long wire springs grade No.2 and M.S. top cover of required thickness for rolling shutters.					



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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
a)	80x1.25mm M.S. laths with 1.25 mm thick top cover.	119.00	sqm			
6.07	Providing and fixing ball bearing for rolling shutters.	13.00	Each			
6.08	Extra for providing mechanical device chain and crank operation for operating rolling shutters.					
a)	Exceeding 16.80 sqm in area.	119.00	sqm			
6.09	Extra for providing grided 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).	30.00	sqm			
	<b>Total</b>					

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Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(RS)	Amount in Figures(Rs)
1	2	3	4	5	6	7
<b>7.00</b>	<b>Flooring</b>					
7.01	Cement concrete flooring 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate) finised 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.	53.00	sqm			
7.02	Chequerred precast cement concrete tiles 22 mm thick in footpath & courtyard jointed with neat cement slurry mixed with pigment to match the shade of tiles including rubbing and cleaning etc. complete on 20 mm thick bed of cement mortar 1:4 (1 cement : 4 coarse sand).					
a)	Medium shade using 50% white cement 50% Grey cement.	1266.00	sqm			
7.03	Marble stone flooring with 18mm thick marble stone (sample of marble shall be approved by Engineer-in-charge) over 20 mm (average) thick base of cement mortar 1:4 (1 cement: 4 coarse sand) laid and jointed with grey cement slurry including rubbing and polishing complete with:					
a)	Raj Nagar White	2495.00	sqm			

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Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(RS)	Amount in Figures(Rs)
1	2	3	4	5	6	7
b)	Udaipur green marble	1267.00	sqm			
c)	Jaisalmer Stone	576.00	sqm			
7.04	Granite stone flooring with 18 mm thick granite (Base Rate Rs. 120/- Sqft) stone, rectangular shape, ( minimum size of stone should be 0.45 sqm and one dimension not less than 700 mm), over 20 mm (average) thick base of cement mortar 1:4 (1 cement : 4 coarse sand) laid and jointed with grey cement slurry including rubbing and polishing complete.	124.00	sqm			
7.05	18mm thick Prepolished Granite (Base Rate 120/- Sqft) flooring in Treads, Landing,Risers and dado over 12mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointed with grey cement including pointing with white cement mixed with pigment matching the shade of granite stone all complete and as directed.	2717.00	sqm			
7.06	Kota stone slab flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete with base of cement mortar 1 : 4 (1 cement : 4 coarse sand) :					

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Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(RS)	Amount in Figures(Rs)
1	2	3	4	5	6	7
a)	25 mm thick.	1073.00	sqm			
7.07	Kota stone slabs 25 mm thick in risers of steps, skirting, dado and pillars laid on 12 mm (average) thick cement mortar 1:3 (1 cement 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.	80.00	sqm			
7.08	Providing and fixing 1st quality ceramic glazed wall tiles conforming to IS: 15622 (thickness to be specified by the manufacture) of approved make in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge in skirting, risers of steps and dados over 12 mm thick bed of cement Mortar 1:3 (1 cement: 3 coarse sand) and jointing with grey cement slurry @ 3.3kgper sqm including pointing in white cement mixed with pigment of matching shade complete.	2167.00	sqm			

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
7.09	Providing and laying rectified Glazed Ceramic floor tiles 300x300 mm or more (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in all colours, shades, except White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick Cement Mortar 1:4 (1 Cement : 4 Coarse sand) including pointing the joints with white cement and matching pigments etc., complete.	467.00	sqm			
7.10	Providing and laying polished vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption's less than 0.08% and conforming to IS : 15622 of approved make in all colours and shades, laid on 20mm thick cement mortar 1:4 (1 cement: 4 coarse sand) including grouting the joints with white cement and matching pigments etc., complete					
a)	Size of Tile 60x60 cm	3470.00	sqm			

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
7.11	P/L 8mm thick (EN13329) laminated Flooring including skirting (class use of 23/31 AC 3 with 0.2mm thick direct pressure laminated on top) plank size 1290 X 194 mm & groove construction with edge impregnate with seal to secure long lasting joints ,secured together with the help of suitable glue, conforming to EN 13329.	162.00	sqm			
7.12	Providing and fixing 2 mm thick homogeneous flooring with total weight 3.600 g/m2 polyurethane reinforced(PUR) ,Abrasion group $\mu$ :=0.30mm,residual identification approx..06 mm,castor wheel test qualified,,dimensional stability =0.40%,static electrical charge < 2kv,impact sound reduction approx +4db,good resistance of chemical and fire,doesn't favour in growth of fungi & bacteria. slip resistant (R9 =0.300	539.00	sqm			

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Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(RS)	Amount in Figures(Rs)
1	2	3	4	5	6	7
7.13	Providing and fixing 18mm thick gang saw cut mirror polished premoulded and prepolished) machine cut for kitchen platforms, vanity counters, window sills. facias and similar locations of required size 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					
a)	Granite of any colour and shade					
i	Area of slab upto 0.50 sqm	37.00	sqm			
ii	Area of slab over 0.50 sqm.	291.00	sqm			
7.14	Extra for providing edge moulding to 18mm thick Granite stone counters, Vanities etc. including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineer-in-Charge.					
a)	Granite work.	200.00	metre			

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1	2	3	4	5	6	7
7.15	Providing and laying 3mm thick epoxy resin based jointless anti static floor coating in three coats (primer coat, base, top coat (2mm thick)) preparation of cement concrete flooring including cutting of grooves, providing copper wiring, connections etc. for elimination of static charge between the equipment base and floor surface to ensure leakage resistance of 10 <sup>4</sup> to 10 <sup>8</sup> ohms in static decay test of 0.02sec., all complete as specified and as per the direction of Engineer-in-Charge.The work shall be carried out through specialised agency.	743.00	Sqm			
7.16	Extra for fixing marble /granite stone over and above corresponding basic item, in facia and drops of width up to 150 mm with epoxy resin based adhesive including cleaning etc. complete	200.00	Metre			
7.17	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.	80.00	Each			
<b>Total</b>						



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Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(RS)	Amount in Figures(Rs)
1	2	3	4	5	6	7
<b>8.00</b>	<b>CEILING &amp; ROOFING</b>					
8.01	Providing and laying water proofing treatment to vertical and horizontal surfaces of depressed pprtions of W.C., kitchen and the like consisting of :					
i)	1st course of applying cement slurry @ 4.4 Kg/sqm mixed with water proofing compound conforming to 18 2645 in recommended proportions including rounding off junction of vertical and horizontal surface.					
ii)	IInd course of 20mm cement plaster 1:3 (1 cement: 3 coarse sand) mixed with water proofing compound in recommended proportion including rounding off junction of vertical and horizontal surface.					
iii)	IIIrd course of applying blown or residual bitumen applied hot at 1.7 Kg. per sqm of area.					
iv)	IVth course of 400 micron thick PVC sheet. (Overlaps at joints of PVC sheet Should be 100 mm wide and pasted to each other with bitumen @ 1:7 Kg/sqm.)	277.00	sqm			
8.02	Providing and laying in position cement concrete 1:5:10 (1 Cement : 5 fine sand : 10 broken brick bats 40 mm nominal size) including consolidation etc all complete.	70.00	Cum			

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
8.03	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					

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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.	2917.00	sqm			

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
8.04	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 having flanges of 20mm and					

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1	2	3	4	5	6	7
	30mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450mm centre to centre with 25mm long drive-all screws @ 230mm interval including jointing and fixing to a flush finish of tapered and square edges of the board with recommended filler, jointing tapes, finisher and two coats of primer suitable for board as per manufactures specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed all complete as per drawing and specification and direction of the Engineer in Charge but excluding the cost of painting with :					
a)	12.5 mm thick tapered edge gypsum board conforming to IS: 2095- Part I.	1773.00	sqm			

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Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(RS)	Amount in Figures(Rs)
1	2	3	4	5	6	7
8.05	Providing and fixing 15mm thick Mineral Fibre False Ceiling Tiles or equivalent of size 600x600 mm in true horizontal levelsuspended on inter locking metalgrid of hot dipped galvanied steel sections (Galvanized @ 170 gsm/sqm) consisting of main "T" runner suitably spaced at joints to get required length and of size 24x38mm made from 0.30 mm thick (minimum)sheet spaced at 1200 mm center to center and cross "T" of size 24x25mm made of 0.30 mm thick (minimum) sheet to be interlocked at middle of the 1200x600mm panel to form grids of 600x 600mm and laying 15 mm thick mineral fibre 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 fixed to ceiling with 6 mm dia and 50 mm long dah fasteners, 4 mm GI adjustable rods with galvanised level clips spaced at 1200 mm center to center along main T, bottom exposed width of 24 mm of all T-sections shall be pre-painted with polyurethane paint, all complete at all heights as per specifications drawings and as directed by Engineer-in-Charge.	1773.00	sqm			

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Note: (i)	Only Mineral Fibre false ceiling area will be measured for the purpose of payment.					
(ii)	The Mineral Fibre Ceiling shall either be precast (moulded ) or wetted product and shall have NRC value of 0.5 ( minimum) CAC 35-39, light reflection 84% (minimum), fire rating class A as per ASTM E-84, suitable for 95% relative humidity and also having Thermal Resistance "(R)" =0.33 sqm deg. C/W					
(iii)	The job to be carried out by reputed company Lloyeds insulations (india) ltd., or equivalent having sufficient work experience.					

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Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(RS)	Amount in Figures(Rs)
1	2	3	4	5	6	7
8.06	<p>Providing water proofing treatment by chemical injection grout process on horizontal surfaces like rafts &amp; other similar locations using 25mm dia . G.I nozzles , minimum 1/4th thickness of raft 40mm(long) whichever is more inside the raft fixed @ 1.5m c/c in both the directions. The injection grout which consist of injection cement slurries of different viscosities &amp; expansive plasticizing agent (a non shrinkage compensating grout ) is to be pumped in to the nozzles under pressure with a pump . The nozzles to be sealed off after the injection operation with suitable admixture. Providing &amp; applying two coats of acrylic latex cementitious coatings in the ratio 3:1 (3 parts of cement :1 part acrylic polymer latex) keeping water cement ratio as per manufacture's specifications , 20mm cement plaster of mix 1:4 (1 cement :4 coarse sand) mixed with liquid waterproofing admixture &amp; finally embedding with 12mm size stone aggregate @ 8cudm per sqm complete as per manufacturer's specifications &amp; as directed.</p>					
	(Work to be got executed through a specialized agency and covered by a 10 years guarantee by the main contractor.)	34.00	SQM			



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Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(RS)	Amount in Figures(Rs)
1	2	3	4	5	6	7
8.07	Providing water proofing treatment by chemical injection grout process on vertical surfaces like walls & other similar locations using 25mm dia . M.S nozzles , minimum 1/4th thickness of wall or 40mm(long) whichever is more inside the walls fixed @ 1.5m c/c in both the directions and @ 0.75 m c/c along construction joints. The injuction grout which consist of injection cement slurries of different viscosities & expansive plasticizing agent (a non shrinkage compensating grout ) is to be pumped in to the nozzles under pressure with a pump . The nozzles to be sealed off after the injection operation with suitable admixture. Providing & applying two coats of acrylic polymer latex cementitious coatings in the ratio 3:1 (3 parts of cement :1 part acrylic polymer latex) keeping water cement ratio as per manufacture's specifications , 20mm cement plaster of mix 1:4 (1 cement :4 coarse sand) mixed with liquid waterproofing admixture complete as per manufacturer's specifications & as directed.					
	(Work to be got executed through a specialized agency and covered by a 10 years guarantee by the main contractor.)	44.00	Sqm			

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<b>Item No</b>	<b>Description Of Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Rate in Figures(Rs)</b>	<b>Rate in Words(RS)</b>	<b>Amount in Figures(Rs)</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
8.08	Providing and laying APP (Atactic Polypropylene Polymer) modified prefabricated five layer 3mm thick water proofing membrane, black finished reinforced with non-woven polyester matt consisting of a coat of bitumen primer for bitumen membrane @ 0.40 ltr/sqm. by the same membrane manufacture of density at 25°C, 0.87-0.89 kg/ltr and viscosity 70-160 cps. Over the primer coat the layer of membrane shall be laid using Butane Torch and sealing all joints etc., and preparing the surface complete. The vital physical and chemical parameters of the membrane shall be as under : Joint strength in longitudinal and transverse direction at 23°C as 650/450N/5cm. Tear strength in longitudinal and transverse direction as 300/250N. Softening point of membrane not less than 150°C. Cold flexibility shall be upto -2°C when tested in accordance with ASTM, D - 5147. The laying of membrane shall be got done through the authorised applicator of the manufacturer of membrane :					
	3 mm thick	113.00	Sqm			

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
8.09	Providing and fixing 8mm thick clear multi wall polycarbonate sheets of approved quality and shade in desired shape in roofing including the cost of EPDM gaskets , sealing tape , aluminium profile and all necessary accessories complete as per architectural drawings and as directed by Engineer incharge. The item includes designing the complete system and supplying & getting approval from client and / or reputed engineering institute like IIT etc. The detailed shop drawings including supplying structural design calculations based on relevent codal provisions and carrying out water penetration test as per standards followed in India.					
	The whole work is to be done through reputed and approved vendor having experience in polycarbonate work in Commercial/Govt/Corporate buildings as per architectural elevation drawings including filling of joints with silicon sealent and also with masonry/RCC work, at all heights including double heights, straight or curved etc. complete in all respect. ( Plan Area shall be measured for the payment) ( Framing to be paid seprately )	292.00	Sqm			
<b>Total</b>						

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Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(RS)	Amount in Figures(Rs)
1	2	3	4	5	6	7
<b>9.00</b>	<b>Finishing</b>					
9.01	12 mm cement plaster of mix:					
a)	1:6 (1 cement: 6 fine sand)	10908.00	sqm			
9.02	15 mm cement plaster on the rough side of single or half brick wall of mix:					
a)	1:4 (1 cement 4 fine sand)	16142.00	sqm			
9.03	20 mm cement plaster of mix:					
a)	1:4 (1 cement: 4 fine sand)	11155.00	sqm			
9.04	6 mm cement plaster of mix:					
a)	1:3 (1 cement: 3 fine sand)	7611.00	sqm			
9.05	Extra for plastering exterior walls of height. more than 10 m from .ground level for every additional height of. 3 m or part thereof.	4896.00	sqm			
9.06	Neat cement punning	105.00	sqm			
9.07	Providing and applying plaster of paris putty of 2 mm thickness over plastered surface to prepare the surface even and smooth complete	22258.00	Sqm			
9.08	White washing with lime to give an even shade:					

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
a)	New work (three or more coats)	210.00	sqm			
9.09	Distemping 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.	7210.00	sqm			
9.10	Finishing walls with textured exterior paint of required shade :					
a)	New work (Two or more coats applied @ 3.28 ltr/10 sqm) over and including base coat of water proofing cement paint applied @ 2.20kg/10 sqm.	8706.00	Sqm			
9.11	Finishing walls with water proofing cement paint of required shade :					
a)	New work (Two or more coats applied @ 3.84 kg/10 sqm).	849.00	Sqm			
9.12	Painting with synthetic enamel paint of approved brand and manufacture of required color 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.	1959.00	sqm			

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
9.13	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade:					
a)	Two or more coats on new work	22258.00	sqm			
9.14	Applying one coat of cement primer of approved brand and manufacture on wall surface:					
a)	Cement primer.	22258.00	sqm			
9.15	Painting with epoxy paint 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.	8529.00	sqm			
9.16	Extra for providing Coving in epoxy flooring all complete and as directed	315.00	Metre			
9.17	Extra for providing Coving in PVC flooring all complete and as directed	210.00	Metre			
9.18	Providing and fixing Wooden Wall panelling with the following specification:					

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
a)	Frame work of chemically treated (for termites) seasoned sal wood 50 X 50 mm in horizonntal & Vertical frame 600 X 600 mm c/c and along doors, windows etc, fixed rigidly with suitable desh fastners etc all complete as required at site.					
b)	Providing and fitting 50 mm thick glass wool of 24 kg/cum density wrapped in 200G virgin polythene bags					
c)	Providing and fixing 20 mm thick teak wood slats/panels of required width for skirting and panelling fixed over wooden base giving 3 mm gap between the panels, as per drawing including required hardware, beading etc all complete.					
d)	Malamine polishing over wooden panelling (Area of paneling shall be measured for complete item)	219.00	sqm			

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
9.19	Providing and fixing dry cladding upto 10 metre heights with 30mm thick gang saw cut stone with (machine cut edges) of uniform colour and size upto 1mx1m, fixed to structural steel frame work and/ or with the help of cramps, pins etc. and sealing the joints with approved weather sealant as per Architectural drawing and direction of Engineer-in-charge. (The steel frame work, stainless steel cramps and pins etc. shall be paid for separately.)					
a)	White sand stone	1871.00	sqm			
9.20	Providing and fixing adjustable stainless steel cramps of approved quality and of required shape and size adjustable with stainless steel nuts bolts and washer (total weight not less than 260 gms) for dry stone cladding fixed on frame work- at suitable location including making necessary recesses in stone slab, drilling required holes etc complete as per direction of the Engineer-in-charge.	2806.00	Each			
<b>Total</b>						



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Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(RS)	Amount in Figures(Rs)
1	2	3	4	5	6	7
<b>10.00</b>	<b>MISCELLANEOUS</b>					
10.01	Making plinth protection with 50mm thick of cement concrete 1:3:6 (1 cement :3 coarse sand: 6graded stone aggregate 20mm nominal size) over 75mm bed by dry brick ballast 40mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth	296.00	sqm			
10.02	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 1mx1mx400micron. finished with 12mm cement plaster 1:3 (1 cement: 3 coarse sand) and a coat of neat cement rounding the edge sand making and finishing the outlet complete.	21.00	Each			
10.03	Providing and fixing 24 gauge and 18mm mesh size chicken wiremesh at junction of concrete and brick work and other locations at all heights including cutting to required size and side laps of minimum 75mm and fixing in positions with cement and nails as directed.	338.00	sqm			

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
10.04	Providing and laying integral cement based treatment for water proofing 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 22mm to 25mm thick approved and specified rough stone slab over a 25mm thick base of cement mortar 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 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.					
a)	Using rough kota stone.	857.00	sqm			

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
10.05	Providing and laying integral cement based treatment for water proofing on the vertical surface by fixing specified stone slab 22 mm to 25mm thick with cement slurry mixed with water proofing compound conforming to IS:2645 in recommended proportions with a gap of 20mm (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) 20mm thick with neat cement punning mixed with water proofing compound in recommended proportion complete at all levels and as directed by Engineer-in-charge :					
a)	Using rough Kota stone	604.00	sqm			
	<b>Total</b>					

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Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(RS)	Amount in Figures(Rs)
1	2	3	4	5	6	7
<b>12.00</b>	<b>ROAD WORK</b>					
12.01	Preparation of sub grade by 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 disposal of surplus earth lead upto 50 Metres.	500.00	SQM			
12.02	Supplying & stacking of graded stone aggregate at site of size range.					
a)	90 mm to 45 mm	75.00	CuM			
b)	63 mm to 45 mm	67.00	CuM			
12.03	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 interstices of coarse aggregate watering and compacting to the required density.	100.00	Cum			

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
12.04	Providing and laying C.C. pavement of mix M25 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).	75.00	Cum			
12.05	Extra for providing and mixing hard crete of approved quality as per manufacturer's specification in cement concrete.	225.00	Litre			
12.06	Providing and laying in position bitumen hot sealing compound for expansion joints etc	376.00	Per cm depth per cm width per m length			
a)	Using grade 'A' sealing compound.					

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
12.07	Providing and laying 60mm thick factory made cement concrete interlocking paver block of M -30 grade made by block making machine with strong vibratory compaction and of approved size and design/ shape laid in required colour and pattern over and including 50mm thick compacted bed of course sand, filling the joints with coarse sand etc. all complete as per the direction of Engineer-in-charge.	500.00	SqM			
12.08	Providing and laying at/ 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 at 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).	6.00	Cum			
<b>Sub Total</b>						

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1	2	3	4	5	6	7
<b>13.00</b>	<b>LAND DEVELOPMENT &amp; HORTICULTURE</b>					
13.01	Filling available approved earth, free of vegetation & rock etc. in layers not exceeding 20 cm in depth, breaking clods, watering, carriage including all leads and lifts loading in & unloading complete as directed.	150.00	Cum			
13.02	Supplying and stacking of good earth at site including royalty. (Earth measured in stacks will be reduced by 20% for payment)	150.00	Cum			
13.03	Supplying & stacking sludge or manure at site including royalty & carriage upto 1 km (sludge measured in stacks will be reduced by 8% for payment)	15.00	Cum			
13.04	Mixing earth & sludge in proportion specified or directed and spreading the same in required thickness (cost of sludge and good earth to be paid separately).	165.00	Cum			

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
13.05	Trenching in all kind of soil upto a depth of 0.60m including removal stacking & disposing of by spreading and neatly levelling with in 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 the trench with water (excluding the cost of imported earth, river sand & manure which shall be paid separately but including all leads & lifts for unserviceable materials).	30.00	Cum			
13.06	Rough dressing the trenched ground including breaking colds & uprooting weeds from the trenched are after 10 to 15 days of its flooding with water (including disposal of uprooted vegetation)	500.00	Sqm			
13.07	Supply & grassing with "Calcutta Doob" grass in rows 7.5cms, apart in either direction including fine dressing the ground to be levelled, supply and filling with good earth if needs, watering & maintenance of the lawn for 30 days or more till the grass forms a thick lawn free from weeds & fit for mowing. Anti-termite shall be applied with CHLOROPYRIPHOS (DURSBAN make or equivalent) at the rate of 2ml per litter in the first watering.	500.00	Sqm.			



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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
	<b>Sub Total</b>					

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Item No	Description Of Item	Quantity	Unit	Rate in Figures(Rs)	Rate in Words(RS)	Amount in Figures(Rs)
1	2	3	4	5	6	7
<b>14.00</b>	<b>Signages</b>					
14.01	Providing fabricating and fixing of signages of varying sizes and shapes using three mm thick PVC sheet at base with self adhesive coloured vinyl with graphicson top of glow tape complete including fixing on wall with screws and washers or hanging on ceiling with GI chain/GI Bar complete as per technical specifications and directions of Engineer.	50000.00	sq inch			
14.02	Providing and fixing of sinages of varying sizes and shapes using 12mm prelaminated MDF board of approved shade , colour and shape with allround lipping of anodised/powder coated aluminum section including hanging with aluminum/GI/MS with painting rods of minimum 10/12mm dia.or lipping with alround SS pipe of suitable dia and SS lipping welded with SS rod to hang it from the ceiling complete including lettering and pictogram on vinyle as per technical specifications and directions of Engineer.	250.00	sqft			

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
14.03	Providing and fixing of sinages of varying sizes and shapes using stainless steel sheet of minimum 16G thickness brush finish including engraving/etching of letters of required size filled with colour as desired by engineer,fixing with ss screws on walls	5000.00	sqinch			
14.04	Providing and fixing of sinages of varying sizes made of hollow aluminum sections of 150 mm width.with both hollow ends caped with suitable PVC/aluminium cover plates of required including hanging from ceiling by two adjustable suspenders of appropriate dia made of MS/GI bars ,lettering on vinyle sheet and pasting on it with pictogram complete as per technical specifications and directions of Engineer.	800.00	r/ft			
14.05	Providing and fixing of external sinages of varying sizes and shapes using GI sheet of atleast 22 G / aluminium sheet of suitable gauge complete as per technical specifications and directions of Engineer.	600.00	sqft			

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
14.06	Providing and fixing MS support frame for external signages made of structural steel including welding, primering, painting foundation with 1:1.5:3 cement concrete complete as per drawing, technical specifications and directions of engineer.	2000.00	Kg			
14.07	Providing,fabricating and fixing neon glow signages of approved make with 100% handcraft glass tubes in letter shape of required colour of dia 9-12 mm including making the electrical wiring for illumination,transformer,connection complete as per technical specifications and directions of engineer.	250.00	sqft			
14.08	Providing,fabricating and fixing digitally printed translites(Technova) with multicolour design on roland /HP printers mounted on acrylic sheet 3mm further mounted on 22 gauge powder coated GI box with phylips /surya tubes inside including installtion on wall electric fittings etc on walls or otherwise complete .	600.00	sq ft			

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
14.09	Providing fabricating installation and fixing of backlit flex signages on Hanwa/star 18 ounce flex signages printed on high resolution printermounted on MS sheet on framed MS structure further fixed on 24 gauge MS /GI box with phylips/surya fittings inside including tranformers etc, electri wiring etc complete.	500.00	sqft			
14.10	Extra for Providing ,fabricating and fixing of around lippinf around MDF board in required shape in place of aluminium lipping and hanging arrangement with hanging arrangement from ceiling or fixing arrangement on the wall including welding/screwing/with nut bolts fixing of lipping and hanging arrangement.a) SS pipe of 12mm dia welded with SS pipe of same dia for hanging arrangement from ceiling	300.00	r/ft			
14.11	Providing,fabricating installation and fixing of glass finish SS letters made of 20 gauge SS 304 sheet of required size and shape with neatly fabricated joints properly welded and grinded with all corners rubbed and polished with arrangement of screws in the letter itself for mounting on the walls including cost of screws and fixing complete as per directions of Engineer.	1000.00	sqinch of each letter			

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
14.12	Providing fabricating and fixing of retroreflective vinyle sinages of varying sizes and shapes pasted on aluminium/GI sheet of 18 gauge with provision of fixing on MS structure complete as per technical specifications and directions of Engineer.	20000.00	sqinch			
14.13	Providing fabricating , installation and fixing of poster frame with digitally printed transparent film technova sandwiched between 2-3 mm clear acrylic sheet fixed on the wall/MS with the help of suitable steel studs	1000.00	sqft			
14.14	Providing fabricating installation and fixing of night vision sinages visible in complete darkness computer cut vinyle pasted on 3mm acrilic sheet and further fixed on wall/hanging from ceiling with the help of MS/GI rods complete as per technical specifications and directions of engineer.	2000.00	sq inch			

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<b>Item No</b>	<b>Description Of Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Rate in Figures(Rs)</b>	<b>Rate in Words(RS)</b>	<b>Amount in Figures(Rs)</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
14.15	Providing. fabricating and fixing of ACP aluminum composite plastic signs with 3 mm ACP sheet, using 1" ms pipe frame, with anti rust coating, back with G.I. and 5 sides with ACP sheet, lettering to be done with 5mm acrylic sheet and vinyls if needed backlit with Philips slim lite tube light fittings, acrylic letters to protrude out and be lit, together with a timer for switching on and off at required timings, including transportation and fixing at site as per the direction of the site engineer	1000.00	sq.ft.			
14.16	Providing, fabricating and fixing of frontlit signages with solvent printing on 13 oz Hanwa/LG make flex printing on Vutek/ Sytec/ Edge print etc with UV cure inks with minimum life of 1 year for non fading, stretched on 25mm sq M.S. pipe, with 28 gauge tin sheet on the back for withstanding wind pressure with adequate lights in the front. The front lighting to be Metalite (white light) of 150 watts and Philips make to be fixed with metal arms at least 4ft protruding outside.	2500.00	sq.ft.			

**PROJECT NAME: CONSTRUCTION OF Super Speciality Block at Dr. Rajendra Government Medical College Kangra, Tanda  
H.P**

<b>Item No</b>	<b>Description Of Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Rate in Figures(Rs)</b>	<b>Rate in Words(RS)</b>	<b>Amount in Figures(Rs)</b>
1	2	3	4	5	6	7
14.17	Providing, fabricating and fixing digital posters inside the hospitals on 5mm sun board sheet with 1440 dpi digital printing on Technova/ LG coated vinyl duly laminated and pasted on the sheet and fixed on the walls with help of steel studs or mirror screws as per the direction of the engineer	750.00	sq.ft.			
14.18	Providing fabricating and fixing of name plate pockets outside rooms made of 5mm opaque, milky white acrylic sheet in various sizes and with provision of fixing acrylic plates as per boq-1 on the same, the pockets should be well crafted using high quality adhesives and should be fixed on the wall with the help of screws etc. and as per the direction of the engineer.	2000.00	sq.inch			
<b>Sub Total</b>						



**PROJECT NAME: CONSTRUCTION OF Super Speciality Block at Dr. Rajendra Government Medical College Kangra, Tanda H.P**

**ABSTRACT OF COST**

<b>S.No</b>	<b>DESCRIPTION OF WORK</b>	<b>Amount(Rs)</b>
1	EARTHWORK	Rs
2	CONCRTE WORK	Rs
3	RCC WORK	Rs
4	BRICK WORK	Rs
5	DOORS & WINDOWS	Rs
6	STEEL WORK	Rs
7	FLOORING	Rs
8	CEILING & ROOFING	Rs
9	FINISHING	Rs
10	MISCELLANEOUS	Rs
12	ROAD WORK	Rs
13	LANDSCAPING & HORTICULTURE WORKS	Rs
14	SIGNAGE	Rs
	<b>TOTAL</b>	<b>Rs</b>

# PLUMBING WORKS



Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
1.03	17.4	Providing and fixing white vitreous China flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standard flush pipe and C.P. brass spreaders with brass unions and G.I. clamps complete, including painting or fittings and brackets, cutting and making good the walls and floors wherever required.					
a)	17.4.1	One urinal basin with 5 litre white PVC automatic flushing cistern	Each	4.0			
b)	17.4.2	Range of two urinal basin with 5 litre white PVC automatic flushing cistern.	Each	9.0			
c)	17.4.3	Range of three urinal basin with 10 litre white PVC automatic flushing cistern.	Each	10.0			
1.04	17.7	Providing and fixing wash basin with C.I. brackets, 15mm C.P. brass pillar taps, 32mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever required:					
a)	17.7.3	White vitreous china wash basin size 550x 400 mm with a pair of 15mm C.P. brass pillar tap.	Each	90.0			
b)	17.7.9	White Vitreous Surgeon type wash basin of size 660 x 460 mm with a pair of 15 mm C.P. brass pillar taps, with elbow operated levers.	Each	20.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
1.05	17. 10	Providing and fixing Stainless Steel A ISI 304 (18/8) kitchen sink as per IS 13983 with C.I. brackets and stainless steel plug 40 mm including painting of fittings and brackets, cutting and making good the walls wherever required:					
	17.10.2	Kitchen sink withou drain board					
a)	17.10.2.1	610x510 mm bowl depth 200 mm.	Each	4.0			
1.06	17. 11	Providing and fixing white vitreous china laboratory sink with C.I. brackets, C.P. brass chain with rubber plug 40 mm C.P. brass waste and 40 mm brass trap with necessary C.P. brass unions complete including painting of fittings and brackets, cutting and making good the walls and floors wherever required:					
a)	17.11.2	Size 600x450x200 mm	Each	5.0			
1.07	17. 14	Extra for using coloured W.C. pan instead of white W.C pan					
a)	17.14.1	Orissa pattern W.C. pan 580x440 mm	Each	10.0			
1.08	17. 16	Extra for using coloured pedestal type W.C. pan (European type) with low level cistern of same colour instead of white vitreous china W.C. pan and cistern	Each	75.0			
1.09	17. 32	Providing and fixing superior glass (of approved quality) and of required shape and size with plastic moulded frame of approved make and shape with 6 mm thick hard board backing.					
a)	17.32.2	Rectangular shape 453x357 mm	Each	110.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
1.10	17. 33	Providing and fixing 600x120x5 mm glass shelf with edges round of supported and anodised aluminium angle frame with C.P. brass brackets and guard rail complete fixed with 40 mm long screws, rawl plugs etc., complete.	Each	110.0			
1.11	17. 34	Providing and fixing toilet paper holder .					
a)	17.34.2	Vitreous china	Each	75.0			
1.12	17. 71	Providing and fixing PTMT liquid soap container 109 mm wide, 125 mm high and 112 mm distance from wall of standard shape with bracket of the same materials with snap fittings of approved quality and colour weighing not less than 105 gms.	Each	90.0			
1.13	NS	Providing and fixing water Jet Nozzle with hose pipe and half turn CP brass angle valve to be fitted with seat cover of european water closet complete in all respect of approved quality	Each	75.0			
1.14	NS	Providing and fixing soap tray with CP brass lid and brackets fixed to wooden cleats with CP brass screws.	Each	20.0			
1.15	NS	Providing and fixing CP brass towel rail size of 600x20 mm of approved make complete with CP brackets fixed to wooden cleats with CP brass screws	Each	110.0			
1.16	NS	Providing and fixing brass coat hook of approved quality and make complete with material of fixing	Each	100.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
1.17	NS	Extra for providing and fixing white vitreous china oval shape wash basin in place of normal wash basin with CI/MS brackets painted white, 15 mm CP brass pillar taps, 32 mm CP brass waste of standard pattern, including painting of fittings and brackets cutting and making good the walls wherever required					
a)		Counter top oval shape wash basin size 550x470 mm with centre tap hole, single 15 mm CP brass swan neck type pillar tap	Each	50.0			
1.18	NS	Providing and fixing white vitreous china wall hung type water closet (European type) with white solid plastic seat and lid concealed flushing cystem 9 ltrs capacity( min) approximate size(400x300x100)comprising of SS actuating panel with dual flush with fittings ,specials of standard make(Viega,ACO,Kohler,Jaquar) and complete including painting , cutting and making good the walls and floors wherever required:	Each	20.0			
1.19	NS	Supply , installation, testing and commissioning of compact floor mounted pedestal base surgical scrub sink tailor made to suit the site available compatible with all the regular and standard plumbing system, with inbuilt geyser designed for use in operation theatre fabricated from 16 gauge 304 type stainless steel seamless welded,polished to satain finish including connecting to drainage and water points and making good cutting of walls and floor surface all complete and as directed					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
	b)	Tailor made surgical scrub sink (2 bay) Approximate size 1.4 mX0.54mX0.84m with 1 user elbow operated mixture tap, soap dispensers, drain outlet ,thermostatic control of water temperature	Each	6.0			
1.20	NS	Providing and fixing stainless steel grab bar 20mm dia of required length with PVC cleats, C.P. brass screws etc. complete.	Each	100.0			
1.21	NS	Providing and fixing Hospital white vitreous china bed pan sink with P trap, size 600 x 450 mm with 10 litres C.I. High level flushing cistern flush pipe, C.I./M.S. bracket painting with 3 coats of white paint complete with accessories, C.P. brass fittings with vertical jet horizontal spray complete with control cocks.	Each	6.0			
1.22	NS	Providing and fixing vitreous china division plate of size 960x165x325 mm of approved make and design including brass cleats, C.P. brass screws all fittings etc. complete in all respect	Each	48.0			
		<b>SUB TOTAL( SANITARY FIXTURES)</b>					



Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
2.00		<b>SOIL, WASTE AND VENT PIPES</b>					
2.01	17. 35	Providing and fixing soil, waste and vent pipes.					
a)	17.35.1	100 mm dia.					
a i)	17.35.1.2	Centrifugally cast (spun) iron socketed pipe as per IS:3989	Metre	1000.0			
b)	17.35.2	75 mm dia					
b i)	17.35.2.2	Centrifugally cast (spun) iron socketed pipe as per IS:3989	Metre	300.0			
c)		150 mm dia					
	NS	Centrifugally cast (spun) iron socketed pipe as per IS:3989	Metre	400.0			
2.02	17. 37	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 10x10x10 cm 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)	17.37.1	for 100 mm dia. pipe	Each	98.0			
b)	17.37.2	for 75 mm dia. pipe	Each	35.0			
c)	NS	for 150 mm dia pipe	Each	30.0			
2.03	17. 38	Providing and fixing bend of required degree with access door, insertion rubber washer 3 mm thick, bolts and nuts complete.					
a)	17.38.1	100 mm					
a ii)	17.38.1.2	Sand cast iron S&S as per IS-3989	Each	47.0			
	17.38.2	75 mm					
b)	17.38.2.2	Sand cast iron S&S as per IS-3989	Each	12.0			
c)	NS	150 mm dia					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
		Sand cast iron S&S as per IS-3989	Each	10.0			
2.04	17. 39	Providing and fixing plain bend of required degree.					
a)	17.39.1	100 mm					
a ii)	17.39.1.2	Sand cast iron S&S as per IS:3989	Each	122.0			
b)	17.39.2	75 mm					
b i)	17.39.2.1	Sand cast iron S&S as per IS:3989	Each	10.0			
c)	NS	150 mm dia					
		Sand cast iron S&S as per IS-3989	Each	10.0			
2.05	17. 40	Providing and fixing heel rest sanitary bend.					
a)	17.40.1	100 mm dia					
a.ii)	17.40.1.2	sand cast iron S&S as per IS-3989	Each	14.0			
b)	17.40.2	75 mm					
	17.40.2.2	sand cast iron S&S as per IS-3989	Each	5.0			
c)	NS	150 mm dia					
		Sand cast iron S&S as per IS-3989	Each	5.0			
2.06	17. 43	Providing and fixing single equal plain junction of required degree with access door, insertion rubber washer 3mm thick, bolts and nuts complete.					
a)	17.43.1	100x100x100mm					
a.ii)	17.43.1.2	sand cast iron S&S as per IS-3989	Each	68.0			
b)	17.43.2	75x75x75mm Centrifugally cast (spun) iron S&S					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
b.ii)	17.43.2.2	sand cast iron S&S as per IS-3989	Each	19.0			
c)	NS	150x150x150 mm dia					
		Sand cast iron S&S as per IS-3989	Each	20.0			
2.07	17. 44	Providing and fixing single equal plain junction of required degree					
a)	17.44.1	100x100x100mm					
a.ii)	17.44.1.2	sand cast iron S&S as per IS-3989	Each	117.0			
b)	17.44.2	75x75x75mm Centrifugally cast (spun) iron S&S					
b.ii)	17.44.2.2	sand cast iron S&S as per IS-3989	Each	5.0			
2.08	17. 48	Providing and fixing single unequal plain junction of required degree					
a)	NS	150x150x100 mm					
a.ii)		sand cast iron S&S as per IS-3989	Each	5.0			
2.09	17. 55	Providing and fixing door piece, insertion rubber washer 3mm thick, bolts and nuts complete					
a)	17.55.1	100 mm					
a.ii)	17.55.1.2	sand cast iron S&S as per IS-3989	Each	50.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
2.10	17. 56	Providing and fixing terminal guard.					
a)	17.56.1	100 mm	Each	14.0			
a.ii)	17.56.1.2	sand cast iron S&S as per IS-3989					
b)	17.56.2	75 mm					
b.ii)	17.56.2.2	sand cast iron S&S as per IS-3989	Each	5.0			
c)	NS	150 mm dia					
		Sand cast iron S&S as per IS-3989	Each	5.0			
2.11	17. 57	Providing and fixing collar					
a)	17.57.1	100 mm					
a.ii)	17.57.1.2	Sand cast iron S&S as per IS-3989	Each	84.0			
b)	17.57.2	75 mm					
b.ii)	17.57.2.2	Sand cast iron S&S as per IS-3989	Each	30.0			
c)	NS	150 mm dia					
		Sand cast iron S&S as per IS-3989	Each	10.0			
2.12	17. 58	Providing lead caulked joints to sand cast iron /centrifugally cast (spun) iron pipes and fittings of diameter:					
a)	17.58.1	100 mm	Each	1000.0			
b)	17.58.2	75 mm	Each	110.0			
c)	NS	150 mm	Each	100.0			
2.13	NS	Providing Drip seal joint of approved make for the sand cast iron/centrifugally cast iron pipes where the workability of lead joint can be effected due to space constraints.					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
a)		100 mm	Each	400.0			
b)		75 mm	Each	50.0			
c)		150 mm	Each	20.0			
2.14	17. 59	Providing and fixing M.S. stays and clamps for sand cast iron / centrifugally cast (spun) iron pipes of diameter :					
a)	17.59.1	100 mm	Each	14.0			
b)	17.59.2	75 mm	Each	5.0			
c)		150 mm	Each	5.0			
2.15	17. 60	Providing and fixing trap of self cleansing with screwed down or hinged grating with or without vent arm complete, including cost of cutting and making good the walls and floors:					
a)	17.60.1	100 mm inlet and 100 mm outlet					
a i)	17.60.1.1	Sand cast iron S&S as per IS-3989	Each	160.0			
2.16	17. 61	Cutting chases in brick masonry walls for following diameter sand cast iron/centrifugally cast (spun) iron pipes and making good the same with cement concrete 1:3:6 (1 cement:3 coarse sand:6 graded stone aggregate 12.5 mm nominal size) including necessary plaster and pointing in cement mortar 1:4 (1 cement: 4 coarse sand):					
a)	17.61.1	100 mm diameter pipe	Metre	100.0			
b)	17.61.2	75 mm diameter pipe	Metre	20.0			
c)	NS	150 mm diameter pipe	Metre	10.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
2.17	17.65	Painting sand cast iron / centrifugally cast (spun) iron soil, waste vent pipes and fittings with paint of any colour such as chocolate, grey, or buff etc. over a coat of primer (of approved quality) for new work:					
a)	17.65.1	100 mm diameter pipe	Metre	420.0			
b)	17.65.2	75 mm diameter pipe	Metre	145.0			
c)	NS	150 mm diameter pipe	Metre	180.0			
2.18	NS	Providing and fixing floor drain points formed out of 65 mm dia GI elbow, including with 75mm dia Stainless Steel grating with frame, embedded in floor, all complete as directed.	Each	24.0			
2.19	NS	Providing and fixing C.P. brass bottle trap for wash basin including CP waste fittings complete 32 mm dia complete in all respect of approved quality.	Each	90.0			
2.20	NS	Providing and fixing C.P. brass bottle trap for sinks & urinal basin including CP waste fittings complete 40 mm dia complete in all respect of approved quality.	Each	48.0			
2.21	NS	Providing and laying cement concrete 1:2:4 (1 cement:2 coarse sand:4 graded stone aggregate 20 mm nominal size) 80 mm thick all-round the SCL/centrifugally S&S pipe diameter.					
a)		100 mm dia	Metre	510.0			
b)		75 mm dia	Metre	105.0			
c)		150 mm dia	Metre	20.0			
2.22	NS	Providing and fixing dash fastner made of rust proof plated steel for holding the soil/waste supply pipes complete in all respect					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
a)		Dash fastner for pipe more than 25 mm dia to 150 mm dia pipe of size 25 mm dia and 75 mm long minimum & shall be capable of taking 6 tonnes load and also include the supporting angles 35x35 mm/steel structures as per drawing.	Each	100.0			
2.23	NS	Providing and fixing clean out/floor clean out plug consist of CI bend & GI socket heavy class with Brass cap & key for opening male threaded cap etc. including lead caulked to CI pipescomplete in all respects as per drawing/ sample approved by Engineer -in - ChargeFCO (floor clean out plug shall be flushed with floor finish					
		100 mm dia	Each	30.0			
		75 mm dia	Each	3.0			
		150 mm dia	Each				
2.24	NS	Providing and fixing G.I EXTENSION PIECE for 100 mm dia floor trap formed out of main pipe( Type A) with multiple side inlets, suitable for various dia pipes, side connections, including all fixtures and fittings as per site conditions and as per standard details and water tight sealing of joints and area surrounding the grating and as directed.	Each	160.0			
2.25	NS	Providing and fixing cPVC. pipes complete with cPVC fittings including painting, jointing, testing the cost of cutting the chases and making good the same for waste water disposal complete as per direction of engineer incharge.					
a)		32 mm dia nominal bore (Wash basin to floor trap/floor drain)	Metre	95.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
b)		40 mm dia nominal bore (Sink,Urinal to floor trap)	Metre	35.0			
c)		50 mm dia nominal bore (Floor Drain to Floor Trap)	Metre	30.0			
		<b>SUB TOTAL(SOIL, WASTE AND VENT PIPES)</b>					



Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
<b>3.00</b>		<b>WATER SUPPLY</b>					
3.01	18.7	Providing and fixing Chlorinated Polyvenyl Chloride(CPVC)pipes having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.0 m spacing.This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in charge.					
		<b>Internal work – Exposed on wall</b>					
a)	18.7.1	15 mm nominal outer dia pipes (SDR-11)	Metre	50.0			
b)	18.7.2	20 mm nominal outer dia pipes (SDR-11)	Metre	150.0			
c)	18.7.3	25 mm nominal outer dia pipes (SDR-11)	Metre	150.0			
d)	18.7.4	32 mm nominal outer dia pipes (SDR-11)	Metre	100.0			
e)	18.7.5	40 mm nominal outer dia pipes (SDR-11)	Metre	75.0			
f)	18.7.5	50 mm nominal outer dia pipes (SDR-11)	Metre	175.0			
g)	NS	62.5 mm nominal outer dia pipes (SDR-11)	Metre	100.0			
3.02	18. 8	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge.					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
		<b>Concealed work including cutting chases and making good the walls etc.</b>					
a)	18. 8.1	15 mm nominal outer dia pipes (SDR-11)	Metre	600.0			
b)	18.8.2	20 mm nominal outer dia pipes (SDR-11)	Metre	400.0			
c)	18. 8.3	25 mm nominal outer dia pipes (SDR-11)	Metre	100.0			
d)	18. 8.4	32 mm nominal outer dia pipes (SDR-11)	Metre	25.0			
e)	NS	40 mm nominal outer dia pipes (SDR-11)	Metre	10.0			
3.03	18. 9	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge.					
		<b>External Work</b>					
a)	18.9.3	25 mm nominal outer dia pipes (SDR-11)	Metre	20.0			
b)	18.9.6	50 mm nominal outer dia pipes (SDR-11)	Metre	20.0			
3.04	18.10	Providing and fixing G.I. pipes complete with G.I. fittings and clamps, including cutting and making good the walls etc.					
		<b>Internal Work- Exposed on walls</b>					
a)	NS	65 mm dia nominal bore	Metre	200.0			
b)	NS	80 mm dia nominal bore	Metre	150.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
3.05	18. 13	Making connection of G.I. distribution branch with G.I. main of following sizes by providing and fixing tee, including, cutting and threading the pipe etc. complete including obtaining approval for connection from DJB/Municipal corporation :					
a)	18.13.2	50 to 80 mm nominal bore (SDR-11)	Each	2.0			
3.06	18. 17	providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end)					
a)	18.17.1	25 mm nominal bore	Each	30.0			
b)	18.17.2	32 mm nominal bore	Each	16.0			
c)	18.17.3	40 mm nominal bore	Each	10.0			
d)	18.17.4	50 mm nominal bore	Each	12.0			
e)	18.17.5	65 mm nominal bore	Each	10.0			
g)	18.17.6	80 mm nominal bore	Each	5.0			
3.07	18. 18	Providing and fixing ball valve (brass) of approved quality, High or low pressure with plastic floats complete					
a)	18.18.2	20mm	Each	2.0			
3.08	18.20	Providing and fixing brass ferrule with C.I. mouth cover including boring and tapping the main					
a)	18.20.3	25 mm nominal bore	Each	2.0			
b)	NS	32 mm nominal bore	Each	2.0			
3.09	18. 21	Providing and fixing unplasticised PVC connection pipe with brass unions:					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
a)	18.21.2	45 cm length					
a i)	18.21.2.1	15 mm nominal bore	Each	325.0			
3.10	18. 22	Providing and fixing C.P. brass shower rose with 15 or 20 mm inlet					
a)	18.22.2	150 mm diameter	Each	15.0			
3.11	18. 32	Constructing masonry chamber 30x30x50 cm, inside with 75 class designation brick work in cement mortar 1:4 (1 cement: 4 coarse 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 20 mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement:5 fine sand: 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement :3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design					
a)	18.32.1	With F.P.s bricks	Each	2.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
3.12	18. 33	Constructing masonry chamber 60x60x75 cm, inside with 75 class designation brick work in cement mortar 1:4 (1 cement: 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement: 2 coarse sand:4 graded stone aggregate 20 mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement:5 fine sand: 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement :3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design					
a)	18.33.1	With F.P.s bricks	each	2.0			
3.13	18. 38	Painting CPVC/G.I. pipes and fittings with synthetic enamel white paint over a ready mixed priming coat, both of approved quality for new work					
a)	18.38.1	15 mm nominal outer dia pipes	Metre	50.0			
b)	18.38.2	20 mm nominal outer dia pipes	Metre	150.0			
c)	18.38.3	25 mm nominal outer dia pipes	Metre	150.0			
d)	18.38.4	32 mm nominal outer dia pipes	Metre	100.0			
e)	18.38.5	40 mm nominal outer dia pipes	Metre	75.0			
f)	18.38.6	50 mm nominal outer dia pipes	Metre	75.0			
g)	NS	65 mm nominal outer dia pipes	Metre	100.0			
3.14	18. 40	Painting G.I. /CPVC pipes and fittings with two coats of anti-corrosive bitumastic paint of approved quality.					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
a)	18.40.3	25 mm diameter pipe	Metre	20.0			
b)	18.40.6	50 mm diameter pipe	Metre	20.0			
3.15	18. 41	Providing and filling sand of grading zone V or coarser grade all-round the G.I./CPVC pipes in external work					
a)	18.41.3	25 mm diameter pipe	Metre	20.0			
b)	18.41.6	50 mm diameter pipe	Metre	20.0			
3.16	18. 48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank ISI:12701 marked with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank					
a)		Treated water Tank and Untreated water tank	per litre	50000.0			
3.17	18. 49	Providing and fixing C.P brass bib cock of approved quality.					
a)	18.49.1	15 mm nominal bore	Each	75.0			
3.18	18. 50	Providing and fixing C.P. brass long nose bib cock of approved quality conforming to IS standards and weighing not less than 810 gms. ( Marck, Jaquar, Jainco, Rybo)					
a)	18.50.1	15 mm nominal bore	Each	30.0			
3.19	18. 53	Providing and fixing C.P. brass angle valve for basin mixer and geyser/cisterns points of approved quality conforming to IS:8931.					
a)	18.53.1	15 mm nominal bore	Each	325.0			

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Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
	18.52	Providing and fixing C.P. brass stop cock (concealed) of standard design and of approved make conforming to 18:8931.					
	18.52.1	15mm nominal bore.	Each	30.0			
3.20	18. 60	Providing and fixing enclosed type water meter ( bulk type) conforming to IS : 2373 and tested by municipal board complete with bolts,nuts rubber, inserions etc. ( the tail plases if required will be paid seperatly )					
a)	18. 60. 1	80mm dia nominal bore	Each	1.0			
3.21	18. 62	Providing and fixing PTMT ball cock of approved quality, colour and make complete with Epoxy coated aluminium rod with L.P./H.P.H.D. plastic ball.					
a)	18.62.4	40 mm nominal bore, 206 mm long weighin not less than 690 gms	Each	2.0			
b)	18.62.5	50 mm nominal bore, 242 mm long weighin not less than 1240 gms	Each	2.0			
3.22	18.76	Cutting holes upto 30x30 cm in walls including making good the same					
	18.76.1	with F.P.S bricks	Each	50.0			
3.23	18. 77	Cutting holes up to 15x15 cm in R.C.C. floors and roofs for passing drain pipe etc. and repairing the hole after insertion of drain pipe etc. with cement concrete 1:2:4 (1 cement:2 coarse sand: 4 graded stone aggregate 20 mm nominal size) including finishing complete so as to make it leak proof	Each	100.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
3.24	NS	Extra for providing wash basin mixer pillar tap in place of normal pillar tap	Each	87.0			
3.25	NS	Providing & fixing full way lever operated forged brass ball valve of brass body with forged brass hard chrome plated steel ball tested to a pressure not less than 10 Kg / sqcm with threaded / flanged joints complete with nuts, bolts, gaskets, washers etc.					
a)		15 mm diameter	Each	20.0			
b)		20 mm diameter	Each	25.0			
3.26	NS	Providing and fixing mosquito proof coupling of approved Municipal design for scour and vent pipes for RCC overhead tanks complete in all respects					
a)		20 mm diameter	Each	5.0			
c)		40 mm diameter	Each	2.0			
d)		50 mm diameter	Each	4.0			
e)		65 mm diameter	Each	4.0			
3.27	NS	Providing & fixing 9 mm thick thermal insulation tubing of elastomeric flexible material on hot water supply/return pipes having hermetic blistered closed cell structure of expanded synthetic rubber over pipes/ fitting as per manufacturer's specifications etc.complete.					
a		15 mm to 25 mm diameter	Meter	100.0			
b)		32 mm to 50 mm diameter	Meter	150.0			
3.28	NS	Extra for providing and installing INFRA-RED controlled electrically operated (220V, AC mains) automatic flushing system of approved make instead of urinals with flushing cistern. The automatic flushing system shall comprising of :					



Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
		Light sensing device fixed in recessed metallic box with tamper resistant stainless steel outercase Solenoid valve housed in a recessed metallic box with openable cover mounted at high level ( at desired height from finished floor level) complete with interconnecting control wiring in recessed PVC conduit between solenoid valve and sensing unit, including cutting and making good the walls & floor complete and all necessary fittings to make it operational as directed	Each	48.0			
3.29	NS	Extra for in place of pillar trap in wash basin/scrub sink providing and installing INFRA-RED controlled electrically operated (220V, AC mains) automatic tap of approved make instead of pillar tap, comprising of :					
		Light sensing device fixed in tap, Solenoid valve housed in a recessed metallic box with openable cover mounted at high level ( at desired height from finished floor level) complete with interconnecting control wiring in recessed PVC conduit between solenoid valve and sensing unit, including cutting and making good the walls & floor complete and all necessary fittings to make it operational as directed	Each	10.0			
3.30	NS	Providing and fixing C.P. brass lab sink pillar tap with long elbow operating lever handle of approved model and make complete in all respect (Aqua bath, Jaquar,Marc)	Each	5.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
3.31	NS	Providing & fixing solid state fully hygienic no touch hand drier of approved make rated for continuous repeat usage with solid state time delay LSF protection, with independent ambient light level & seasonal control temperatures including providing necessary C.I./M.S. brackets painted with two or three coats of enamel paint of approved shade over a coat of primer, wiring cables from drier to plug, plug tops etc. complete including cutting and making good the walls wherever required.	Each	30.0			
3.32	NS	Supplying, fixing, testing and commissioning of storage type water heater (Geyser) etc. with Stainless steel body , copper container , automatic thermostatic control electric element, pressure release valve, M.S. nuts and bolts etc. conforming to IS: 2082					
a	a)	35 Litre Capacity	Each	5.0			
b)	b)	25 Litre Capacity	Each	12.0			
3.33	NS	Providing & fixing water storage cooler of approved make and brand with SS body having minimum flow rate of 40 ltrs. Per hour and storage capacity 80 ltrs. Complete in respects.(VOLTAS/ BLUE-STAR/ USHA SHRIRAM )	Each	6.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
3.34	NS	Providing and fixing approved make & suitable model of R.O. plant 60 ltrs. Per hour flow rate having capacity to treat the raw water having TDS 1200 ppm and not less than 40%. The treated water should have TDS less than 100 ppm and hardness less than 50 ppm. The operating voltage to 230 volt AC +/- 10% alongwith required capacity pump and solenoid valves, dry run protection of pump, automatic tank level control, inbuilt auto flush timer for periodic flushing of membranes, hydro pneumatic tank, over voltage and over current protection with switch mode power supply system antiscaling dosing system complete in all respects including installation and fittings with the following provisions: (IONIEXCHANGE/ KENT/AQUAPROCESS/Pantair )					
a)		10 micron polypropylene sediment pre filter					
b)		10 micron bacteriostatic activated carbon block on line micron filter with 5 micron rating					
c)		3 Nos. of reverse osmosis memberane with 0.0001 micron pore size energy saving poly amide type					
d)		UV lamp of minimum capacity 25 LPM and minimum lamp wattage 9W	Each	6.0			
		<b>SUB TOTAL(Water Supply)</b>					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
4.00		<b>SEWARAGE &amp; DRAINAGE</b>					
4.01	19. 1	Providing laying and jointing glazed stoneware pipes grade 'A' with stiff mixture of cement mortar in the pro-portion of 1:1 (1 cement : 1 fine sand) including testing of joints etc. complete.					
a)	19.1.1	100 mm diameter	Metre	50.0			
4.02	19. 2	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size) all-round S.W. pipes including bed concrete as per standard design:					
a)	19.2.1	100 mm diameter S.W. pipe/RCC NP2	Metre	50.0			
b)	19.2.2	150 mm diameter S.W. pipe/RCC NP2	Metre	250.0			
4.03	19. 3	Providing and laying cement concrete 1:5:10 (1 cement:5 coarse sand:10 graded stone aggregate 40 mm nominal size) up to haunches of S.W. pipes including bed concrete as per standard design:					
a)	19.3.1	150 mm diameter S.W.pipe	Metre	100.0			
b)	19.3.2	250 mm diameter s.W. pipe	Metre	200.0			
4.04	19. 4	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:.					
a)	19.4.2	150x100mm size P type					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
a.i)	19.4.2.1	F.P.S. Bricks class designation 75	Each	25.0			
4.05	19. 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)	19.6.2	150 mm dia R.C.c. pipe	Metre	350.0			
b)	19.6.3	250 mm dia R.C.C. pipe	Metre	200.0			
4.06	19. 7	Constructing brick masonry manhole in cement mortar 1:4 (1 cement : 4 coarse sand), R.C.C. top slab with 1:2:4 mix ( 1cement : 2 coarse sand : 4graded stone aggregate 20 mm nominal size ), foundation concrete 1:4:8 ( 1cement : 4 coarse sand : 8graded stone aggregate 40 mm nominal size ), inside plastering 12mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, and making necessary channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement all complete as per standard design.					
a)	19.7.1	Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg):					
a i)	19.7.1.1	With F.P.S. bricks with class designation 75	Each	25.0			
4.07	19. 8	Extra depth for manholes					
a)	19.8.1	Size 90 x 80 cm					
a i)	19.8.1.1	With F.P.S. bricks class designation 75	Metre	5.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
4.08	19. 9	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 concrete 1:3:6 mix (1 cement: 3 coarse sand: 6 graded stone aggregate 40mm nominal size), and making necessary channel in cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 20mm nominal size) finished with a floating coat of neat cement all complete as per standard design:					
a)	19.9.1	0.91 m deep with S.F.R.C. cover and frame (heavy duty, HD-20 grade designation) 560mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182kg., 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 12mm thick cement plaster at the external surface shall be paid for separately) :					
a i)	19.9.1.1	With F.P.S. bricks class designation 75	Each	15.0			
4.09	19. 10	Extra depth for circular type manhole 0.91m dia (at bottom) with beyond 0.91m to 1.67 m					
a)	19.10.1	With F.P.S. bricks class designation 75	Metre	2.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
4.10	19. 11	Constructing brick masonry circular manhole 1.22 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 ( 1 cement: 4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement foundation concrete 1:3:6 mix (1 cement :3 coarse sand : 6 graded stone aggregate 40mm nominal size) and making necessary channel in cement concrete 1:2:4 (1 cement :2 coarse sand : 4 graded stone aggregate 20mm nominalsize) fineished with a floating coat of neat cement complete as per standard design.					
a)	19.11.1	1.68 m deep with SFRC cover and frame(heavy duty HD-20 grade designation) 560 mm internal diameter conforming to IS: 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 20mm nominalsize) including centering shuttering all complete. (Excavation, foot rests and 12 mm tick cement plaster at the external surface shall be paid for separately)					
a.i)	19.11.1.1	With F.P.S. bricks with class designation 75	Each	2.0			
4.11	19. 12	Extra depth for circular type manhole 1.22 m internal dia (at bottom) with beyond 1.68 m to 2.29 m					
a)	19.12.1	With F.P.S. bricks with class designation 75	Metre	1.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
4.12	19. 16	Providing and fixing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS: 10910 on 12 mm dia steel bar conforming to IS: 1786 having minimum cross section as 23 mm x 25 mm and over all minimum length 263 mm and width as 165 mm 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 specification 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	100.0			
4.13	19. 21	Making connection of drain or sewer line with existing manhole including breking into and making good the walls, floors with cement concrete 1:2:4 mix (1 cement:2 coarse sand:4 graded stone aggregate 20 mm nominal size) cement plastered on both sides with cemnet mortar 1:3 (1 cement:3 coarse sand) finished with a floating coat of neat cement and making necessary channels for the drain etc. complete (including obtaining approval from DJB/Municipal corporation					
a)	19.21.1	For pipes 100 to 230 mm dia	Each	1.0			



Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
4.14	19. 22	Providing sand cast iron drop connection externally for 60 cm drop from branch sewer line to main sewer manhole including inspection and cleaning eye with chain and lid sand cast Iron drop pipe and bend encased all-round with cement concrete 1 :5:1 0 (1 cement:5 fine sand: 10 graded stone aggregate 40 mm nominal size) with all centering and shuttering required, cutting holes in walls and making good with brick work in cement mortar 1:4 (1 cement: 4 coarse sand) plastered with cement mortar 1:3 (1 cement: 3 coarse sand) on, inside of the manhole wall lead caulked joints between sand cast iron pipes and fittings, stiff cement mortar 1:1 (1 cement: 1 fine sand) joints between sand cast iron tee and S.W. pipe, making required channels complete as per standard design and specifications:					
a)	19.22.2	150 mm dia. sand cast iron drop connection	Each	5.0			
	19. 27	Constructing brick masonry road gully chamber 50x45x60 cm with bricks of class designation 75 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:					
	19.27.1	With F.P.S. bricks	Each	30.0			
4.15	19. 34	Providing and fixing S.W.intercepting trap in manholes with stiff mixture of cement mortar 1:1 (1 cement:1 fine sand) including testing of joints etc. complete					
a)	NS	250 mm dia	Each	1.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
4.16	NS	Constructing brick masonry open surface drain including factory made perforated RCC cover with edge protected with MS plate of 3 mm thick with bricks of class designation 75 in cement mortar 1:4 (1 cement : 4 fine sand) including earth excavation, 10cm thick bed concrete 1:5:10 (1 cement: 5 fine sand :10 graded stone aggregate 40mm nominal size) and 25mm thick cement concrete 1:2:4 (1 cement:2 coarse sand:4 graded stone aggregate 12.5 mm nominal size) for filling hunches including 12mm cement plaster 1:4 (1 cement:4 coarse sand) with a floating coat of neat cement inside the drain, its top and exposed side including disposal of surplus earth complete as per standard design.					
		25cm drain 30cm average depth					
a)		With F.P.S bricks	Metre	250.0			
		45cm drain 75cm average depth					
b)		With F.P.S bricks	Metre	250.0			
4.17		Constructing grease trap 1.5x1.0x1.2m (inside) with one brick thick brick masonry wall with inlet and outlet drain with bricks of class designation 75 in cement mortar 1:4 ( 1 cement:4 fine sand) plastered 12mm thick with 1:4 (1 cement : 4 coarse sand) finished with a floating coat of neat cement on inside and exposed surfaces having baffled walls with 40mm flooring in cement concrete 1:2:4 (1 cement:2 coarse sand 4: graded stone aggregate 12.5 mm nominal size) with a floating coat of neat cement including all earth excavation, refilling and disposal of surplus earth complete as per standard design.					
	a)	With F.P.S bricks	Each	1.0			
<b>SUB TOTAL(SEWERAGE AND DRAINAGE)</b>							

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
<b>5.00</b>		<b>EARTH WORK</b>					
5.01	2.6	Earth work in excavation by mechanical means (Hydraulic excavator)/ manual means over areas (exceeding 30 cm in depth,1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m , disposed earth to be levelled and neatly dressed.					
a)	2.6.1	All kinds of soil	cum	70.0			
5.02	2.10	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth up to 1.5 m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m:					
a)	2.10.1	All kinds of soil					
a.ii)	2.10.1.2	Pipes, cables etc, not exceeding 80 mm dia but not exceeding 300 mm dia	metre	600.0			
5.03	2.25	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m	cum	20.0			
		<b>SUB TOTAL(EARTH WORK)</b>					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
<b>6.00</b>		<b>EXTERNAL WATER SUPPLY</b>					
6.01	2.10	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth up to 1.5 m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m:					
a)	2.10.1	All kinds of soil					
a.ii)	2.10.1.2	Pipes, cables etc, not exceeding 80 mm dia but not exceeding 300 mm dia	metre	450.0			
6.02	18.19	Providing and fixing gun metal non-return valve of approved quality (screwed end)					
a)	NS	100 mm nominal bore					
a.i)	NS	Horizontal	each	2.0			
6.03	18.31	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)	18.31.1	100 mm diameter					
a.i)	18.31.1.1	Class I	each	8.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
6.04	18. 33	Constructing masonry chamber 60x60x75 cm, inside with 75 class designation brick work in cement mortar 1:4 (1 cement: 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement: 2 coarse sand:4 graded stone aggregate 20 mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement:5 fine sand: 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement :3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design					
a)	18.33.1	With F.P.S. bricks	each	4.0			
6.05	18. 34	Constructing masonry chamber90x90x100 cm, inside with 75 class designation brick work in cement mortar 1:4 (1 cement: 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement: 2 coarse sand:4 graded stone aggregate 20 mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement:5 fine sand: 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement :3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design					
a)	18.34.1	With F.P.S.bricks	each	2.0			
6.06	18. 40	Painting G.I./DI pipes and fittings with two coats of anti-corrosive bitumastic paint of approved quality					
a)	18.40.2	20 mm diameter pipe	metre	50.0			
d)	NS	100 mm diameter pipe	metre	150.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
6.07	18. 41	Providing and filling sand of grading zone V or coarser grade all-round the G.I./CPVC pipes in external work					
a)	18.41.2	20 mm diameter pipe	metre	50.0			
b)	18.41.9	100 mm diameter pipe	metre	150.0			
6.08	18. 47	Providing and fixing G.I. Union in existing G.I. pipe line, cutting and threading the pipe and making long screws including excavation, refilling the earth or cutting of wall and making good the same complete wherever required:					
a)	18.47.2	20 mm nominal bore	each	2.0			
b)	NS	100 mm diameter pipe	metre	3.0			
6.09	18. 59	Providing and fixing C.I. double acting air valve of approved quality with bolts, nuts, rubber insertions etc. complete (The tail pieces, tapers etc. if required will be paid separately):					
a)	18.59.1	50 mm dia	each	1.0			
b)	18.59.2	80 mm dia	each	1.0			
6.10	18. 68	Providing and laying D.I. specials of class k-12 suitable for push-on jointing as per IS:9523					
a)	18.68.1	Upto 600 mm dia	quintal	25.0			
6.11	18. 70	Providing push-on-joints to Centrifugally (Spun) Cast Iron pipes or Ductile Iron Pipes including testing of joints and including the cost of rubber gasket					
a)	18.70.1	100 mm dia pipes	joint	150.0			
6.12	18. 72	Providing and laying S&S Centrifugally Cast (Spun)/Ductile Iron pipes confirming to is:8329:					
a)	18.72.1	100 mm dia Ductile Iron Class k-7 pipes	metre	550.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
6.13	18. 80	Disinfecting C.I./D.I. water mains by flushing with water containing bleaching powder at 0.5 gms per litre of water and cleaning the same with freash water, operation to be reaeated three times including getting the sample of water from the disinfected main tested in the municipal laboratory					
a)	18.80.2	100 mm diameter C.I./D.I. pipe	100 metre	4.5			
6.14	18. 9	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge.					
<b>External Work</b>							
a)	18.9.2	20 mm nominal outer dia pipes (SDR-11)	Metre	50.0			
6.15	NS	Providing and fixing puddle flanged including 60 cm long GI pipe piece welded/threaded with MS plates 450x450x6 mm thick with both end screwed/flanged.					
a)		For 80 mm dia pipe	Each	8.0			
b)		For 100 mm dia pipe	Each	10.0			
c)		For 150 mm dia pipe	Each	2.0			
6.16	NS	Providing and fixing suitable G.I. vent pipe upto 1m high Class-B (medium quality) with fittings complete as per drawing and as directed.					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
a)		100mm Dia	Each	8.0			
6.17	NS	Providing and fixing double seal type D.I. Manhole cover of 560 mm clear internal diameter of over all heavy duty with locking arrangement complete in all respects.	Each	10.0			
6.18	NS	Providing and fixing garden hydrant of approved quality and make complete in all respect	each	30.0			
6.19	NS	Providing and fixing G.I. pipes class B complete with G.I. fittings and clamps, including cutting and making good the walls etc.					
a)		100 mm dia nominal bore	Metre	150.0			
<b>SUBTOTAL (EXTERNAL WATER SUPPLY)</b>							



Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
7		<b>RAIN WATER PIPING</b>					
7.01	12. 44	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	50.0			
7.02		Providing and fixing rain water ,soil, waste and vent pipes.					
a)		100 mm dia.					
a i)	17.35.1.2	Centrifugally cast (spun) iron socketed pipe as per IS:3989	Metre	660.0			
c)	NS	150 mm dia pipe as per IS:3989	Metre	440.0			
7.03	17. 37	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 10x10x10 cm 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)	17.37.1	for 100 mm dia. pipe	Each	360.0			
c)	NS	for 150 mm dia pipe	Each	240.0			
7.04	17.39	Providing and fixing plain bend of required degree.					
a)		100 mm					
a ii)	17.39.1.2	Sand cast iron S&S as per IS:3989	Each	30.0			
c)	NS	150 mm	Each	20.0			
7.05	17.40	Providing and fixing heel rest sanitary bend.					
a)	17.40.1	100 mm dia					
a.ii)	17.40.1.2	sand cast iron S&S as per IS-3989	Each	30.0			
c)	NS	150 mm dia	Each	20.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
7.06	17.57	Providing and fixing collar					
a)	17.57.1	100 mm					
a.ii)	17.57.1.2	Sand cast iron S&S as per IS-3989	Each	60.0			
c)	NS	150 mm	Each	40.0			
7.07	17.58	Providing lead caulked joints to sand cast iron /centrifugally cast (spun) iron pipes and fittings of diameter:					
a)	17.58.1	100 mm	Each	540.0			
c)	NS	150 mm	Each	360.0			
7.08	17.65	Painting sand cast iron / centrifugally cast (spun) iron soil, waste vent pipes and fittings with paint of any colour such as chocolate, grey, or buff etc. over a coat of primer (of approved quality) for new work:					
a)	17.65.1	100 mm diameter pipe	Metre	660.0			
c)	NS	150 mm diameter pipe	Metre	440.0			
		<b>SUB TOTAL(Rain Water pipe &amp; fitting)</b>					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
<b>8.00</b>		<b>BOREWELL(2 No)</b>					
8.01	NS	Drilling by suitable rig as per IS : 2800-1979 (percussion or combination rig ) or Reverse Rotary to suit site condition from ground level in all kind of soils and weathered rock including boulders (excluding rock ) diameter of bore 450mm including carry out hydrological survey report before boring & getting the approval based on Hydrogeological survey before start of the work.Also getting approval from local authority if any required					
a)		0-30m	metre	30.0			
b)		30-60m	metre	30.0			
c)		60-90m	metre	30.0			
d)		90-120 m	metre	30.0			
8.02	NS	Extra additional for drilling in Ordinary Rock if any found	metre	25.0			
8.03	NS	Extra additional for drilling in Hard Rock if any found	metre	25.0			
8.04	NS	Providing and lowering uPVC casing/housing pipe 200mm dia. with wall thickness 10 mm conforming to IS :12818 including sockets of standard design.	metre	70.0			
8.05	NS	Providing & fixing uPVC screen/slotted pipe with 1.5 mm to 3mm (slots as per strata condition) including sockets of standard design as per IS: 12818/1992.					
a)		200 mm dia uPVC socketed pipe with wall thickness 10.0 mm	metre	80.0			
8.06	NS	Providing and fixing in position threaded iron cap with locking arrangement of approved design to prevent foreign matters getting into the bore-hole as required.	Each	1.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
8.07	NS	Providing and laying rounded pea gravel washed & served 3 to 6 mm nominal boreas per relevant ISI code.	Cum	16.0			
8.08	NS	Providing and laying cement concrete 1:2:4 mix for sanitary sealing of well at top.	Cum	1.0			
8.09	NS	Supplying, lowering and fixing in position reducer ,PVC bail plug with "U" hooks as per IS:2800-1964.	Each	1.0			
8.10	NS	Development of Tubewell including testing of yield depression & quality of water (for all parameters of potable water), contractor to obtain certificate for quality for water from Competent Authority approved by client or Engineer- In -Charge.					
	i)						
a)		Development of Tube well by high capacity air compressor till the clear water discharge but not more than 100 hours.	per hour	80.0			
b)		Additional development of Tube well by high an over pumping unit till complete development of tube well does not clear by maximum 100 hours air compressor	per hour	50.0			
8.11	NS	Tranportation, mobilisation and demobilisation or drilling equipment and ancillary equipment to site including clearing and cleaning the site after completion of work.	set	1.0			
8.12	NS	Providing and fixing brass full way valve with C.I. wheel of approved make, tested to a pressure of 21 kg/sqcm.					
a)		100 mm dia	Each	1.0			
8.13	NS	Providing and fixing gunmetal non return valve of approved make tested to a pressure of 21kg/sqcm.					
a)		100 mm dia	Each	1.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
8.14	NS	Providing & fixing G.I. pipes (heavy class)confirming to IS with special fittings in external works including earthwork ,excavationin all kinds of soil including ordinary rock,refilling, painting pipes & fitting complete in all respects.					
	a)	100 mm dia	Metre	100.0			
8.15	NS	Providing & filling sand of grading zone V or coarser grade all around GI pipe in external work					
	a)	100 mm dia	Metre	100.0			
8.16	NS	Submersible pumps					
		Providing and installing submersible pump and electrical panel suitable for 8" dia casing of bore with SS impeller, high tensile SS shaft, copper wound squirrel cage wet type induction motor 2880 rpm, 415 V, 50 Hz,3 phase A.C. supply, conforming to ISS: 8034-1976, capacity 500 litre per minute at 70-120 m head along with a directly coupled submersible type squirrel cage electric induction <b>10 H.P(minimum)</b> . motor suitable for operation on 400 V, 3 phase, 50 c.p.s. A.C. supply, water lubricated bearings and provided with pivoted segment type thrust bearings to withstand non-vertical lead with minimum wear and tear and duly fitted with device to take up the expansion of water with heating of motor, including supply, testing and commissioning of elctrical panel from the same manufacturer, complete with all accessories in all respects. The contractor to obtain approval for model and make of pumpset & suitable Electrical panel after having yield report of fully developed tube well and submite actual bore strata chart.					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
		including supplying laying and fixing water proof PVC insulated flat submersible cable 3x10 sqmm with end termination with its accessories. complete in all respect as required.	set	1.0			
8.17		Carrying out Electrical logging of Borewell before lowering of pipe for analysiing of water quality including Electrical logging report, calculation etc.	Job	1.0			
		<b>SUBTOTAL (BOREWELL)</b>					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
<b>9.00</b>		<b>RAIN WATER HARVESTING(4 NOS.)</b>					
9.01	NS	Designing and Constructing of percolation pit cum perforated well 3000mm. dia upto 4000mm deep, 230 mm thick brick masonry work alround upto 1.5 m deep with 75 class brick in cement mortar 1:4, 200 mm foundation concrete in 1:4:8 mix below brick work only, 150 mm thick precast removable RCC top slab with required steel reinforcement in cement concrete 1:2:4 mix, filled with coarse aggregate, SFRC covers, river pebbles of requisite size stone as shown in the drawing including centering and shuttering, as shown complete as per detailed drawings complete.	Each	4.0			
9.02	NS	Drilling as per IS : 2800-1964 ( with percussion or combination rig ) from ground level in all kind of soils including boulders (excluding rock ) diameter of bore 450mm.					
a)		0-50m	Metre	120.0			
9.03	NS	Extra for drilling in Ordinary Rock	Metre	20.0			
9.04	NS	Extra for drilling in Hard Rock	Metre	20.0			
9.05	NS	Providing and lowering of 200 mm dia uPVC blank/ slotted pipe with ribs, special fittings, jointing conforming to IS 12818 - 1992.	Metre	120.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
9.06	NS	Constructing bar screen / settling tank, of sizes 4500x2500 with suitable depth up to 2.0 m in 1: 4 Cement Mortar (one cement : 4 coarse sand) height as per site requirement, in brick masonry 350mm thick walls upto water level and 230mm thick walls above water level & upto ground level, including all excavation, 20 cm thick bed concrete in 1:4:8 (one cement 4 fine sand 8 stone aggregate 40 mm), cement plaster 1:3 (one cement :3 coarse sand) with a floating coat of neat cement as inside finish , top slab in RCC 1:2:4, including centring, shuttering and steel work, also providing and fixing D.I. manhole cover & frame of size 605mm x 450mm of weight not less than 38 kg (frame + cover) and cost of 100mm dia C.I. vent pipe with C.I. Ventilating Cowl and suitable wire mesh provision for inlet, 115mm baffle walls extending 2/3 the width spaced@500mm c/c including finishing with 1:3 cement plaster 15mm thick with floating coat of neat cement slurry , all complete in every respect as per drawing and as directed to suit site condition.	Each	4.0			
<b>SUBTOTAL (RAIN WATER HARVESTING)</b>							



Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
10		<b>SOLAR WATER HEATING SYSTEM &amp; RECIRCULATION OF HOT WATER SYSTEM (1 Nos)</b>					
10.01	NS	Supply, installation, testing and commissioning of solar water heating system, Thermosyphon type, all complete based on Flat plat collector system (Cu-Cu Type only) comprising of but not limited to the following:					
	a)	Requisite number of Flat plate collectors of 2 sq. mtr. collector area. Collector absorber plate to be made of copper tubes & copper fins only					
	b)	Hot water storage tank made of stainless steel 304- food grade quality with 100 mm Glass wool insulation and cladding with 24 SWG Aluminum sheet. One temperature measuring device and suitable inlet, outlet and drain connections on the storage tank to be provided. Suitable Electrical Heater backup to be provided inside the tank along with thermostat					
	c)	Heat Exchanger - Cage type Internal Heat Exchanger made of SS pipes shall be provided inside the Solar Tank. Heat exchangers shall have min. heat transfer area of 0.24 sq. mtrs. for every 100 LPD calacity. Suitable make up tank for the Heat Exchanger circuit shall also be provided					
	d)	Interconnecting system piping shall consist of B Class insulated GI pipes covered with 50mm thick glasswool & clad with 26 SWG Aluminium Sheet. All Gate/Ball valves shall be of ISI make.					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
e)		Electrical control panel, cabling from panel to pumps and electrical heaters shall also be provided					
f)		The solar collector shall be arranged on roof of building in such a way that shadow can be avoided and requisite number of MS support for collector/tanks of minimum 35x35x5 MS angle adequate for 150 Km/Hr wind speed.					
g)		Solar water heating system based on Flat plat collector system technology with output capacity of as mentioned below with hot water at 60 degree centigrade having required Nos. solar collectors and required nos. of electric heating element of 3 KW each controlled by thermostat. as per complete item as per technical specification of make BHEL/TATA/EMMVEE. The system has to be installed by Manufacturers authorised distributors/approved specialised firms of Solar water heating of approved makeThe shop drawing of the systems shall be provided by the agency as per site condition obtain the proper efficiency The system shall be procured after obtaining the approval of shop drawings from HSCC / Engineer-in-charge.					
i)		Solar System of Capacity 1500 Litre/day (With minimum 12 nos of Collect) of 2.0 Sqm area	each	10.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
10.02	NS	Recirculation system (on return line) -Designing, Supply, Installation, Commissioning & Integration with Solar System of Recirculation System consisting of - Insulated Auxiliary Tank MS with epoxy paints (2 times the solar piping system volume) and with Electrical Backup, Pump, of requisite capacity DTC, Sensor PT100, Control Panel wiring,RS 485 mod bus communication port for BMS as per technical specification, MS standand etc. (but does not include the return piping & fitting)	each	2.0			
10.03	18.7	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge.					
		<b>Internal work- Exposed on wall</b>					
a)	18.7.1	15 mm nominal outer dia pipes (SDR-11)	metre	50.0			
b)	18.7.2	20 mm nominal outer dia pipes (SDR-11)	metre	100.0			
c)	18.7.3	25 mm nominal outer dia pipes (SDR-11)	metre	75.0			
d)	18.7.4	32 mm nominal outer dia pipes (SDR-11)	metre	50.0			
e)	18.7.5	40 mm nominal outer dia pipes (SDR-11)	metre	25.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
SI. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
10.04	18. 8	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge.					
		<b>Concealed work including cutting chases and making good the walls etc.</b>					
a)	18. 8.1	15 mm nominal outer dia pipes (SDR-11)	metre	150.0			
b)	18.8.2	20 mm nominal outer dia pipes (SDR-11)	metre	100.0			
c)	18. 8.3	25 mm nominal outer dia pipes (SDR-11)	metre	25.0			
10.05	18. 17	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end):					
a)	18.17.1	25 mm nominal bore	each	8.0			
b)	18.17.2	32 mm nominal bore	each	8.0			
10.06	NS	Providing & fixing 9 mm thick thermal insulation tubing of elastomeric flexible material having hermetic blistered closed cell structure of expanded synthetic rubber over pipes/ fitting as per manufacturer's specifications etc.complete.					
a)	a)	15 mm dia to 25 mm dia	each	500.0			
b)	b)	32 mm dia to 50 mm dia	each	75.0			
10.07	NS	Providing and fixing gun metal ball valve of approved quality					
a)		15 mm nominal bore	each	4.0			
b)		20 mm nominal bore	each	6.0			
		<b>SUBTOTAL(SOLAR WATER HEATING SYSTEM &amp; RECIRCULATING SYSTEM)</b>					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
11.00		<b>WATER TREATMENT PLANT</b>					
11.01		<b>WATER TREATMENT PLANT (/Domestic use)</b>					
		Planning, Designing, Detailing, Manufacturing, Supplying, Erection, Testing and Commissioning of Water treatment plant for supply of treated water for use of domestic purpose comprising of filter and pumps. The plant is to be installed in pump room and Raw water supply is available in UGT including design and execution of all Civil, Structural, Electrical, Mechanical, Plumbing and processing, ancillary equipments & works etc required to complete the package, getting approval from HSCC/client etc.					
		The shop drawings & design of WTP shall also be prepared in such a way that it comprise of the following units of required size as per detail design requirements. The work has to be carried through authorised vendor, dealer/representative of approved make (Ion exchange, Pollucon technologies, AKAR Impex,Thermax, Aquaprocess, Fontus).					
i)		Providing and fixing vertical/ multi-stage inline centrifugal raw water filter feed pumps mounting on a foundation with CI volute and SS impellar and with stainless steel shaft, mechanical seal and chrome steel shaft sleeve, connected to a TEFC induction motor suitable for 400/440 volts,1500 RPM, 3 phase 50 cycles A.C. supply having IP 55 protection enclosure. complete with base frame, vibration eliminating pads, nuts and bolts etc. ( Necessary RCC foundations as per requirement and as per instructions shall be provided by the agency )					
		Raw water ( filter ) feed pumps.					
		Capacity : 200 lpm (Each)					
		Head 35 m					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
		Power :3.0 HP or as required 1 working					
ii)		Providing and fixing C.I. "Y" Type suction strainer with stainless steel perforated sheet screen,flangfd ends iner installed outside water tanks. (Make: Leader / Zoloto / Kartar or equivalent)					
		65/80 mm dia (4 nos.) (min.) or required size and required number					
iii)		Providing and fixing gun metal or bronze ball valves/butterfly valve/NRV/Rotameter, tested to 15.00 Kg / cm <sup>2</sup> , screwed end connections complete . (Make: Leader/ Zoloto or equivalent)					
		50/65 mm NB (min.) or required size and number					
iv)		Filtration Plant : Vertical Downflow Multigrade Pressure Sand Filter in MS Welded construction fabricated in accordance with IS 2825 from minimum 6 mm thick M.S. plate on shell and minimum 8 mm thick M.S. plate on dished ends as per applicable IS standards. The filter shall have :					
		a) One no pressure tight manhole and at least one no. pressure tight side hole for maintenance purposes.					
		b) Initial charge of Filter Media.					
		c) Complete underdrain system and raw water distributor as per manufacturer's design.					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
		d) M.S. heavy class fabricated - epoxy coated / post galvanised face piping comprising of connections with CI Butterfly Valves of required size for inlet, outlet, backwash inlet, backwash drain and rinse drain. Air release line with GM Ball Valve of required size.					
		e) Pressure gauges (100 mm dia bourdon type pressure gauge ) / Sampling points with SS isolation cocks at inlet and outlet.					
		f) All internal parts of the filtration plant shall be coated with 6 mm thick natural rubber lining after thorough sand blasting. All external surfaces of the plant including piping shall be coated with two coats of epoxy paint and primer .					
		g) The filter shall be complete with all gaskets / fasteners of standard quality as required.					
		h) The filter shall be designed to give rated output at given raw water quality and flow rate without any operational problem and should not get any loss of performance as long as the operating pressure remains within the given range. Any additional provision is required to make the item complete, the same should be included herein. The work has to be carried through authorised vendor, dealer/representative of approved make (Ion exchange, Pollucon technologies, AKAR Impex, Thermax, Aquaprocess, Fontus). The filter water will be supplied to treated water tank through U.V. water steriliser					
		Capacity - 200lpm					
		Filtration rate - 20,000 lph/sqm ( min.)					
		Filter dia approx.900 mm (min.)					
		Filter HOS Min. : 1200 mm (min.)					
		Working pressure : 3.0 Kg/sq cm.					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
		Test pressure : 4.5 Kg/sq cm					
		No. of Filters : 1 working					
v)		UV WATER STERILISERS					
		High performance on line UV water sterilisers of capacity 12000 lph designed on at least 250 J/Sq. M. UV dosage, comprising of glass UV chamber in SS 316 housing, UV lamp and electrical circuit, wall mounted model / line mounted model, capacity 500lpm, minimum lamp rating :120 watts - 1Nos.					
vi)		Providing and fixing G.I.pipes/CPVC pipes to I.S. 3589/1239 ( <b>Heavy class</b> ) with G.I./CPVC Fittings e.g., Tee, elbow reducers, unions, end cap etc., flanges & clamps, including supporting the pipes with G.I. supports, cutting and making good the walls etc. complete. For Suction & Delivery headers.					
		50/65 mm dia ( min.) ( Interconnection between units )/ Drain lines etc. as per plant room requirement. (All piping and fitting of required size inside the plant room included in the item)					
vii)		Painting G.I./CPVC pipes with two or more coats of synthetic enamel paint of approved quality and shade over a coat of approved priming coat as directed by the Project-in-charge (shade as per pipe colour code).					
		50 mm dia (min.) (as per required length)					
		Complete W.T.P as mentioned above including testing, training and trial run till comissioning of W.T.P. set	Job	1.00			



Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
11.02		STRUCTURAL STEEL WORK					
i)		Supply, fabrication, erection, painting of pipe supports of structural steel, for piping work in the production areas and anchoring them. 2 coats of zinc chromate primer and one coat of finishing paint.	Kgs.	150.00			
11.03		Supplying, assembly, erection, testing and commissioning of level controllers based on level switches and necessary auxillary circuits included in the electric panel ,,including all accessories required for the performance of the system to the satisfaction of the engineer in charge complete including providing and fixing wiring from control panel to the level switches of required size,all interconnections as required . Note : The required transformers / associated equipment shall be designed keeping in view the acrual distance of various tanks from the control panel, particularly the distance of OH soft water tank from panel. The most suitable route of sensor cable travel between the panel and the tank shall have to be worked out by the contractor according to site conditions and in consultation with engineer in charge. All cabling / switch installation should be done in an easy to maintain manner.					
i)		One way one tank level controller as under.					
		To switch on the tube well pump when the level of water in the UG raw water tank is low and to cut off the pump when the level in the underground raw water tank is high. ( Approx. control cable requirement - 200 meters. )	Set	1.00			
		Two way - Two tank level controller as under.					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
ii)		For Filter Feed Pumps for domestic water.( Operating between the Under ground Raw water tank and the under ground treated water tank near the plant room. ( Approx. control cable requirement - 50 meters. )	Set	1.00			
iii)		For Treated water supply Pumps( Operating between the under ground treated water tank near the plant room and the Terrace treated water tank . ( Approx. control cable requirement - 125 meters. )	Set	1.00			
iv)		For Raw water supply Pumps( Operating between the under ground Raw water tank near the plant room and the Terrace Raw water tank . ( Approx. control cable requirement - 125 meters. )	Set	1.00			
v)		For soft water supply Pumps( Operating between the under ground soft water tank near the plant room and the Terrace soft water tank .( Approx. control cable requirement - 125 meters. )	Set	1.00			
11.04	NS	Providing and fixing gun metal foot valve with stainer of approved quality/model complete in all respect.					
	a)	80 mm dia	each	2.0			
	b)	100 mm dia	each	2.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
11.05	NS	Supplying, installing, testing and commissioning vertical online/horizontal 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 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).					
		<b>Domestic water pumps (Treated water transfer&amp;Raw water Transfer pump to terrace tank)</b>					
	a)	<b>Treated water transfer pump to terrace tank</b>					
		Capacity 125 lpm					
		Head 50M	Each	2.00			
	b)	<b>Raw water transfer pump</b>					
		capacity 200 lpm & Head 50m					
			Each	2.00			
	c)	<b>Soft water transfer pump</b>					
		Capacity 200 lpm					
		Head 50M	Each	2.00			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
11.06	NS	Supply, installing, testing and commissioning vertical fully floodable type submersible drainage pump in close coupled design single stage, suitable for handling minimum 12 mm dia solids for transferring waste water 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).					
		Material of Construction (M.O.C): Corrosion Resistant in general					
		: Casing — Cast Iron					
		: Impeller — Stainless Steel					
		: Shaft — Stainless Steel					
		: 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					
		Duty of each pump					
	a)	150 LPM against 12 M head	each	2.0			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
11.07	NS	Testing Underground tank for water seepage before fixing of tiles or any other finishing including pressure grouting (if required). The tank should be disinfected and cleaned before use as per instruction of Engineer-in-charge(up to 3 lac ltr capacity of each compartment of tank)	set	1.00			
11.08		<b>SOFT WATER TREATMENT PLANT (1 Nos)</b> <b>WATER TREATMENT PLANT (Soft water)</b> Planning, Designing, Detailing, Manufacturing, Supplying, Erection, Testing and Commissioning of Water treatment plant for supply of treated water for use in Air conditioning and filter water for domestic purpose comprising of filter and pumps. The plant is to be installed in pump room at basement level and Raw water supply is available in UGT including design and execution of all Civil, Structural, Electrical, Mechanical, Plumbing and processing, ancillary equipments & works etc required to complete the package, getting approval from HSCC/client etc.					
		The shop drawings & design of WTP shall also be prepared in such a way that it comprise of the following units of required size as per detail design requirements. The work has to be carried through authorised vendor, dealer/representative of approved make (Ion exchange, Pollucon technologies, AKAR Impex, Thermax, Aquaprocess, Fontus).					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
	i)	Providing and fixing horizontal/ vertical on line single/multi-stage raw water filter feed pumps mounting on a foundation with CI volute and SS impellar and with stainless steel shaft, mechanical seal and chrome steel shaft sleeve, connected to a TEFC induction motor suitable for 400/440 volts, 1500 RPM,3 phase 50 cycles A.C. supply having IP 55 protection enclosure. complete with base frame, vibration eliminating pads, nuts and bolts etc. ( Necessary RCC foundations as per requirement and as per instructions shall be provided by the agency )					
		<b>Raw water ( filter ) feed pumps.(Filter before softner)</b>					
		<b>Capacity : 200LPM</b>					
		<b>Head 35 m</b>					
		Power : 3.0HP or as required					
		1 working					
	ii)	Providing and fixing GI/CPVC epoxy coated pipe & fittings and specials for suction and discharge side of pumps as required to connect Suction strainers and isolation butterfly valves on suction side and isolation valves and NRVs on discharge size , and to make a common discharge header from 2 pumps. Individual pump suction and discharge size minimum : 50 mm x 40 mm. The pumps shall have 80 mm NB butterfly valves and 80 mm NB flanged Y type strainers on suction side and common discharge header size : 50 mm NB including required numbers of matching flange, bolts, nuts, rubber gaskets, all complete as required / as per drawings or specifications. (complete lot)					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
	iii)	Providing and fixing C.I. "Y" Type suction strainer with stainless steel perforated sheet screen,flangfd ends iner installed outside water tanks. (Make: Leader / Zoloto / Kartar or equivalent)					
		65/80 mm dia (4 nos.) (min.) or required size and required number					
	iv)	Providing and fixing G / M or bronze ball valves/butterfly valve/NRV/Rotameter, tested to 15.00 Kg / cm2, screwed end connections complete . (Make: Leader/ Zoloto or equivalent)					
		50/40 mm NB (min.) or required size and number					
	v)	<b>Filtration Plant</b> : Vertical Downflow Multigrade Pressure Sand Filter in MS Welded construction fabricated in accordance with IS 2825 from minimum 6 mm thick M.S. plate on shell and minimum 8 mm thick M.S. plate on dished ends as per applicable IS standards. The filter shall have :					
		a) One no pressure tight manhole and at least one no. pressure tight side hole for maintenance purposes.					
		b) Initial charge of Filter Media.					
		c) Complete underdrain system and raw water distributor as per manufacturer's design.					
		d) M.S. heavy class fabricated - epoxy coated / post galvanised face piping comprising of connections with CI Butterfly Valves of required size for inlet, outlet, backwash inlet, backwash drain and rinse drain. Air release line with GM Ball Valve of required size.					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
		e) Pressure gauges (100 mm dia bourdon type pressure gauge ) / Sampling points with SS isolation cocks at inlet and outlet.					
		f) All internal parts of the filtration plant shall be coated 6 mm thick natural rubber lining after thorough sand blasting. All external surfaces of the plant including piping shall be coated with epoxy primer followed by two coats of high gloss epoxy paint .					
		g) The filter shall be complete with all gaskets / fasteners of standard quality as required.					
		h) The filter shall be designed to give rated output at given raw water quality and flow rate without any operational problem and should not get any loss of performance as long as the operating pressure remains within the given range. Any additional provision is required to make the item complete, the same should be included herein. The work has to be carried through authorised vendor, dealer/representative of approved make (Ion exchange, Pollucon technologies, AKAR Impex, Thermax, Aquaprocess, Fontus). The filter water will be supplied to soft water tank through Softner.					
		Capacity - 200 LPM					
		Filtration rate - 20,000 lph/sqm ( min.)					
		Filter dia approx. 800 mm (min.)					
		Filter HOS Min. : 1200 mm (min.)					
		Working pressure : 3.0 Kg/sq cm.					
		Test pressure : 4.5 Kg/sq cm					
		No. of Filters :One working					



Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
	vi)	Providing and fixing, testing and commissioning M.S. Vertical Upflow "Cation" Ion Exchange water Softener fabricated in accordance with IS 2825 from minimum 6 mm thick M.S. plate on shell and minimum 8mm thick M.S. plate on dished ends as per applicable IS standards. The vessel shall be internally lined with 6.00 mm thick rubber, tested to 60 - 80 shore hardness, 15000 RMS volts spark test for continuity. The softener shall have :					
		a) Strainer plates at top and bottom with P.P. strainers with removable nuts and check nuts fixed on the plates.					
		b) GI/CPVC heavy class fabricated internally rubber lined face piping comprising of connections with CI Diaphragm Valves of required size for inlet, outlet, and rinse drain etc.					
		c) Regenration assembly comprising of power valve, ejector, brine suction valve, and all necessary piping incorporated into the main pipwork.					
		d) Pressure gauges (100 mm dia bourdon type pressure gauge ) / Sampling points with SS isolation cocks at inlet and outlet.					
		e) All external surfaces of the plant including piping shall be coated with epoxy primer followed by two coats of high gloss epoxy paint .					
		f) The softener shall be complete with all gaskets / fasteners of standard quality as required.					
		g) Initial charge of Ion Exchange resin.					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
		h) The softener shall be designed to give rated output at given raw water quality and flow rate without any operational problem and should not get any loss of performance as long as the operating pressure remains within the given range. Any additional provision is required to make the item complete, the same should be included herein.					
		i) M.S. rubber lined vertical, cylindrical self supporting open tank for salt mixing and brine saturation with air agitation arrangement comprising of G. I. heavy class air distributor laid at the bottom of tank, roots type air blower complete in all respects of suitable capacity to agitate the required quantity of brine, piping interconnection between air blower and air distributor. The brine tank to have nozzles for outlet, overflow and drain. Outside finished with high gloss enamel paint over two coats of zinc chromate primer complete including testing and commissioning. Net usable capacity of the tank excluding free board etc., should be at least 10 % more than actual capacity required.					
		Capacity of softening plant : 200 LPM					
		Raw Hardness : 700-1600 mg/l.					
		Regeneration period 8 hrs.					
		Quantity of soft water between two regenerations = 100KL					
		Approximate Dia = 900 mm, HOS 1200 mm (min.) or as required					
		Type of Resin : Strongly acidic cation resin					
		Make of Resin : Ion Exchange / Rohm & Haas					
		Min. qty. of resin : 250 Ltrs.					
		Operating pressure : 3.0 kg/sqcm					
		Test pressure : 5.50 kg/sqcm (Set-1)					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
		No. of Softner- 1 no. working Soft water quality: Commercial zero hardness(less than 4 ppm)					
	vii)	Providing and fixing G.I.pipes/CPVC pipes to I.S. 3589/1239 <b>(Heavy class)</b> with G.I./CPVC Fittings e.g., Tee, elbow reducers, unions, end cap etc., flanges & clamps, including supporting the pipes with G.I. supports, cutting and making good the walls etc. complete. For Suction & Delivery headers.					
		50/65 mm dia ( min.) ( Interconnection between units )/ Drain lines etc. as per plant room requirement. (All piping and fitting of required size inside the plant room included in the item)					
	viii)	Painting G.I./CPVC pipes with two or more coats of synthetic enamel paint of approved quality and shade over a coat of approved priming coat as directed by the Project-in-charge (shade as per pipe colour code). 65 mm dia (min.) (as per required length)					
		Complete W.T.P/softner as mentioned above including testing, training and trial run till comissioning of W.T.P. (Soft water/domestic use)	set	1.00			

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
11.10	NS	Providing and fixing of <b>OxiLyte (Mixed Oxidant) Generation System</b> , based on ECA Technology, producing non toxic mixed Oxidant Slution at 1000 ppm of Oxidant Concentration or any other approved disinfection method excepted by HSCC. The solution should be at a pH 3+-0.5 suitable for 24x7 operations should produce 720L per day. The system should be supplied complete with appropriate dosing pumps , valves, piping, fittings, chemical dosing tank etc. shope drawing complete in all respect.	set	2.00			
<b>Subtotal (Water treatment Plant,Pump and Equipment)</b>							
<b>12.00</b>	NS	<b>WATER SUPPLY PUMP PANEL</b> Supply, installation, testing and commissioning of following M.V. cubicle type totally enclosed, wall mounted type, dust, damp and vermin proof, indoor type Distribution Board/Panel complete with busbars, M.V. danger notice plate, interconnections with suitable capacity aluminium leads/solid aluminium strips/rods, connection of incoming and outgoing cables with thimbles, powder coat painted and having following incoming and outgoing switchgears complete as required. Panel shall have IP-42 protection.  INCOMER : 125 Amp 415 volts, 35 KA (Isc), FP MCCB with e/f protectionthermal magnetic release having variable current settings of 0.8 to 1.0 In. R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
		1 no. 0 to 500 V Digital voltmeter with selector switch					
		1 to 0 to 125 Amps Digital ammeter with selector switch with one set of 125/5A C.T. s					
		BUSBARS :					
		160 Amp TPN busbars of aluminium					
		OUTGOINGS :					
i		1 Sets of following ( For Submersible Drainage Pump)					
		1 No. 63 Amp. 415/500 volts,25 KA, TPN, Moulded Case Circuit Breaker with variable current setting of 0.8 to 1.0					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
		1 to 0 to 63 Amps Digital ammeter with selector switch with one set of 63/5A CT,s.					
		Neon indicating Lamps for "ON" , "OFF" & "TRIP" indication with 2A SP control MCBs.					
ii		4 Sets of following (2 For Raw Water Transfer Pump, Soft Water Transfer Pump)					
		1 No. 32 Amp. 415/500 volts,25 KA, TPN, Moulded Case Circuit Breaker with variable current setting of 0.8 to 1.0					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
		1 to 0 to 32 Amps Digital ammeter with selector switch with one set of 32/5A CT,s.					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
		Neon indicating Lamps for "ON" , "OFF" & "TRIP" indication with 2A SP control MCBs.					
iii		6 Set of following (2 for Soft Water, 2 for Treated Water Transfer Pump,2 for Filter Feed Pump) 1 No. 25 Amp. 415/500 volts,25 KA, TPN, Moulded Case Circuit Breaker with variable current setting of 0.8 to 1.0					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
		Neon indicating Lamps for "ON" and "OFF" indication with 2A SP control MCBs.					
iii		2 Set of following (for Submersible Drainage Pump) 1 No. 16 Amp. 415/500 volts,25 KA, TPN, Moulded Case Circuit Breaker with variable current setting of 0.8 to 1.0					
		Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
		Neon indicating Lamps for "ON" and "OFF" indication with 2A SP control MCBs.					
		WATER SUPPLY PUMP Panel as mentioned above	Set	1.00			
<b>12.01</b>		<b>STARTERS FOR THE WATER PUMPS</b>					
		For Submersible Drainage Pump					

Name of Work:BOQ of Plumbing work of SuperSpeciality Block,Tanda							
Sl. No.	DSR-2007 No.	Description of Item	Unit	Total Qty.	Rate in figures(in Rs.)	Rate in words(in Rupees)	Amount in figures(in Rs.)
1	2	3	4	5	6	7	8
		1 No. 3 Phase, fully automatic star-delta starter of 12.5 HP with thermal overload relay, Timer, Push Buttons, Single Phase Preventer, Ammeter,ASS, CT's and Auto-manual selector switch etc complete as required.	Each	1.00			
		4 Sets of following (2 For Raw Water Transfer Pump, Soft Water Transfer Pump)					
		1 No. 3 Phase, DOL starter of 5 HP with thermal overload relay, Push Buttons, Single Phase Preventer and Switches etc complete as required.	Each	4.00			
		6 Set of following (2 for Soft Water, 2 for Treated Water Transfer Pump,2 for Filter Feed Pump)					
		1 No, DOL starter of 3 HP with thermal overload relay, Push Buttons, Single Phase Preventer and Switches etc complete as required.	Each	6.00			
		2 Set of following (for Submersible Drainage Pump)					
		1 No, DOL starter of 1 HP with thermal overload relay, Push Buttons, Single Phase Preventer and Switches etc complete as required.	Each	2.00			
		<b>Sub Total (Water Supply Electrical Panel)</b>					

**ABSTRACT**

**Name of Work:BOQ of Plumbing work of Super speciality Block,Tanda**

<b>S.No.</b>	<b>DESCRIPTION</b>	<b>Amount</b>
A	<b>INTERNAL PLUMBING ,</b>	
1.00	SANITARY FIXTURES	
2.00	SOIL, WASTE AND VENT PIPES	
3.00	WATER SUPPLY	
4.00	SEWERAGE AND DRAINAGE	
5.00	EARTH WORK	
B	<b>EXTERNAL PLUMBING ,</b>	
6.00	EXTERNAL WATER SUPPLY	
7.00	RAIN WATER PIPING	
8.00	BOREWELL	
9.00	RAIN WATER HARVESTING	
10.00	SOLAR WATER HEATING SYSTEM & RECIRCULATING SYSTEM	
11.00	WATER TREATMENT PLANT ,PUMP & EQUIPMENT	
12.00	WATER SUPPLY ELECTRICAL PANEL	
	<b>TOTAL</b>	



# FIRE-FIGHTING WORKS

PROJECT NAME: SSB at Dr. Rajendra Govt. Medical College, Kangra Tanda HP						
Detailed BOQ for Fire Fighting Works						
Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
1.00	<b>FIRE FIGHTING SYSTEM</b>					
1.01	Providing and laying S&S Centrifugally Cast (Spun) / Ductile Iron Pipes conforming to IS : 8329 :					
1.01.1	150 mm dia Ductile Iron Double Flanged	Metre	400.0			
1.02	Providing and laying D.I. specials of class K-12 suitable for push-on jointing as per IS : 9523					
1.02.1	Upto 600 mm dia	quintal	17.0			
1.03	Providing push-on-joints to Centrifugally (Spun) Cast Iron Pipes or Ductile Iron Pipes including testing of joints and including the cost of rubber gasket :					
1.03.1	150 mm dia pipes	joints	130.0			

Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
1.04	Excavating trenches of required width for pipes, cables etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5m including getting out the excavated soil, and then returning the soil as required, inlayers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed within a lead of 50 m					
1.04.1	Pipes, cables etc exceeding 80 mm dia but not exceeding 300 mm dia	Metre	400.0			
1.05	Providing, fixing jointing and testing of Heavy (class -C) G.I. pipes as per relevant IS :1239/4736 with special accessories like tees, elbow, gesket, flanges, flanged joints, rubber insertion nuts and bolts including earth work excavatin and trenching, wrapping pipekot 4mm thick 500mm width tar based plymaric corrosion protection tape or equivalent suitable to GI/ MS pipe line including applying uniform coat of cold pipekot primer complete 1 m below the ground level, refilling in layers not exeeding 20 cm in depth consolidated each deposited layer by ramming & watering complete in all respect as pe IS : 1022 (Under ground )					
a)	150 mm dia G.I. Pipe with flange joints (5.4 mm wall thickness)	Metre	10.0			
b)	80 mm dia G.I. Pipe with flange joints	Metre	10.0			

Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
1.06	Heavy class G.I. pipes conforming to IS with accessories like tees, elbows, flanged joints, rubber insertion, nuts, bolts or welded joints including fixing the pipe with suitable flat iron strip clamps/brackets, structural members, dash fastener , cutting hole and chases in walls, floor, R.C.C. slab etc. and making good the same, including painting pipes and fittings with a primer coat of steel primer and two coats of postal red enamel paint etc. complete as required. (All the fitting i.e. tee /elbow, Valve shall be joint the pumps will flanged joints)					
a)	200 mm dia (with Flanged joints)	Metre	20.0			
b)	150 mm dia (with Flanged joints)	Metre	500.0			
c)	100 mm dia (with Flanged joints)	Metre	150.0			
d)	80 mm dia	Metre	80.0			
e)	65 mm dia	Metre	350.0			
f)	50 mm dia	Metre	350.0			
g)	40 mm dia	Metre	250.0			
h)	32 mm dia	Metre	300.0			
i)	25 mm dia	Metre	3100.0			

Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
1.07	Providing and fixing Single headed hydrants flanged inlet with 63 mm female instantaneous outlet of gunmetal complete with male blank caps, chains conforming to IS:5290 type A with stainless steel orifice plate (if required) to keep the pressure not more than 3.5 kg/sq.cm at any point.	Each	21.0			
1.08	Providing 63mm dia 15 m long reinforced rubber lined hose pipe conforming to IS: 636-1992 Part-II with gunmetal male & female coupling wire wound with pipe as required.	Each	28.0			
1.09	Providing and fixing 63mm dia 15 m long canvas hose pipe complete with gunmetal male & female coupling wire wound with the pipe The pipe shall confirm to IS: 4927.	Each	14.0			
1. 10	Providing and fixing Gunmetal branch pipe with 20mm dia nozzle conforming to IS:903. suitable for installation connections to hose coupling etc. as required.	Each	21.0			

Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
1.11	Providing and fixing Four way fire brigade connection housed in steel cabinet of size 900mm x 750mm x 400mm fabricated from 1.5mm thick M.S. sheet having lockable arrangement, openable glazed door with 4mm thick glass, including painting a coat of steel primer and two coats of postal red enamel paint, with necessary supports for the cabinet etc. with 150 mm dia. non return and butterfly valves complete in all respects.					
a)	4 Way - 150mm dia	Each	1.0			
1.12	Providing and fixing Set of "Siamese" quadraplet instantaneous fire brigade connections comprising of two gunmetal instantaneous male inlet coupling 63mm dia with plug and cap, chain bends, tees etc for inlet to the static tank.	Each	1.0			
1.13	Providing & Fixing 150 mm dia, 4 way suction coupling for firebrigade withdrawal of water from the fire tank	Each	1.0			

Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
1.14	Providing and fixing glazed door shutter and frame for Fire hose cabinet with hold fasts ( frame fabricated from 40 x 40 x 5mm and shutter from angle) 2100 mm high x 1200 mm wide x 600mm deep with locking arrangement, 4mm thick glass with M.S. flats including all accessories, painting with one coat of steel primer and two coats of postal red enamel paint complete as per drawing and as directed. The words " hose cabinet" to be painted on the box complete in all respects.	Each	14.0			
1.15	Providing and fixing Weather proof standard stand post type hose cabinet (900mm x 750 mm x 400 mm) out door type made of 1.5mm thick M.S. sheet having central opening glazed door with 4mm thick glass suitable for accommodating hydrants, 2 Nos. canvas hose pipe and branch pipe including necessary locking arrangements, painting one coat of primer and two coats of postal red enamel paint.. The shutters are to be lockable type. The words " hose cabinet" to be painted on the box.	Each	7.0			

Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
1.16	Providing and fixing cast iron body IS: 210 FG 220 and double flange gear simple operation type butterfly valve conforming to IS: 13095 with SS304 disc and shaft NITNLE rubber replaceable seat of the following size complete with bolts, nuts, washers and rubber insertions as per specification.					
a)	150 mm dia	Each	21.0			
b)	80 mm dia	Each	6.0			
1.17	Supplying, testing, installation & commissioning of pressure switches for pumps including necessary wiring upto the control panel.	Each	14.0			
1.18	Constructing masonry chamber 90x90x100 cm, inside with 75 class designation brick work in cement mortar 1:4 (1 cement: 4 fine sand) for sluice valve, with C.I. surface box 100mm top diameter, 160mm bottom diameter and 180mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick finished with a floating coat of neat cement complete as per standard design.					



Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
	with F.P.S. bricks	Each	4.0			
1.19	Supplying and Fixing <b>First Aid Hose Reel</b> , wall mounting swinging type complete with drum & bracket of MS construction, spray painted in Post office Red, confirming to IS 884/1995 with upto date amendments, complete with the following as required.					
	36 Meter long 20 mm dia water hose Thermoplastic (Textile reinforced) Type - 2 as per IS : 12585					
	20 mm dia gun metal ball valve & nozzle.					
	Drum and brackets for fixing the equipments on wall.					
	Connection from riser with stop valve (gun metal) & M.S. Pipe	Each	14.0			
1. 20	Providing and fixing C.I. sluice valves (With cap) of approved quality complete with bolts, nuts, rubber insertions etc. ( the tail pieces if required will be paid separately ) Class II					
a)	200 mm dia	Each	1.0			
b)	150 mm dia	Each	4.0			

Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
1.1	Supply, Installation, Testing and Commissioning of 100 mm dia Bourden type, Stainless Steel dial type <b>Pressure Gauge</b> including brass isolation valve and siphon pipe having caliberation of 0 - 16 Kg / cm <sup>2</sup> .	Each	19.0			
1.22	Supplying and Fixing of Fire Man's axe with heavy insulated rubber as per standard conforming to IS 926	Each	14.0			
1.23	Supplying and Fixing vane type waterflow switch with contacts suitable for installation on 50 mm to 150 mm dia pipeline for a service pressure upto 20 Kg/sq.cm.	Each	20.0			
1.24	Providing, Fixing, Testing and Commissioning of <b>Sprinkler Installation Control Valve</b> of Cast iron body and brass / bronze working parts comprising of water motor, alarm, bronze seat clapper and clapper arm, hydraulically driven mechanical gong bell to sound continuous alarm when the Sprinkler system activates, pressure gauges, emergency releases, strainer, pressure switch, cock valve complete with drain valve and bypass, test control box, ball valves, MS pipe of required size, flanges, orifice plate, gasket etc. of size 200/150 mm dia, as required.	Each	1.0			

Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
1.25	Providing and Fixing 15 mm dia gunmetal / brass quartzoid type <b>Sprinkler Head</b> with quartz bulb and set to operate at specified temperature.					
a)	Pendent / Upright type, 68 C, Chrome plated	Each	1500.0			
b)	Side wall extended throw 20 mm dia 68 C, Chrome plated	Each	50.0			
1.26	Fabricating, Supplying, Installation, Testing and Commissioning <b>Air Vessel</b> of continuous welded construction with flanged discharge header on the top of each riser fabricated out of 10 mm thick dished ends and 8 mm thick MS sheet, Air Release Valve complete with suitable drain arrangement with 25 mm dia gun metal wheel valve complete with all accessories etc. as required of the following sizes					
a)	1.2 Metre high and 250 mm dia	Each	2.0			

Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
1.27	Supply, Installation, Testing and Commissioning <b>External Yard Hydrant Stand Post</b> comprising of GI pipe 80 mm dia (heavy duty C class) from existing ringmain to about 1 meter above ground level and Single Headed Yard Hydrant Valve with 80 mm dia flanged inlet, instantaneous gunmetal coupling of 63 mm dia with cast iron wheel ISI marked, conforming to IS : 5290 (Type A), with ABS cap and chain etc.complete with all accessories as required.	Each	7.0			
1.28	Providing and placing on terrace polyethylene water storage tank ISI : 12701 MARKED indicating the BIS license No with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	Ltrs	20000.0			
1.29	Supply, erection, testing & commissioning of exit glow sign board of size 200mm x 350 mm wall mounting signage consisting of photo luminescent coating on acrylic cover	Each	50.0			

Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
1. 30	Providing and fixing fire extinguisher of carbon dioxide type consisting of brand new high pressure steel cylinder bearing IS: 7285 mark and having the approval of controller of explosives Nagpur, wheel type valve bearing IS:3224 mark internal discharge tube, 1 meter long high pressure discharge hose, non conducting horn, suspension bracket, fully charged bearing IS: making fixed to wall as directed.					
a)	4.5kg capacity cylinder	Each	14.0			
1.31	Providing and fixing 9 liters capacity fire extinguisher water type gas pressure conforming to IS marking, fixed to wall.	Each	14.0			
1.32	Providing and fixing ABC type fire extinguishers complete in all respects.					
a)	Capacity 5.0 Kg.	Each	14.0			
1.33	Fabricating, Supplying, Installation, Testing and Commissioning <b>Air Vessel</b> of continuous welded construction with flanged discharge header in pump house fabricated out of 10 mm thick dished ends and 8 mm thick MS sheet, Air Release Valve, complete with drain arrangement with 25 mm dia gun metal wheel valve complete with all accessories etc. as required of the following sizes					

Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
a)	2 Metre high and 450 mm dia suitable to operate Jockey Pump, Main Fire Pump & Diesel Engine Driven Fire Pump	Each	1.0			
1. 34	Providing and fixing C.I. non-return valve complete with gunmetal seat, bolts, nuts washer & rubber insertions as required conforming to IS:5312.					
a)	150 mm dia	Each	4.0			
b)	80 mm dia	Each	1.0			
1.35	Supplying, installing, testing and commissioning of <b>electric driven fire pump</b> suitable for automatic operation consisting of the following (as per CPWD specification Part V-1985 for Fire Fighting and its amendments) (For Hydrant system & Sprinkler system).					

Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
a)	Fire pump with stainless steel impeller, CI casing, SS shaft & mechanical seal shall be horizontal split casing centrifugal suction type multistage having following capacity and head so as to ensure a minimum pressure of 3.0 kg per square cm. at the highest and farthest out let at the specified flow complete with necessary strainer / foot valve suction side and pressure gauge on the delivery side including by pass arrangement for periodical testing of the working of the pumping set as required. The pump shall be provided with mechanical seals.					
b)	Squirrel cage type TEFC motor suitable for operation on 415V, 10%, 3 phases 50 Hz. system of suitable HP for the above pump with synchronous speed of 1500 RPM and flexible coupling. The pump motor should conform to IS: 325-1978.					
c)	Common bed plate fabricated from mild steel channel or cast iron type.					
d)	Suitable cement concrete pump foundation & vibration damping arrangement with cushy foot mounting as required.					
l)	Capacity 2280 LPM and Head 75 Metres	Each	2.0			

Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
1.36	Supplying, installing, testing and commissioning of <b>diesel engine driven fire pump</b> suitable for automatic operation consisting of the following (as per CPWD specifications PartV 1985.) (For Hydrant system & Sprinkler system).					
a)	Horizontal centrifugal type multi-stage, fire pump with stainless steel impeller CI casing, SS shaft & mechanical seal complete of following capacity and Head so as to ensure a minimum pressure of 3.0 kg per sq.cm. at the highest & farthest outlet at the specified flow, complete with necessary strainer pressure gauge on the delivery side etc. including by pass arrangement for periodical testing of the working of the pump set as required. The pump shall be provided with mechanical seals.					



Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
b)	Water cooled cold starting type multi cylinder 4 stroke diesel engine, developing suitable BHP at 1500 RPM for the above pump set with automatic starting mechanism, cooling system shall be with radial cool engine, maintenance free batteries, battery charge unit, flexible coupling with the pump, common bed plate for mounting diesel engine fuel day tank fuel piping and pump and vibration damping arrangement by cushy foot mounting as required complete in all respects.					
c)	The engine shall be capable to drive the pump at 150% rated discharge at 65% head and shall be suitable for 10% overload capacity for one hour in any period of 12 hrs. continuous run.					
d)	Common bed plate fabricated from mild steel channel or cast iron type.					
e)	Isolation Valve					
f)	Suitable cement concrete pump foundation & vibration damping arrangement with cushy foot mounting as required.					
l)	Capacity 2280 LPM and Head 75 Metres	Each	1.0			

Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
1.37	Supplying, installation, testing and periodic commissioning of <b>electric motor driven automatic pressurization pump</b> set consisting of the following (as per specification) (For Hydrant system & Sprinkler system).					
a)	Centrifugal pump of <b>180 LPM</b> capacity capable of building up pressure lost in any leakage in the system against atotal head (mentioned as under) complete with C.I. casing stainless steel impellor ; mechanical seal & S.S. shaft necessary strainer, pressure gauge on delivery side etc. including by-pass arrangement for testing of the working of the pumping set					
b)	Squirrel cage A.C. induction motor suitable for operation on 415 V, 10% 3 phase 50 Hz. A.C. supply and of minimum 7.5 HP,1500 RPM, for the above pump with flexible coupling as per specification and conforming to IS: 325/ 1978 and shall be TFFC type.					
c)	Common bed plate fabricated from mild steel channel or cast iron type.					
d)	Suitable cement concrete pump foundation with vibration damping arrangement with cushy foot or similar mounting as per required.					
l)	<b>Head - 75 Metres</b>	Each	1.0			

Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
1. 38	Providing & fixing puddle flanged including 40 cm long GI pipe piece welded / threaded with MS plates 450x450x6mm thick with both end screwed / flanged					
a)	For 80 mm dia pipe	Each	2.0			
b)	for 150 mm dia pipe	Each	2.0			
c)	for 200 mm dia pipe	Each	2.0			
1.39	Supplying, installing, testing and commissioning of electric motor driven type automatic pressurisation, pump set suitable for automatic operation of terrace down comer and consisting of the following (as per CPWD specifications Part V-1985) for fire fighting and its amendmends).					

Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
a	Fire pump with stainless steel impeller CI casing, SS shaft shall be horizontal end suction centrifugally type having a capacity of <b>900 LPM</b> against a total head of <b>35m</b> so as to ensure a minimum pressure of 3.0 kg/sqm at the highest and farthest out at the specified flow complete with necessary strainer with foot valve in suction side and pressure gauge on the delivery side including bypass arrangement for periodic testing of the working of the pumping set as required. The pump shall be provided with mechanical seals.(Including taking necessary approval of complete fire fighting scheme from local fire authority before and after start of work) {Agency also has to submit characterstic curve of the pumps, model & other technical data for approval before placing the order}					
b	Squirrel cage AC induction motor suitable fot operation of 415 V ,+/-10%, 3 phase 50 HZ, AC supply and of minimum 7.5 HP,1500 RPM for the above pump with flexible coupling as per spwcification and conforming to IS 325-1978 and shall be TEFC type only					
c	Common base plate fabricated from mild steel channel ot castiron type					
d	Suitable cement concrete pump foundation with vibration damping arrangememnt with cushy foot mounting as required	set	2.0			

Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)

Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
<b>B</b>	<b>Fire Fighting PANEL(Electical )</b>					
<b>1.40</b>	<b>FIRE PANEL Emergency</b>					
	Supply, installation, testing and commissioning of following M.V. cubicle type totally enclosed, wall mounted type, dust, damp and vermin proof, indoor type Distribution Board/Panel complete with busbars, M.V. danger notice plate, interconnections with suitable capacity aluminium leads/solid aluminium strips/rods, connection of incoming and outgoing cables with thimbles, powder coat painted and having following incoming and outgoing switchgears complete as required. Panel shall have IP-42 protection.					
	<b>INCOMER :</b>					
	400 Amp 415 volts, 35 KA (Isc), FP MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In.					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 no. 0 to 500 V Digital voltmeter with selectot switch					

Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
	1 to 0 to 400 Amps Digital ammeter with selector switch with one set of 400/5A C.T.s					
	<b>BUSBARS :</b>					
	500 Amp TPN busbars of aluminium					
	<b>OUTGOINGS :</b>					
	<b>2 Sets of following</b>					
	1 No. 200 Amp. 415/500 volts,35 KA, TPN, Moulded Case Circuit Breaker with variable current setting of 0.8 to 1.0					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 3 Phase, fully automatic star-delta starter of 75 HP with thermal overload relay, Timer, Push Buttons and Auto-manual selector switch etc complete as required.					
	Single Phase preventer					
	1 to 0 to 200 Amps Digital ammeter with selector switch with one set of 200/5A CT,s.					
	1 Set of phase indicating lamp with 2A SP control MCBs					
	Neon indicating Lamps for "ON" , "OFF" & "TRIP" indication with 2A SP control MCBs.					
	<b>1 Sets of following</b>					
	1 No. 40 Amp. 415/500 volts,25 KA, TPN, Moulded Case Circuit Breaker with variable current setting of 0.8 to 1.0					

Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 3 Phase, DOL starter of 7.5 HP with thermal overload relay, Push Buttons and Switches etc complete as required.					
	Single Phase preventer					
	1 Set of phase indicating lamp with 2A SP control MCBs					
	Neon indicating Lamps for "ON" , "OFF" & "TRIP" indication with 2A SP control MCBs.					
	<b>1 Sets of following</b>					
	1 No. 32 Amp. 415/500 volts,25 KA, TPN, Moulded Case Circuit Breaker with variable current setting of 0.8 to 1.0					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 3 Phase, DOL starter of 5 HP with thermal overload relay, Push Buttons and Switches etc complete as required.					
	Single Phase preventer					
	1 Set of phase indicating lamp with 2A SP control MCBs					
	Neon indicating Lamps for "ON" , "OFF" & "TRIP" indication with 2A SP control MCBs.					
	<b>1 Set of following (in a separate cubicle)</b>					



Item No	Description Of Item	Unit	Qty.	Rate(Rs) in figures	Rate(Rs) in words	Amount in figures (Rs.)
	One no. Diesel engine auto starting kit with all necessary relay, controls, wiring etc to start 75 HP diesel engine when electrical driven fire pump fail to start.					
	One no rectifier circuit, battery charger, batteries, DC Voltmeter, DC Ammeter etc.					
	<b>FIRE PUMP Panel as mentioned above</b>	Set	1.00			

**PROJECT NAME: SSB at Dr. Rajendra Govt. Medical College, Kangra Tanda HP**

**ABSTRACT OF COST**

<b>S.No</b>	<b>DESCRIPTION OF WORK</b>	<b>Amount in figures (Rs)</b>	<b>Amount in words (Rs)</b>
<b>1</b>	<b>FIRE FIGHTING</b>		

# ELECTRICAL WORKS

**BILL OF QUANTITIES FOR THE ELECTRICAL WORKS OF SSB, TANDA.**

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
<b>1.00</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
<b>1.00</b>	<b>SUBHEAD 1: H.T. SUB STATION SUBSTATION EQUIPMENTS</b>					
1.01	<b>HT Panel, (Main)</b> Supply, erection, testing and commissioning of 5 panel, 630A, 11 kV, 3 Phase, 50 Hz., metal clad, dead front, 350 MVA rupturing capacity Vacuum Circuit Breaker Incoming & Outgoings as per the detailed specifications and drawings including connections etc. complete with following in-comers and out-goings including door interlocking panel should be expendable type complete as per technical specifications and as required.					
A.	<b>INCOMER :</b>					
i)	<b>2 No. VCB having following</b>					
	1 No. 630A, 11kV, 3 Phase, 50Hz., metal clad, dead front, 350 MVA rupturing capacity, Fully Drawout type, Vacuum Circuit Breaker (VCB)					
	1 set of 11kV/110V Potential Transformers with HRC fuses					
	1 Set of Phase indicating lamps with HRC fuses					
	1 No. 0-15 kV Digital voltmeter with selector switch					
	1 set of indicating lamps to indicate OPEN, CLOSE, TRIP, SPRING CHARGED, TRIP CIRCUIT HEALTHY					
	Push button for ON, OFF, TRIP & TRIP circuit healthy					
	1 set of 150/5-5A Current Transformer for metering and protection					
	1 No. 0-200 digital Amps ammeter with selector switch					
	1 Set of CDG 61 (2 No. O/C, 1 No. E/F) relay					
	Digital frequency meter, Digital Tri vector meter.					
	1 Set of undervoltage relay and Overvoltage relay					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	Trip circuit supervision relay,Auxiliary relays with shunt trip coil					
	1 No. Master Trip relay					
	1 No. Digital Power factor meter					
	<b>BUSBARS :</b>					
	11kV, 350 MVA, 630 Amps Three Phase busbars of aluminium					
	<b>B. OUTGOINGS :</b>					
	<b>2 No. VCB each having following</b>					
	1 No. 630A, 11kV, 3 Phase, 50Hz., metal clad, dead front, 350 MVA rupturing capacity, Fully Drawout type, Vacuum Circuit Breaker (VCB)					
	1 set of 11kV/110V Potential Transformers with HRC fuses					
	1 Set of Phase indicating lamps with HRC fuses					
	1 No. 0-15 kV Digital voltmeter with selector switch					
	1 set of indicating lamps to indicate OPEN, CLOSE, TRIP, SPRING CHARGED, TRIP CIRCUIT HEALTHY					
	Push button for ON, OFF, TRIP&TRIP circuit healthy					
	1 No. Digital ammeter with selector switch and one set of C.T. (Rating as per SLD)					
	1 Set of CDG 61 (2 No. O/C, 1 No. E/F) relay					
	Digital frequency meter, Digital Tri vector meter.					
	1 Set of undervoltage relay and Overvoltage relay					
	Trip circuit supervision relay,Auxiliary relays with shunt trip coil					
	1 No. Master Trip relay					
	1 No. Digital Power factor meter					
	<b>Bus Coupler</b>					
	<b>1 No. VCB having following:</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	1 No. 630A, 11kV, 3 Phase, 50Hz., metal clad, dead front, 350 MVA rupturing capacity, Fully Drawout type, Vacuum Circuit Breaker (VCB)					
	1 set of 11kV/110V Potential Transformers with HRC fuses					
	1 Set of Phase indicating lamps with HRC fuses					
	1 No. 0-15 kV Digital voltmeter with selector switch					
	1 set of indicating lamps to indicate OPEN, CLOSE, TRIP, SPRING CHARGED, TRIP CIRCUIT HEALTHY					
	Push button for ON, OFF, TRIP & TRIP circuit healthy					
	1 set of 630/5-5A Current Transformer for metering and protection					
	1 No. 0-630 digital Amps ammeter with selector switch					
	<b>HT Panel as mentioned above</b>	1	Set			
1.02	<b>TRANSFORMER</b>					
	Supply, installation, testing and commissioning of <b>1600 kVA</b> , 11/0.433 kV, 3 Phase, 4 wire, 50 Hz., ON-AN Transformer for outdoor duty with a -15% to +5% on-load tap changer in the step of 1.25% with RTCC panel, cable box at primary and secondary end shall be connected through busduct, with double float buchholz relay protection, high winding temperature sensors, suitable earth leakage relay using CT at neutral earthing conductor with control cabling from transformer to HT Breaker (to trip primary breaker) complete with all fittings, interconnection of control cables and accessories, first filling of oil as per detailed technical specifications and as required.	2	Each			
1.03	<b>BATTERY CHARGER PANEL</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	Supply, erection, testing and commissioning of the battery charger panel complete with battery, control cabling etc. as required. Capacity of battery charger suitable for above mentioned H.T. Panels.					
	Sealed Maintenance Free (SMF) battery of suitable ampere-hour capacity for above 11kV VCB panels in HT Panel Room of the building as specified above.					
	Boost and Trickle charger suitable for above items.					
	1 No. AC Voltmeter (0-500Volt)					
	1 No. DC Voltmeter					
	1 No. DC Ammeter					
	1 set of AC and DC indicating lamps					
	1 No. DC Battery charging position indicator					
	DC distribution board suitable for above application to incoming & outgoing MCBs include tripping, closing and indication etc.					
	Control cabling between DC Distribution panel to the HT panel of the Substation with suitable core 1.5 sqmm copper cable	1	Each			
1.04	<b>BUS DUCTS</b>					
	i) Supply, Installation, testing and commissioning of <b>2500 A</b> phase and neutral TPN, 415 V, 3 Phase, 4 Wire, sandwich construction Aluminium Bus Duct including bends, flexible joints, earth bus (2 runs of aluminium strips), supports for installation, supporting arrangements, etc. complete as per technical specifications and as required.	30	Mtrs			
1.05	<b>H.T. CABLE</b>					
	Supply of following sizes of 11 kV grade multicore aluminium conductor XLPE armoured power cable as per IS : 7098.					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
	i)	3 Core, 240 sq mm	200	Mtrs			
1.06		Laying of one number 3 core XLPE power cable of grade exceeding 1.1 KV but not exceeding 11KV of size exceeding 120 sqmm but not exceeding 400 Sqmm direct into ground including excavation, sand cushioning, protective covering and refilling the trench complete as required.	200	Mtrs			
1.07		Supplying and making end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size 3 Core, XLPE aluminium conductor cable of 11kV grade as required.					
	i)	240 sqmm	6	Each			
		<b>TOTAL FOR SUB HEAD 1: H.T. SUB STATION</b>					



S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	<b>SUB HEAD 2: MAIN LT PANEL.</b>					
<b>2.01</b>	<b>MAIN L.T. PANEL</b>					
	Supply, installation, testing and commissioning of LT Panel, cubicle type, totally enclosed, free standing type, dust, damp and vermin proof Panel made up of 14 SWG CRCA sheet, complete with aluminium busbars, danger notice plate, interconnections with suitable capacity aluminum leads/solid aluminum strips/rods, necessary interlocking, powder coat painted and having incoming and outgoing switchgears with cable alley in front as mentioned below and complete as per technical specifications and as required. The size of cable alley shall be sufficient enough to accomodate the cable sizes as mentioned in the SLD/ specifications/ drawings etc.					
	<b>Note :</b>					
	1. All ACBs shall have 5 NO + 5 NC contacts					
	2. All relays to operate at 240Volts, Single phase, 50Hz., AC supply through UPS. UPS is also in the scope of supply.					
A.	<b>INCOMER:</b>					
	i) <b>3 No. ACB Panels each having following:</b>					
	1 No. 2500A, 415/500V, Motorised, Fully Drawout type (EDO), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit & earth Fault trip including under voltage release and lockable trip push button. ACB should have Icw=Ics = 50 KA for 1 sec.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB					
	Push button to CLOSE the ACB.					
	R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	Digital multi function meter with one set of suitable CTs, CT shorting links, R/Y/B LED indicating lamps and 2A control SP MCBs					
	2500/5A CTs with CT shorting links for power factor improvement panel suitable for giving signal to APFCR at less than 10% of secondary ratio current					
B.	<b>BUSBARS :</b>					
	4000 Amps Phase TPN busbars of aluminium.					
C.	<b>BUS COUPLER :</b>					
	i) <b>1 No. ACB Panels each having following:</b>					
	1 No. 2500 A, 415/500V, Motorised, Fully Drawout type (EDO), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit, Instantaneous & earth Fault trip including under voltage release and lockable trip push button. The ACB should have I <sub>cw</sub> = I <sub>cs</sub> = 50KA for 1 sec.					
	1 set of indicating lamps to indicate OPEN, CLOSE, TRIP.					
	Push button to CLOSE the ACB.					
	1 Set of A meter with ASS and CTs.					
D.	<b>OUTGOING.</b>					
	i) <b>3 No. ACB Panels each having following:</b>					
	1250A, 415/500V, Fully Motorised, Fully Drawout type (EDO), TPN, Air Circuit Breaker with microprocessor based overload, short circuit, instantaneous & earth Fault trip including under voltage release and lockable trip push button. ACB should have I <sub>cw</sub> = I <sub>cs</sub> = 50 KA for 1 sec.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	Push button to CLOSE the ACB					
	R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
	<b>ii) 2 No. ACB Panels each having following:</b>					
	800 A, 415/500V, Fully Motorised, Fully Drawout type (EDO), TPN, Air Circuit Breaker with microprocessor based overload, short circuit, instantaneous & earth Fault trip including under voltage release and lockable trip push button. ACB should have $I_{cw}=I_{cs}= 50 \text{ KA}$ for 1 sec.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB					
	Push button to CLOSE the ACB					
	R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
	<b>iii) 2 Nos. MCCB as per following details / specifications:</b>					
	630 Amp 415 volts, 50 KA ( Ics) TPN MCCB with variable current settings of 0.4 to 1.0 In and having microprocessor based O/L, S/C & E/F protection release.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
	<b>iv) 5 Nos.MCCB as per following details/ specifications:</b>					
	400 Amp 415 volts, 50 KA (Ics), TPN microprocessor based MCCB with variable current settings of 0.4 to 1.0 In and having microprocessor based O/L, S/C & E/F protection release.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
	<b>v) 2 Nos. MCCB as per following details/ specifications:</b>					
	250 Amp 415 volts, 50 KA (Ics), TPN microprocessor based MCCB with variable settings of 0.4 to 1.0 In and having microprocessor based O/L, S/C & E/F protection release.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	Digital energy metre with CT					
	<b>vi) 2 Nos. MCCB as per following details/ specifications:</b>					
	200 Amp 415 volts, 50 KA (Isc), TPN MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
	<b>vii) 3 Nos. MCCB as per following details/ specifications:</b>					
	125 Amp 415 volts, 50 KA (Isc), TPN MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In.					
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
	<b>viii) 3 Nos. 63 Amp MCCB as per following specifications:</b>					
	63 Amp 415 volts, 50 KA (Isc), TPN MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In.					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB					
	Digital Ampere Metre of suitable range with suitable set of CT's and ASS.					
	Digital energy metre with CT					
	<b>Main LT Panel as mentioned above.</b>	1	Set			
<b>2.02</b>	<b>CAPACITOR PANEL</b>					
	Supply, installation, testing and commissioning of M.V. cubicle type totally enclosed free standing type, dust, damp and vermin proof Capacitor Panel complete with busbars, M.V. danger notice plate, ammeter, ammeter selector switch, indicating lamps, CT's, Extra heavy duty Capacitors suitable for non linear loads upto 20% (L&T model MD-XL or equivalent), contactors suitable for capacitor switching (current limiting contactor circuit to suppress switching inrush current) interconnections with suitable capacity aluminium leads/solid aluminium strips, rods, connection of incoming and outgoing cables with thimbles, stove enamelled painted and having following incoming and outgoing switchgears complete as required					
A.	<b>INCOMER :</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	1 No. 800A, 415/500V, Motorised, Fully Drawout type (EDO), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit & earth Fault trip including under voltage release and lockable trip push button. ACB should have I <sub>cw</sub> =I <sub>cs</sub> = 50 KA for 1 sec.					
	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP.					
	R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs					
	10 steps Intelligent microprocessor based Automatic Power factor Correction relay having measurement sensitivity of 1 %.					
	Extension of incoming busbars for connection of multicore armoured aluminium cables.					
	<b>B. METERING :</b>					
	1 set of digital Amp. Meter, digital Power factor meter and Digital voltmeter					
	<b>C. BUSBARS :</b>					
	1250 Amp FP busbars of aluminum					
	<b>D. OUTGOINGS :</b>					
	i) <b>1 Nos . MCCB as per following details/ specification:</b>					
	200 Amps, 415 volts, TP, Power Contactor suitable for capacitive switching including current limiting contactor circuit to suppress switching inrush current					
	ON/ OFF delay timers for switching capacitor circuit.					
	"ON" and "OFF" LED indicating lamp and 2A control SP MCBs					
	Push button for CLOSE and TRIP					
	Extended rotary operating mechanism					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	100 kVAR super heavy duty mix dielectric low loss Capacitors suitable for non linear loads upto 20% (L&T model MD-XL ultra or equivalent)					
	ii) <b>6 Nos . MCCB as per following details/ specification:</b>					
	100 Amps, 415 volts, TP, Power Contactor suitable for capacitive switching including current limiting contactor circuit to supress switching inrush current					
	ON/ OFF delay timers for switching capacitor circuit.					
	"ON" and "OFF" LED indicating lamp and 2A control SP MCBs					
	Push button for CLOSE and TRIP					
	Extended rotary operating mechanism					
	50 kVAR super heavy duty mix dielectric low loss Capacitors suitable for non linear loads upto 20% (L&T model MD-XL ultra or equivalent)					
	iii) <b>3 Nos . MCCB as per following details/ specification:</b>					
	63 Amps, 415 volts, TP, Power Contactor suitable for capacitive switching including current limiting contactor circuit to supress switching inrush current					
	ON/ OFF delay timers for switching capacitor circuit.					
	"ON" and "OFF" LED indicating lamp and 2A control SP MCBs					
	Push button for CLOSE and TRIP					
	Extended rotary operating mechanism					
	25 kVAR super heavy duty mix dielectric low loss Capacitors suitable for non linear loads upto 20% (L&T model MD-XL ultra or equivalent)					
	<b>Capacitor panel as mentioned above.</b>	2	Set			
	<b>SUB HEAD 2: MAIN LT PANEL. As mentioned above</b>					



S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	<b>SUB HEAD 3 : DG SETS</b>					
3.00	<b>DG Set and Accessories</b>					
3.01	<b>DG SET OF 750 KVA.</b>					
	Supply, installation, testing and commissioning of sound proof (silent type) Diesel Generating set having 750 KVA Prime Power Ratings , 415 volt at 1500 RPM, 0.8 power factor, suitable for 50 Hz, 3 phase system , suitable bhp, water cooled heat exchanger type diesel engine- alternator set mounted on common base frame, return fuel cooler, battery & battery charger, Anti Vibration mounting pads, Engine alternator safeties, electronic governor including all accessories & their wiring as per technical specification. This includes the following:					
	- Supplying and fixing of suitable sizes High class MS pipe for DG exhaust complete with bends, elbow, flanges etc including silencer and catalytic convertor exhaust pipe length 4 meter above the building top/ as per pollution control board norms and as required.					
	- Supply and fixing of 50mm thick compressed mineral wool insulation (Rock wool) for D.G. exhaust pipe with 22 gauge aluminium sheet cladding etc. as required for the under mentioned dia pipe.					
	- Supply, installation, testing and commissioning of suitable size fuel pipe for connecting diesel engine to individual day service tank including supply and fixing of required valves & filters etc. as required.					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	- Fabrication of supports for exhaust pipe, fuel pipe or for any other purpose out of suitable M.S. structural steel including supplying and applying of enamel paint of approved shade after one coat of steel primer of reputed company.					
	- Supplying and fixing of suitable capacity cable adapter box for alternator.					
	- Providing and fixing oil tank of 990 litres capacity complete with suitable M.S. fabricated MS stand oil level indicator gauge tank and stand duly painted, complete with float switches etc. as required.					
	- Supply, installation and testing of mild steel "C" class cooling water piping complete with fittings supports, strainers, valves etc. as per specifications and schematic drawings.					
	- Black mild steel pipe with all necessary fittings bends, tees, reducers, flanges, supports, hanger, isolators etc.					
	- Butterfly valves, Non-Return Valve, Pressure Gauge, Y strainer, or any other valve, etc as required.					
	- Heat Exchanger and cooling tower of suitable rating including interconnection of cooling tower with heat exchanger with suitable size pipes etc complete as required.					
	Supply intallation, testing and commissioning of 10 KL underground diesel tank including all related civil works, fencing, flame proof push buttons, starters, flame proof pumps for pumping diesel to the day tank complete with cabling, earthing,piping,float switch etc including necessary approvals from statutory authorities.					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	- Factory assembled Sound proof Canopy as per pollution control board requirement to achieve noise level desired during night condition, with base frame, doors, inspection window, fresh air supply fans, light fixtures for illumination with switch, two no. 15A power sockets, wiring for light fixtures and power sockets, etc.					
	- Any other item required for completion of system above (D.G. set)					
	<b>DG Set (750 KVA) as mentioned above.</b>	2	Set			
3.02	<b>SYNCHRONISING-CUM-AMF PANEL (for 2 nos. DG Sets mentioned above)</b>					
	Supply, installation, testing and commissioning of Synchronising Panel, M.V. cubicle type, totally enclosed, free standing type, dust, damp and vermin proof indoor type Panel made up of 14 SWG CRCA sheet, complete with aluminium busbars, M.V. danger notice plate, interconnections with suitable capacity aluminum leads/solid aluminum strips/rods, powder coat painted and having incoming and outgoing switchgears as mentioned below and complete as required.					
	Note :					
	1. All ACBs shall have 5 NO + 5 NC contacts					
	2. All relays to operate at 240Volts, Single phase, 50Hz., AC supply through UPS. UPS is also in the scope of supply.					
	3. Panel shall be suitable for manual synchronising & auto synchronising and automatic operation (AMF) for 2 nos. DG Set and shall be complete with 1 no. operator control & software with PC					
A.	<b>INCOMER :</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
i)	<b>2 Nos .ACB as per following details/ specification:</b>					
-	1250A, 415/500V, Fully Drawout type (EDO) (Breaking Capacity=50kA), Three Pole, Air Circuit Breaker with microprocessor based overload, short circuit & earth fault release. Neutral with separate suitable capacity contactor.					
-	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB					
-	Push button for CLOSE and TRIP with lock & key arrangement					
-	R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs					
-	Digital multi function meter with one set of suitable CTs, CT shorting links, R/Y/B LED indicating lamps and 2A cobntrol SP MCBs					
ii)	<b>BUSBARS :</b>					
-	2500 Amp FP busbars of aluminum					
B.	<b>OUTGOING :</b>					
i)	<b>1 Nos .ACB Panel consisting of the following</b>					
-	2500A, 415/500V, Fully Drawout type (EDO) (Breaking Capacity=50kA), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit & earth fault release					
-	Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for ACB					
-	Push button for CLOSE and TRIP with lock & key arrangement					
-	R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	- Digital multi function meter with one set of suitable CTs, CT shorting links, R/Y/B LED indicating lamps and 2A control SP MCBs					
	<b>C. SYNCHRONISING COMPONENTS :</b>					
	<b>Metering &amp; Indication :</b>					
	- Power and Energy Monitor					
	- Set running indicating lights : 230 volts AC-22mm dia					
	- Emergency stop push button 230 volts AC-22 mm dia					
	- Governor/AVR raise/lower joy stick					
	- 12 window annunciation with hooter, test accept & reset push button					
	- Motorised potential AVR					
	- Time Totalizer					
	<b>D. Manual Synchronising :</b>					
	- 144 mm sq. Double voltmeter(AC/DC)					
	- 144 mm sq. Double frequency meter					
	- 144 mm.sq. synchroscope					
	- Check Synchronizing relay					
	- Synchronizing switch					
	- Selector switch					
	- Dark and Bright lamps					
	- Breaker Control Switch					
	- Mode selector switch (Manual/Auto/stand alone)					
	- Engine Cranking Relay.					
	- Main supply voltage monitor, alternator voltmeter monitor and Engine Starting Relays					
	- Auxillary relays, timer, push button and control fuses.					
	- Timer for AMF Circuit (2 sets)					
	- DG Start/stop push button					
	- Auxillary relays for overspeed, low lub oil pressure (LLOP) & high water temperature					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	- 8 channel temperature controller for winding/bearing protection					
	- Pulsating cable required to connect field RTD's/PTC's to temperature scanners.					
	<b>E. Auto Synchronizing with PLC control</b>					
	- Voltage monitors for DG supply					
	- Voltage monitors for main supply					
	- Line synchronising module					
	- Windows based operator interface graphics software					
	- CPU (Allen Bradley/Siemens/ABB/Schnieder) with desk.					
	- EPROM (EP)					
	- On line synchronizing and Load sharing modules					
	- PLC Rack etc. & any other item required for proper functioning of the system.					
	- Digital I / O modules as required with sufficient spare for future provision					
	- Analog I / O modules as required with sufficient spare for future provision					
	- PL to PLC communication card					
	- PL to PLC communication cable					
	- Power supply module					
	- Auto load sharing and management relay					
	- 1kVA, Single phase input and single phase output, 240volts, 50 Hz., AC, Online UPS with inbuilt 30 minutes battery backup in form of sealed maintenance free batteries with power wiring to the control bus for power supply to relays. (To be installed inside the panel)					
	- PC with P-IV intel processor, 80GB hard disk, 1GB RAM, 15" TFT colour monitor, PCI-VGA card 2MB, DVD drive (reader & writer)					
	- Auxilliary relays for output command					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	- Set of Software for PLC in CD					
	- 1 Set mimic (SEM)					
	- Set of control MCBs					
	<b>F. DG PROTECTION AND AMF COMPONENTS:</b>					
	- Reverse power and Reactive power relay					
	- Over Voltage relay					
	- Under Voltage relay					
	- Over frequency relay					
	- Trip circuit supervision relay					
	- Master lockout relay					
	- Master trip/supervisory relay					
	- Battery charger (with trickle and boost charging).					
	- DC voltmeter and ammeter.					
	- DC ammeter.					
	- 8 window Alarm annunciator with separate hooter, accept, reset and rest push button.					
	- Hooter.					
	- Engine Cranking Relay.					
	- Main supply voltage monitor, alternator voltmeter monitor and Engine Starting Relays.					
	- Auxillary relays, timer, push button and control fuses.					
	- Phase sequence relay					
	<b>G. ENCLOSURE :</b>					
	- Fabrication, PVC Sleeving, Control/Power Wiring and necessary hardware for complete synchronisation and load sharing					
	<b>SYNCHRONISING-CUM-AMF PANEL (for 2 nos. DG Sets mentioned above)</b>	1	Set			
3.03	<b>BUS DUCTS</b>					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2		3	4	5	6	7
	i)	Supply, Installation, testing and commissioning of <b>2500 A</b> phase and neutral TPN, 415 V, 3 Phase, 4 Wire, sandwich construction Aluminium Bus Duct including bends, flexible joints, earth bus (2 runs of aluminium strips), supports for installation, supporting arrangements, etc. complete as per technical specifications and as required.	20	Mtrs			
	ii)	Supply, Installation, testing and commissioning of <b>1250 A</b> phase and neutral TPN, 415 V, 3 Phase, 4 Wire, sandwich construction Aluminium Bus Duct including bends, flexible joints, earth bus (2 runs of aluminium strips), supports for installation, supporting arrangements, etc. complete as per technical specifications and as required.	40	Mtrs			
		<b>TOTAL SUBHEAD 3: DG SETS</b>					



S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
4.00	<b>SUB HEAD 4 : MV PANELS</b>					
4.01	<b>MV PANELS</b>					
	Supply, installation, testing and commissioning of following: M.V. cubicle type totally enclosed, wall mounted type, dust, damp and vermin proof, indoor type Distribution Board/Panel complete with busbars, M.V. danger notice plate, interconnections with suitable capacity aluminium leads/solid aluminium strips/rods, connection of incoming and outgoing cables with thimbles, powder coat painted and having following incoming and outgoing switchgears complete as required.					
	i <b>MV panel 1 - Ground Floor :</b>					
	a) <b>INCOMER:</b>					
	1 no. 630 Amps , 415 volts, 35KA (lsc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V Digital voltmeter with selector switch.					
	1 No. 0 to 630 Amp Digital ammeter with selector switch with 630/5A C.T.'s.					
	b) <b>BUSBARS:</b>					
	800 Amp TPN Aluminium busbars					
	c) <b>OUTGOING:</b>					
	i) <b>4 Nos. MCCB as per following details / specifications:</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	200Amps,415 volts, TPN, 35 KA Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
	"ON" LED indicating lamp and 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	ii) <b>3 Nos. MCCB as per following details / specifications:</b>					
	125Amps,415 volts, TPN, 35 KA Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
	"ON" LED indicating lamp and 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	iii) 7 No. 40 Amp 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker.					
	iv) 4 No. 32 Amp 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker.					
	<b>MV panel 1 - Ground Floor as mentioned above :</b>	1	Set			
	ii <b>MV panel 2 - Ground Floor :</b>					
	a) <b>INCOMER:</b>					
	1 no. 400 Amps , 415 volts, 35KA (lsc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V Digital voltmeter with selector switch.					
	1 No. 0 to 400 Amp Digital ammeter with selector switch with 400/5A C.T.'s.					
	b) <b>BUSBARS:</b>					
	500 Amp TPN Aluminium busbars					
	c) <b>OUTGOING:</b>					
	i) <b>7Nos. MCCB as per following details / specifications:</b>					
	125Amps,415 volts, TPN, 35 KA Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
	"ON" LED indicating lamp and 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	ii) 4 No. 40 Amp 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker.					
	iii) 2 No. 32 Amp 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker.					
	<b>MV panel 2 - Ground Floor as mentioned above :</b>	1	Set			
	iii) <b>MV panel 1 - First Floor :</b>					
	a) <b>INCOMER:</b>					
	1 no. 200 Amps , 415 volts, 35KA (lsc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V Digital voltmeter with selector switch.					
	1 No. 0 to 200 Amp Digital ammeter with selector switch with 400/5A C.T.'s.					
	b) <b>BUSBARS:</b> 250 Amp TPN Aluminium busbars					
	c) <b>OUTGOING:</b>					
	i) 7 No. 63 Amp 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker.					
	ii) 5 No. 32 Amp 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker.					
	<b>MV panel 1 - First Floor as mentioned above :</b>	1	Set			
	iv <b>MV panel 2 - First Floor :</b>					
	a) <b>INCOMER:</b>					
	1 no. 125 Amps , 415 volts, 35KA (lsc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V Digital voltmeter with selector switch.					
	1 No. 0 to 125 Amp Digital ammeter with selector switch with 125/5A C.T.'s.					
	b) <b>BUSBARS:</b> 160 Amp TPN Aluminium busbars					
	c) <b>OUTGOING:</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
i)	3 No. 40 Amp 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker.					
ii)	3 No. 32 Amp 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker.					
	<b>MV panel 2 - First Floor as mentioned above :</b>	1	Set			
v	<b>MV panel 1 - Second,Third Floor :</b>					
a)	<b>INCOMER:</b>					
	1 no. 200 Amps , 415 volts, 35KA (lsc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V Digital voltmeter with selector switch.					
	1 No. 0 to 200 Amp Digital ammeter with selector switch with 200/5A C.T.'s.					
b)	<b>BUSBARS:</b>					
	250 Amp TPN Aluminium busbars					
c)	<b>OUTGOING:</b>					
i)	<b>2 Nos. MCCB as per following details / specifications:</b>					
	125Amps,415 volts, TPN, 35 KA Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
	"ON" LED indicating lamp and 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00			3	4	5	6	7
	ii)	4 No. 63 Amp 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker.					
	iii)	4 No. 32 Amp 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker.					
		<b>MV panel 1 - Second, third Floor as mentioned above :</b>	2	Set			
	vi	<b>MV panel UPS - Second,Third Floor :</b>					
	a)	<b>INCOMER:</b>					
		1 no. 125 Amps , 415 volts, 35KA (lsc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
		R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
		Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
		1 No. 0 to 500 V Digital voltmeter with selector switch.					
		1 No. 0 to 125 Amp Digital ammeter with selector switch with 125/5A C.T.'s.					
	b)	<b>BUSBARS:</b>					
		160 Amp TPN Aluminium busbars					
	c)	<b>OUTGOING:</b>					
	i)	4 No. 63 Amp 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker.					
		<b>MV panel UPS - Second, Third Floor as mentioned above :</b>	2	Set			
	vii	<b>MV panel 2 - Second, Third Floor :</b>					
	a)	<b>INCOMER:</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	1 no. 125 Amps , 415 volts, 35KA (lsc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V Digital voltmeter with selector switch.					
	1 No. 0 to 125 Amp Digital ammeter with selector switch with 125/5A C.T.'s.					
	b) <b>BUSBARS:</b>					
	160 Amp TPN Aluminium busbars					
	c) <b>OUTGOING:</b>					
	i) 5 No. 40 Amp 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker.					
	ii) 2 No. 32 Amp 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker.					
	<b>MV panel 2 - Second, Third Floor as mentioned above:</b>	2	Set			
	viii <b>MV panel 1,2 - Fourth,Fifth Floor :</b>					
	a) <b>INCOMER:</b>					
	1 no. 125 Amps , 415 volts, 35KA (lsc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	1 No. 0 to 500 V Digital voltmeter with selector switch.					
	1 No. 0 to 125 Amp Digital ammeter with selector switch with 125/5A C.T.'s.					
	b) <b>BUSBARS:</b>					
	160 Amp TPN Aluminium busbars					
	c) <b>OUTGOING:</b>					
	i) 3 No. 63 Amp 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker.					
	ii) 4 No. 32 Amp 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker.					
	<b>MV panel 1,2 - Fourth,Fifth Floor as mentioned above:</b>	4	Set			
	ix <b>MV panel UPS - Ground Floor :</b>					
	a) <b>INCOMER:</b>					
	1 no. 160 Amps , 415 volts, 35KA (Isc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
	R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V Digital voltmeter with selector switch.					
	1 No. 0 to 160 Amp Digital ammeter with selector switch with 160/5A C.T.'s.					
	b) <b>BUSBARS:</b>					
	200 Amp TPN Aluminium busbars					
	c) <b>OUTGOING:</b>					
	i) 7 No. 63 Amp 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker.					



S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2		3	4	5	6	7
		<b>MV panel UPS Ground Floor as mentioned above:</b>	1	Set			
	x	<b>MV panel UPS - Floor Panels :</b>					
	a)	<b>INCOMER:</b>					
		1 no. 63 Amps , 415 volts, 35KA (lsc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
		R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					
		Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
		1 No. 0 to 500 V Digital voltmeter with selector switch.					
		1 No. 0 to 63 Amp Digital ammeter with selector switch with 63/5A C.T.'s.					
	b)	<b>BUSBARS:</b>					
		100 Amp TPN Aluminium busbars					
	c)	<b>OUTGOING:</b>					
	i)	5 No. 25 Amp 415 volts, 9 KA ,Four Pole, Miniature Circuit Breaker.					
		<b>MV panel UPS - Floor Panels as mentioned above :</b>	5	Set			
	xi	<b>LIFT PANEL</b>					
	a)	<b>INCOMER:</b>					
		1 no. 160 Amps , 415 volts, 35KA (lsc),four pole, Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
		R,Y&B phase indicating lamp (LED type) with 2A control SP MCB					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	1 No. 0 to 500 V Digital voltmeter with selector switch.					
	1 No. 0 to 160 Amp Digital ammeter with selector switch with 160/5A C.T.'s.					
	b) <b>BUSBARS:</b>					
	200 Amp TPN Aluminium busbars					
	c) <b>OUTGOING:</b>					
	i) <b>4 Nos. MCCB as per following details / specifications:</b>					
	63Amps,415 volts, TPN, 25 KA Moulded Case Circuit Breaker with thermal magnetic release having variable current settings (0.8 to 1.0 In)					
	"ON" LED indicating lamp and 2A control SP MCB					
	Extended rotary operating mechanism with door interlocking with defeat feature and padlock facility. MCCB should have spreader links & phase barriers.					
	<b>LIFT PANEL as mentioned above</b>	1	Set			
	<b>TOTAL SUB HEAD 4 : MV PANELS</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	<b>SUB HEAD 5 : UPS SYSTEM</b>					
5.01	<b>UPS OF 10 KVA.</b>					
	i) Supply of 10 KVA True Online double conversion and fully Microprocessor Controlled UPS system with IGBT based Rectifier with minimum input pf 0.95 with minimum 94% overall efficiency at 50% load condition and THDI less than 5% on non linear loads including suitable Power Management software in UPS including IGBT/PWM technology based inverter, automatic bi - directional static switch, manual bypass switch, galvanic isolation transformer, input phase reversal protection, provsion for separate input for rectifier and for bypass.					
	ii) Rack mounted external battery bank of 12 V Sealed Maintenance Free batteries for 30 mins backup.					
	iii) Installation & commisioning of 10 KVA UPS with battery and accessories.					
	<b>Supply, installation , testing and commissioning of 10 KVA UPS as mentioned above.</b>	1	Set			
5.02	<b>UPS OF 30 KVA.</b>					
	i) Supply of 30 KVA True Online double conversion and fully Microprocessor Controlled UPS system with IGBT based Rectifier with minimum input pf 0.95 with minimum 94% overall efficiency at 50% load condition and THDI less than 5% on non linear loads including suitable Power Management software in UPS including IGBT/PWM technology based inverter, automatic bi - directional static switch, manual bypass switch, galvanic isolation transformer, input phase reversal protection, provsion for separate input for rectifier and for bypass.					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	ii) Rack mounted external battery bank of 12 V Sealed Maintenance Free batteries for 30 mins backup.					
	iii) Installation & commissioning of 15 KVA UPS with battery and accessories.					
	<b>Supply, installation , testing and commissioning of 30 KVA UPS as mentioned above.</b>	2	Set			
<b>5.03</b>	<b>UPS OF 50 KVA.</b>					
	i) Supply of 50 KVA True Online double conversion and fully Microprocessor Controlled UPS system with IGBT based Rectifier with minimum input pf 0.95 with minimum 94% overall efficiency at 50% load condition and THDI less than 5% on non linear loads including suitable Power Management software in UPS including IGBT/PWM technology based inverter, automatic bi - directional static switch, manual bypass switch, galvanic isolation transformer, input phase reversal protection, provision for separate input for rectifier and for bypass.					
	ii) Rack mounted external battery bank of 12 V Sealed Maintenance Free batteries for 30 mins backup.					
	iii) Installation & commissioning of 50 KVA UPS with battery and accessories.					
	<b>Supply, installation , testing and commissioning of 50 KVA UPS as mentioned above.</b>	1	Set			
	<b>TOTAL SUBHEAD 5 : UPS SYSTEM</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	<b>SUB HEAD-6: MCB DISTRIBUTION BOARDS.</b>					
<b>6.00</b>	<b>MCB DISTRIBUTION BOARD</b>					
6.01	Supplying & fixing following way, three pole and neutral, prewired, sheet steel, MCB distribution board, 415 volts, on recess/surface complete with loose wire box, terminal blocks, tinned copper busbar, neutral link, earth bar, din bar, detachable gland plate, interconnections, phosphatized and powder painted including earthing etc. Before procurement of DB the contractor has to take approval of DB schedule/ drawing of each DB from the Electrical Engineer, HSCC, as per technical specifications and as required. (but without MCB & RCCB),					
	i 4 way (8+12), Double door	24	Each			
	ii 6 way (8+18), Double door	30	Each			
	iii 8 way (8+24), Double door	28	Each			
	iv 12 way (8+36), Double door	8	Each			
6.02	Supplying & fixing 5 Amps to 32 Amps rating, 240 volts, 'b' series, miniature circuit breaker suitable for lighting & other loads of following poles in the existing MCB DB complete with connections, testing & commissioning etc. as per technical specifications & as required.					
	i Single pole	1310	Each			
6.03	Supplying & fixing following rating, four pole, 415 volts, Miniature Circuit Breaker (MCB) in the existing MCB DB complete with connections, testing & commissioning etc. as per technical specifications and as required.					
	i 25 Amps	16	Each			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
	ii	32 Amps	30	Each			
	iii	40 Amps	8	Each			
	iv	63 Amps	28	Each			
	v	100 Amps	8	Each			
6.04		Supplying & fixing following rating, four pole, 415volts, Miniature Circuit Breaker and Residual current circuit breaker (RCCB), RCCB having a sensitivity current upto 300 milliamperes in the existing MCB DB complete with connections, testing & commissioning etc. as per technical specifications and as required.					
	i	25 Amps	16	Each			
	i	32 Amps	30	Each			
	ii	40 Amps	8	Each			
	iii	63 Amps	28	Each			
	v	100 Amps	8	Each			
		<b>TOTAL SUBHEAD: 6- MCB DISTRIBUTION BOARD.</b>					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
7.00		<b>SUB HEAD: 7 - WIRING</b>					
7.01		<b>WIRING</b>					
	i	Wiring for light point/fanpoint/ exhaust fan point/call bell point with 1.5 sq.mm. PVC insulated, fire retardant low smoke (FRLS) copper conductor cable, single core/ multi strand, in steel conduit (Including supplying & recess laying of ISI marked MS conduit and accessories) including the following and complete as required.					
	ii	Supplying and Fixing Modular type switches (modular Bell push in case of call bell points) in suitable size modular metal boxes, base plate & modular cover plates, space for fixing electronic fan regulator in case of fan point wiring & space for fixing 5A socket on the board etc.					
	iii	Supplying and fixing Hexagonal fan Boxes with 3 mm thick hylem sheet covers in case of Fan Points					
	iv	Supplying & Fixing Ceiling Rose in case of Exhaust Fan Points etc.					
		<b>Note :</b>					
		i) Unless otherwise specified all the conduiting work to be done in recess					
		ii) Two or more circuit can be drawn in the same conduit, however, all the circuits in the same conduit shall be on the same phase.					
		<b>Point wiring as mentioned above</b>	2459	Point			
7.02	i	Wiring for twin control light points with 1.5 sq.mm. PVC insulated, FRLS copper conductor cable in ISI marked MS conduit (including supplying and recess laying of ISI marked MS conduit) including the following and complete as required.					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2		3	4	5	6	7
	ii	Supplying and Fixing Modular type two numbers 2 Way switches in suitable size modular metal boxes, base plate & modular cover plates etc.					
		<b>Note :</b>					
		Two or more circuit can be drawn in the same conduit, however, all the circuits in the same conduit shall be on the same phase.					
		<b>Wiring for twin control light points as mentioned above</b>	60	Point			
7.03		Wiring for 5A light plugs with 1.5 sq.mm. PVC insulated, FRLS copper conductor cable including one number 1.5 sq.mm. PVC insulated, copper conductor cable for earthing in surface/recessed ISI marked MS conduit (including supply and recess laying of ISI marked MS conduit) as per technical specifications and as required.	5	Point			
7.04		Wiring for 16 amp power plug with 2X4 sqmm PVC insulated, FRLS copper conductor, single core cable in surface/recessed ISI marked MS conduit (including supply and recess laying of ISI marked MS conduit with all accessories) along with 2.5 sqmm PVC insulated, copper conductor, single core cable for loop earthing etc per technical specifications & as required.					
		Directly from MCB-Distribution Board to the Socket Outlets	530	Point			



S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
7.05	Wiring for 20 amp power plug with 2X6 sq.mm. PVC insulated, FRLS copper conductor, single core cable in surface/recessed ISI marked MS conduit (including supply and recess laying of ISI marked MS conduit with all accessories) along with 2.5 sqmm PVC insulated, copper conductor, single core cable for loop earthing, as per technical specifications & as required.	18	Point			
7.06	Wiring for computer points (Three sockets & one switch) with 2.5 sq.mm. PVC insulated, FRLS copper conductor cable including one number 1.5 sq.mm. PVC insulated, copper conductor cable for earthing in surface/recessed ISI marked MS conduit (including supply and recess laying of ISI marked MS conduit) as per technical specifications and as required.	160	Point			
7.07	Wiring for submain/ circuit wiring with following sizes of PVC insulated, FRLS copper conductor single core cable in surface/recessed ISI marked MS conduit( including and recess laying of ISI marked MS conduit) as required.					
	i 2X2.5 Sqmm with 1 No. 2.5 sqmm PVC insulated, copper conductor for earthing for circuit wiring.	4723	Metre			
	ii 4X6 Sqmm with 2 No. 6 sqmm PVC insulated, FRLS copper conductor for earthing	1050	Metre			
	iii 4X10 Sqmm with 2 nos 10 sq mm PVC insulated, FRLS copper conductor for earthing	350	Metre			
	iv 4X16 Sqmm with 2 nos 16 sq mm PVC insulated, FRLS copper conductor for earthing.	980	Metre			
	v 4X25 Sqmm with 2 nos 16 sq mm PVC insulated, FRLS copper conductor for earthing.	280	Metre			

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
7.08	Supplying and fixing suitable Module metal box on surface or in recess including providing and fixing 3 pin 5/6 amps. modular socket outlet with shutters and 5/6 amps. modular type switch, base plate, modular cover plate, connections etc. and all civil works 'complete as required.	5	Each			
7.09	Supplying and fixing suitable module modular metal box on surface or in recess including providing and fixing 6 pin 15/16 A modular socket outlet with shutters and 15/16 A modular switch, base plate, modular cover plate, connections, etc. and all civil works complete as required.	530	Each			
7.10	Supply and fixing following 20 Amps, 240 volts, 2P+E, Industrial Socket Outlet (with plugs) in a metal box with 20 SP MCB in a sheet steel cover on surface or recess complete with all accessories including connections, testing and commissioning etc. as required.	18	Each			
7.11	Supplying and fixing suitable Module metal box on surface or in recess including providing and fixing three nos 6 pin 5/6 amps. modular socket outlet with shutters and one no. 10 amps. modular type switch, base plate, modular cover plate, connections etc. and all civil works 'complete as required. <b>( For computer Points)</b>	160	Each			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2		3	4	5	6	7
7.12		Supply and fixing following FP MCCB, 415 volts, 35 KA (Isc), Four Pole with thermal magnetic release having variable current setting (0.8 to 1.0 In) with Extended rotary operating mechanism including door interlocking with defeat feature and padlock facility in a sheet steel enclosure on surface complete with all accessories including , connections, testing and commissioning etc. as required.					
	i	63 Amp	4	Each			
	ii	125 Amp	2	Each			
	iii	200 Amp	1	Each			
	iii	250 Amp	2	Each			
	v	400 Amp	3	Each			
7.13		Supplying, providing & fixing cordless musical bell, batteries etc of approved make complete as required.	10	Each			
		<b>TOTAL SUBHEAD: 7- WIRING</b>					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2		3	4	5	6	7
		<b>SUB HEAD: 8 - LIGHT FIXTURE AND FANS</b>					
<b>8.00</b>		<b>LIGHT FIXTURES AND FANS</b>					
8.01		Supply of following light fixture with high efficiency electronic ballast, starter, capacitor, tubes/lamps, reflector, diffuser, MS body/housing holder etc. complete with all fixing accessories as required.					
	i	2XTL5 28 watt surface mounted industrial flourescent light fixture with GMS reflector(GMS 122M 2 28 /54 R) (Philips TMS 122M 2XTL5 28W EBT or approved equivalent)	10	Each			
	ii	1XTL5 28 watt box type flourescent industrial light fixture (Philips TMS 122 M1XTL5 28W EBT or approved equivalent)	790	Each			
	iii	1X36watt surface mounted flourescent light fixture with opal acrylic cover (Philips TCS 019 1XTLD 36W IO or approved equivalent)	80	Each			
	iv	1X36watt recess mounted flourescent light fixture (Philips TBS O50 1XTLD 36W EBE MI or approved equivalent) 136RMO1	45	Each			
	v	1X 36 watt surface mounted mirror optics type 1 (Philips TCS 605 1XTLD 36 W ICMI or approved equivalent) 136SMO1	250	Each			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2		3	4	5	6	7
	vi	1X 36 watt surface mounted mirror optics type 1 (Philips TPS 498M 1XTLD 36W ICD/ID6 or approved equivalent) 136SMO2	20	Each			
	vii	1X 36 watt surface mounted mirror optics type 1 (Philips TCS 306 1XTLD 36W IC or approved equivalent) 136SMO3	30	Each			
	viii	2X36 watt recess mounted mirror optics (philips TBS 050 2XTLD36W EBE MI) or approved equivalent) 236rmo1	55	Each			
	ix	2X36 watt recess mounted Clean room fixture (philips TBS 869 2XTL5 28W EBP D8 or approved equivalent)236rmo2	22	Each			
	x	2X36 watt recess mounted mirror optics (philips TBS 670 2XTLD 36 W EBP FOP GT (Bottom opening) or approved equivalent)236rmo3	85	Each			
	xi	2X 36 watt surface mounted mirror optics (Philips TCS 605 2XTLD 36W EBE MI or approved equivalent).236smo1	55	Each			
	xii	2X 36 watt surface mounted mirror optics (Philips TPS 498 2XTLD 36W EBT D6 or approved equivalent).236smo2	90	Each			
	xiii	2X 36 watt surface mounted mirror optics type 1 (Philips TCS 306 2XTLD 36W IC or approved equivalent) 26SMO3	25	Each			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
	xiv	3X 36 watt recessed mounted mirror optics (Philips FBS300; M 3XPLL36W EBP P5 or approved equivalent).236rmsq1	20	Each			
8.02		Supply of following compact flourescent light fixture with electronic ballast, starter, capacitor, lamps, reflector, diffuser, MS body/housing holder etc. complete with all fixing accessories as required.					
	i	Surface mounted Batten holder (Plastic) with 13 watt CFL	15	Each			
	ii	1x9 watt Bulk Head light fixture (Philips FXC 101 1XPL-S/2P; 11W AC or approved equivalent)	25	Each			
	iii	2 x 10 watt CFL surface mounted fixture Down light fixture; type 1 (GE: GE CFL 2X10 DN AOS(Mint) or approved equivalent) DL1	136	Each			
	iv	1 X 400 watt Highbay Luminaire Philips (HPK225; 1XSON400W NB or approved equivalent)	4	Each			
	v	2 x 18 watt CFL surface mounted fixture Down light fixture; type 2 (GE: GE CFL C2X18 DN FG S(Lento) or approved equivalent) DL2	50	Each			
	vi	2X10 watt Mirror top (Decon 05UB or approved equivalent); Wtoilet	70	Each			
	vii	2X11 watt surface mounted mirror optics (Philips FCS 31/211; or equivalent)211CFLRECT	50	Each			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
	viii	1 X 13 watt CFL Lamp in wall recessed fixture (Decon 54VW, in die cast aluminium or approved equivalent) used as a night lamp NLWM	205	Each			
8.03		Supply of following ceiling fans complete with double ball bearing, motor, blades, downrod, canopies, capacitor, modular type electronic fan regulator, MS Fan Box with MS Hook etc. suitable for operation on 230 volts, 50 Hz., 1 phase, AC supply complete as required					
	i	1200 mm sweep	350	Each			
	ii	900 mm sweep	60	Each			
8.04		Installation, testing and commissioning of prewired, fluorescent fittings of all types, complete with all accessories and tube etc. directly on ceiling/wall, including connections with 1.5 sq.mm. PVC insulated, FRLS copper conductor, single core/ multi strand cable etc. as required.	1577	Each			
8.05		Supply of 900 RPM, 225 mm heavy duty exhaust fan suitable for single phase 230 volts, 50 Hz., AC supply complete with motor, louvers/shutters etc. complete as required.	2	Each			
8.06		Supply of 900 RPM, 300 mm heavy duty exhaust fan suitable for single phase 230 volts, 50 Hz., AC supply complete with motor, louvers/shutters etc. complete as required.	2	Each			

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
8.07	Supply of 900 RPM, 380 mm heavy duty exhaust fan suitable for single phase 230 volts, 50 Hz., AC supply complete with motor, louvers/shutters etc. complete as required.	2	Each			
8.08	Supply of 450 mm sweep, crompton greaves model high flow 18" wall mounted fan complete with double ball bearing, motor, blades, capacitor etc suitable for single phase 230 volts, 50 Hz., AC supply, complete as required.	5	Each			
8.09	Installation, testing and commissioning of prewired, compact fluorescent lamp fixture (CFL fixtures) of all types, complete with all accessories and lamp etc. directly on ceiling/wall, including connections with 1.5 sq.mm. PVC insulated, FRLS copper conductor, single core/ multi strand cable etc. as required.	555	Each			
8.10	Installation, testing and commissioning of ceiling fan and modular type electronic fan regulator (Electronic regulator to be fixed in switch board) including wiring the down rod and connection with 1.5 sqmm PVC insulated, copper conductor single core cable as required.	410	Each			
8.11	Installation, testing and commissioning of exhaust fan up to 300 mm sweep in the opening, including making the hole to suit the size of the above fan including, fixing of louvers/shutters with frame making good the damages etc. as required.	10	Each			



S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2		3	4	5	6	7
8.12		Installation, testing and commissioning of exhaust fan up to 450 mm sweep in the opening, including making the hole to suit the size of the above fan including , fixing of louvers/ shutters with frame making good the damages etc. as required.	2	Each			
8.13		Installation, testing and commissioning of wall mounted fan up to 450 mm sweep including supply and fixing wall bracket arrangement complete as required.	20	Each			
		<b>TOTAL SUBHEAD 8: LIGHT FIXTURE &amp; FANS</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	<b>SUB HEAD 9: TELEPHONE SYSTEM</b>					
<b>9.00</b>	<b>TELEPHONE SYSTEM</b>					
9.01	Supply & laying two pair 0.5 Sq. mm solid, annealed bare copper conductor insulated with high density polythlene. The insulated cores twisted to from pairs, helically wrapped with polyster tape, over all insulation of FR PVC, unarmoured telephone cable in ISI marked MS conduit including providing & fixing of two module modular metal box on surface or on recess with following pair cord outlet, connections etc. complete as required.This also includes conduiting, wiring from floor Tag blocks to individual telephone outlets.					
	i 1 pair cord outlet (Jack Type)	100	Each			
	ii 2 pair cord outlet (Jack Type)	55	Each			
9.02	Supplying, Installation, testing and commissioning of following sizes of telephone distribution board in M.S. hinged type lockable box duly painted complete with Krone type tag block etc. including terminations of cable as required.					
	i 100 Pair	3	Each			
	ii 50 Pair	1	Each			
	iii 20 Pair	5	Each			
	iv 10 Pair	4	Each			
9.03	Supplying and drawing of following pairs .5 mm dia annealed bare copper conductor Polythene insulated, core twisted into pairs armoured telephone cable on surface/tray with saddels etc. complete as required.					
	i 10 Pair	120	Metre			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
	ii	20 Pair	96	Metre			
	iii	50 Pair	12	Metre			
	iv	100 Pair	36	Metre			
		<b>EPABX</b>					
	i)	Supply, installation testing and commissioning of a digital EPABX system having 16 trunk lines (P&T Lines), 16 digital extensions and 196 analog extensions expandable upto 512 ports including software & UPS of suitable capacity for four hour back-up with SMF batteries as approved by engineer incharge complete as per technical specifications & as required. Model as approved by Engineer incharge out of approved makes	1	Set			
	ii)	Supply, installation, testing and commissioning of Main Distribution Frame (MDF) crone type for above EPABX with box as per technical specifications and as required.	1	Set			
	iii)	Supply, installation, testing and commissioning of analog push button type telephone instrument having hold-on and tone/pulse switch facility suitable for the connection with the above EPABX system complete as per technical specification and as required : Model as approved by Engineer incharge out of approved makes	150	Set			
	v)	Supply, installation, testing and commissioning of digital phone sets (KTS) with display, 12 storage keys and speaker suitable for the connection with the above EPABX system complete as per technical specification and as required : Model as approved by Engineer incharge out of approved makes	8	Set			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2		3	4	5	6	7
		<b>TOTAL SUBHEAD 9: TELEPHONE SYSTEM</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	<b>SUB HEAD 10: LIGHTENING PROTECTION</b>					
<b>10.00</b>	<b>LIGHTENING PROTECTION</b>					
10.01	Earthing with 600 mm X 600 mm X 6 mm thick GI plate including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. (but without charcoal or coke and salt) complete as required.	10	Set			
10.02	Extra for using charcoal and salt for GI or copper plate earth electrode as required.	10	Set			
10.03	Providing and fixing of lightening conductor finial, made of 25mm. dia. 300mm., long GI tube, having single prong at top, with 85 mm. dia. 6 mm. thick GI base plate including holes etc. complete as required.	10	Each			
10.04	Providing and and fixing GI tape 20mm X 3 mm thick on parapet or surface of wall for lightning conductor as required. (For horizontal runs).	315	Metre			
10.05	Providing and and fixing GI tape 20mm X 3 mm thick on parapet or surface of wall for lightning conductor as required. (For vertical runs).	300	Metre			
10.06	Providing and fixing testing joint, made of 20mmX3mm thick GI strip, 125 mm. long, with 4 no.'s of GI bolts, nuts, check nuts, bar shaddles, and spring washers etc. complete as required.	10	Each			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount ( in Rs.)
1.00	2		3	4	5	6	7
10.07		Providing and laying GI tape, 32 mm X 6 mm thick, from test joint upto earth electrode directly in ground as required.	100	Metre			
		<b>TOTAL SUB HEAD 10: LIGHTENING PROTECTION</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	<b>SUB HEAD 11 : FIRE DETECTION AND ALARM SYSTEM</b>					
<b>11.00</b>	<b>FIRE DETECTION AND ALARM SYSTEM</b>					
11.01	Supply and drawing of following sizes of PVC insulated FRLS copper conductor single core cable in surface/recessed ISI marked MS conduit (including Supplying and fixing of ISI marked MS Conduit) complete as required.					
	i 2X1.5 sqmm	3445	Metre			
11.02	Supply, installation, testing and commissioning of the following intelligent, analog, addressable type fire detection and alarm accessories as per technical specification & complete with connections etc. as required.					
	i Optical type Smoke Detector	415	Each			
	ii Heat Detector	10	Each			
	iii Manual Break Glass Unit in MS enclosure	12	Each			
	iv Fire Alarm Bell / Hooter of suitable range to cover the complete floor, in MS enclosure.	12	Each			
	v Response indicator	240	Each			

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
11.03	Supply, Installation, testing and commissioning of suitable loop microprocessor based addressable type networkable Fire Detection & Alarm control Panel complete with inbuilt power supply, battery charger with SMF batteries for minimum 24Hrs backup. The panel shall have communication module. The panel should have rectifier, loop card, 80 character LCD unit to indicate fire/ fault signals with addresses including external/ internal printer to print the details complete system as per technical specifications and requirement of Local Fire Authority and as required.	1	Set			
11.04	Supply testing and commissioning of isolator module as per specifications.	45	Set			
11.05	Supply, Installation, testing and commissioning of intelligent addressable control modules.	46	Each			
11.06	Supply, Installation, testing and commissioning of intelligent addressable type monitor modules.	1	Each			
11.07	Supply, Installation, testing and commissioning of flow switch	1	Each			
	<b>TOTAL SUB HEAD 11 : FIRE DETECTION AND ALARM SYSTEM</b>					



S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	<b>SUB HEAD 12: NURSE CALL BELL SYSTEM.</b>					
<b>12.00</b>	<b>NURSES CALL BELL SYSTEM</b>					
12.01	Supplying, fixing testing and commissioning of nurses station terminal monitor with in built LED display & alarm, suitable for following way complete with back up, batteries, battery charger etc. as per technical specifications and as required.					
	i) 40 Way	2	Each			
	ii) 30 Way	2	Each			
	iii) 10 Way	9	Each			
12.02	Supplying, fixing testing and commissioning of call push button (with cord), call reset, call indication station for each bed complete as required.	205	Each			
12.03	Supply and fixing of following sizes of steel conduit alongwith the accessories in surface/recess including painting; in case of surface conduit, or cutting the wall and making good the same in case of conduit as recessed required					
	i) 25 mm dia	3075	Metre			
12.04	Supply & laying of CAT 5 cable copper conductor in the existing MS conduite.	5135	Metre			
12.05	Supplying, fixing testing and commissioning of LED's Indicators outside each ward	35	Each			
	<b>TOTAL SUB HEAD 12: NURSE CALL BELL SYSTEM.</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	<b>SUB HEAD 13: PUBLIC ADDRESS SYSTEM.</b>					
13.00	<b>PUBLIC ADDRESS SYSTEM</b>					
	<b>A. PUBLIC ADDRESS SYSTEM FOR HOSPITAL.</b>					
13.01	Supply, installation, testing and commissioning of master announcement along with Amplifier of suitable wattage duly wired with terminal strip etc complete with housing including the following main components and as required. (Contractor has to design and submit the details of PA equipment as per the requirement of this block for approval)					
	i) 1 Mic & 1 Aux Inputs, with individual volume control & Aux inputs jacks for each floor (Ground + Five floors) at two different loactions on each floor.					
	iii) HD DVD Player.					
	iv) Terminals & patch cables, Junction Boxes. Equipment rack, etc.					
	v) Any other item required for proper working of PA system.					
	<b>Public Address System for Hospital as mentioned above</b>	1	Set			
13.02	Supply and fixing of following sizes of steel conduit alongwith the accessories in surface/recess including painting; in case of surface conduit, or cutting the wall and making; good the same in case of conduit as recessed required					
	i) 20 mm dia	750	Metre			
13.03	Supply and drawing twin twisted 32/0.2mm PVC insulated; copper conductor speaker wire in existing conduit including; earth wire complete as required (for speakers).	1000	Metre			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount ( in Rs.)
1.00	2		3	4	5	6	7
13.04		Supply and installation of metal enclosed suitable wattage speaker with adjustable volume to cover all areas of floor, to be mouted in corridors complete as required .	100	Each			
		<b>TOTAL SUB HEAD - 13.00 PUBLIC ADDRESS SYSTEM</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	<b>SUB HEAD 14 : LIFTS</b>					
14.00	<b>LIFT</b>					
14.01	Design, manufacture, supply, installation, testing and commissioning of 26 passenger (1768 kg) lift with travel speed 0.5 MPS serving different floors in the lift shaft including lift well pressurization as per detailed specification/ drawing enclosed and as under:					
	Speed 0.5 MPS					
	Floors G+5 (Total six floors)					
	Travel: As per architectural drawing.					
	Stops & opening: 6 stops & 6 openings					
	Controller: A.C. variable voltage & variable frequency					
	Automatic rescue device complete with dry maintenance free batteries as required.					
	Operation:Microprocessor based single automatic push button/ simplex selective collective/duplex collective selective with / without attendant.					
	415 V, 3 phase, 50 Hz, 4 wire system					
	Type of doors: a) Car : Power operated, centre opening for passenger lift and telescopic opening for hospital lift, horizontal sliding stainless steel scratch proof. (b) Landing doors: Stainless steel scratch proof. Lift car door and landing doors shall have a fire resistance of one hour.					
	A hand rail guide not less than 600 mm long at 900 mm above floor level or stretcher guide as the case may be to be fixed adjacent to control panel in the lift car.					
	Mirror of suitable size to be fixed inside the lift car.					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	Voice announcement system in the car to announce the position of the elevator in the hoistway as the car passes or stops at a floor served by the elevator.					
	Toe guard, PA speaker, IR curtain on full height, two phase fireman's drive control/ switch and potential free contacts, Intercom connection etc to be provided in the lift.					
	<b>Bed cum Passenger Lift as mentioned above.</b>	3	Each			
	<b>TOTAL SUB HEAD 14: LIFTS</b>					

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	<b>SUB HEAD 15: LT CABLES</b>					
<b>15.00</b>	<b>LT CABLES</b>					
15.01	Supply of following sizes of 1.1 kV grade multicore aluminium conductor PVC sheathed armoured AYFY cable as per IS 1554.					
	i 3.5 Core 25 Sqmm.	24	Metre			
	ii 3.5 Core 70 Sqmm.	60	Metre			
	iii 3.5 Core 95 Sqmm.	336	Metre			
	iv 3.5 Core 120 Sqmm.	36	Metre			
	v 3.5 Core 150 Sqmm.	336	Metre			
	vi 3.5 Core 185 Sqmm.	1620	Metre			
	vii 3.5 Core 300 Sqmm.	360	Metre			
	viii 3.5 Core 400 Sqmm.	396	Metre			
	ix 2 Core 4 Sqmm.	100	Metre			
	x 2 Core 6 Sqmm.	100	Metre			
	xi 4 Core 10 Sqmm.	100	Metre			
15.02	Laying of one number PVC insulated and PVC sheathed power cable 1.1kV grade direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc. as required					
	i Size not exceeding 25 sq.mm	24	Metre			
	ii Size exceeding 25 sq.mm but not exceeding 120 sq.mm	396	Metre			
	iii Size exceeding 120 sq.mm but not exceeding 300 sq.mm	696	Metre			
15.03	Laying of one number PVC insulated and PVC sheathed power cable 1.1kV grade direct in the existing RCC/Hume/Stoneware/Metal pipe as required					
	i Size not exceeding 25 sq.mm	30	Metre			
	ii Size exceeding 25 sq.mm but not exceeding 120 sq.mm	30	Metre			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
	iii	Size exceeding 120 sq.mm but not exceeding 300 sq.mm	30	Metre			
15.04		Laying of one number PVC insulated and PVC sheathed power cable 1.1kV grade on surface or on existing cable tray complete as required.					
	i	Size not exceeding 25 sq.mm	100	Metre			
	ii	Size exceeding 25 sq.mm but not exceeding 120 sq.mm	100	Metre			
	iii	Size exceeding 120 sq.mm but not exceeding 240 sq.mm	100	Metre			
	iv	Size exceeding 240 sq.mm but not exceeding 400 sq.mm	100	Metre			
15.05		Supplying and making end termination with suitable size Copper lugs including double compression glands of following sizes of 1.1. kv grade multicore aluminium conductor PVC insulated and PVC sheathed					
	i	3.5 Core 25 Sqmm.	2	Each			
	ii	3.5 Core 70 Sqmm.	4	Each			
	iii	3.5 Core 95 Sqmm.	6	Each			
	iv	3.5 Core 120 Sqmm.	4	Each			
	v	3.5 Core 150 Sqmm.	4	Each			
	vi	3.5 Core 185 Sqmm.	22	Each			
	vii	3.5 Core 300 Sqmm.	2	Each			
	viii	3.5 Core 400 Sqmm.	28	Each			
	ix	2 Core 4 Sqmm.	4	Each			
	x	2 Core 6 Sqmm.	10	Each			
	xi	4 Core 10 Sqmm.	10	Each			
15.06		Fabricating and installing following size of perforated 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 etc. as required :-					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
	i	150 mm. width x 50 mm. depth x 1.6 mm. thickness	100	Metre			
	ii	300 mm. width x 62.5 mm. depth x 2.0 mm. thickness	50	Metre			
	iii	450 mm. width x 62.6 mm. depth x 2.0 mm. thickness	50	Metre			
	iv	600 mm. width x 62.6 mm. depth x 2.0 mm. thickness	75	Metre			
		<b>TOTAL SUB HEAD 15: LT CABLES</b>					



S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	<b>SUB HEAD 16: EARTHING SAFETY EQUIPMENT AND MISC. ITEMS</b>					
<b>16.00</b>	<b>EARTHING, SAFETY EQUIPMENTS AND MISC. ITEMS</b>					
16.01	Earthing with copper plate 600mmX600mmX3mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. (but without charcoal or coke and salt) complete as required	24	Set			
16.02	Earthing with GI plate 600mmX600mmX6mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. (but without charcoal or coke and salt) complete as required	16	Set			
16.03	Extra for using charcoal and salt for GI or copper plate earth electrode as required.	40	Set			
16.04	Supplying and laying 25mmX5mm Copper strip at 0.5 m below ground level as strip earth electrode, including soldering etc. as required.	100	Metre			
16.05	Supplying and laying 25mmX5mm GI strip at 0.5 m below ground level as strip earth electrode, including soldering etc. as required.	400	Metre			
16.06	Providing and fixing 40mmX6mm GI strip on surface/on existing cable trench/RCC pipe or in recess for earth electrode as required.	50	Metre			

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
16.07	Providing and fixing 25mmX5mm GI strip on surface/on existing cable trench/RCC pipe or in recess for earth electrode as required.	100	Metre			
16.08	Supplying and laying 50mmX6mm copper strip at 0.5mm below ground level as strip earth electrode as required as required.	50	Metre			
16.09	Providing and fixing 50mmX6mm copper strip in 65 mm dia class B GI Pipe on surface/existing cable trench/RCC pipe for connections etc. as required.	20	Metre			
16.10	Providing and laying of following sizes non pressure NP2 class (light duty) RCC pipe with collar joint with stiff mixture of cement (1 cement : 2 fine sand) including testing the joints etc. as required.					
	i 100 mm dia	20	Metre			
	ii 150mm dia	20	Metre			
	iii 200mm dia	20	Metre			
16.11	Providing and fixing M.V. danger notice plate of 200mmX150mm made of mild steel, atleast 2mm thick and vitreous enamelled white on both sides and with inscription in signal red colour on front side as required.	25	Each			
16.12	Providing and fixing H.T. (11kV) danger notice plate of 250mmX150mm made of mild steel, atleast 2mm thick and vitreous enameled white on both sides and with inscription in signal red colour on front side as required.	2	Each			
16.13	Supplying and laying of 12kV grade 1 metre wide anti skid chequered type rubber mat.	30	Metre			

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
16.14	Supplying and laying of 1.1kV grade 1 metre wide anti skid chequered type rubber mat.	40	Metre			
16.15	Design, manufacture, supply and installation of Fire Buckets 13 litre capacity 4 Nos. duly filled with sand and GI pipe support stand for these buckets including painting etc. complete as required.	5	Set			
16.16	Supply and fixing shock treatment chart in English, Hindi and local language mounted on 5mm thick Plywood and 3mm thick plain glass front complete as required.	4	Set			
16.17	Supplying and fixing Foam type 9 ltrs capacity fire extinguishers as approved by ISI complete as required.	4	Set			
16.18	Supplying and fixing CO2 type 9 ltrs capacity fire extinguishers as approved by ISI complete as required.	6	Set			
16.19	Supplying and fixing CO2 type 4.5 ltrs capacity fire extinguishers as approved by ISI complete as required.	21	Set			
16.20	Supplying and fixing DCP type 5 KG capacity fire extinguishers as approved by ISI complete as required.	1	Set			
16.21	Supplying and fixing DCP type 10 KG capacity fire extinguishers as approved by ISI complete as required.	4	Set			
16.22	Supplying, storing, handling and fixing in position First Aid Medical Box and an 'Artificial Respirator' complete as per tech. specifications as required.	2	Each			

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount ( in Rs.)
1.00	2		3	4	5	6	7
16.23		Providing & laying of 100 mm dia class B G.I. pipe underground/ surface as per site requirement including all accessories & excavation & back filling etc. complete as required	100	Metre			
		<b>TOTAL SUB HEAD 16: EARTHING, SAFETY EQUIPMENT AND MISC. ITEMS</b>					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2		3	4	5	6	7
17.00		<b>SUB HEAD 17:CONDUITING FOR COMPUTER NETWORKING</b>					
17.01		Supply and fixing of following sizes of steel conduit alongwith the accessories in recess ( including supply & fixing of conduit with all accessories) including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required					
	i)	20 mm dia	3100	Metre			
	ii)	25 mm dia	775	Metre			
17.02		Supplying and fixing 2 module modular metal box in recess with modular cover plate, blanking plates and all accessories complete as required	155	Each			
		<b>TOTAL FOR SUBHEAD 17.00 CONDUITING FOR COMPUTER NETWORKING.</b>					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
<b>18.00</b>		<b>SUB HEAD 18: OUTDOOR LIGHTING</b>					
18.01	i	Supply, erection, testing and commissioning of external swaged steel tubular pole with following specifications & items :					
	ii	9.0 Mtrs. high swaged steel tubular pole (Single arm of suitable length each around 1.5 Metre), the construction of the pole shall be as per IS 2713-1980 designation 410 SP-33 with base plate 450mmX450mmX6mm complete as per requirement with two coats of spray paints (shade as approved)					
	iii	1X250 watts street light fixture with 250watts high pressure sodium vapour (HPSV) lamp complete with control gear, acrylic cover etc. and its wiring with 2X4 sq.mm. PVC insulated, FRLS copper conductor and 1,5 sqmm PVC insulated, FRLS copper earth wire from control box complete as required - 1 No. (Philips SRP 051 1xSON250W Acrylic cover or approved equivalent)					
	iv	Suitable size 32 A DP MS Control box with 2 no. incoming and outgoing terminals and 2 nos. tap-out terminal with 6A DP MCB complete as required - 1 Set					
	v	Suitable number(s) 40mm dia Class-B GI Pipe(s) from above control box to upto 0.5 metre below ground level for power cable entry					
	vi	Providing foundation including excavation, shuttering, alignment of poles, casting etc. including lean concrete at the bottom as per CPWD/ BIS specifications.					
		<b>9 metre high single arm pole as mentioned above.</b>	<b>20</b>	Set			
18.02		Supply, installation, testing and commissioning of external post top lantern with following accessories and complete as required :					

S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2		3	4	5	6	7
	i)	4m high (3.3m above ground) 50mm dia GI pole as approved, adopting socket at top for fixture mentioned below, base plate 300 x 300 x 6mm and provision for mounting junction box etc. 1 set.					
	ii)	Supply, installation, testing and commissioning of Post top lantern with 70W HPSV lamp (Philips SPC 106/70(I) HPF or equivalent) and its wiring with 2 x 2.5 sq.mm PVC insulated copper wire and 1.5 sqmm PVC insulated copper earth wire from control box - 1 set.					
	iii)	Suitable size 20A DP MS Control box with 2 no. incoming and outgoing terminals and 2 nos. tap-out terminal with 1 nos. 5A HRC fuses complete 1 set.					
	iv)	Suitable number(s) 40mm dia Class-B GI Pipe(s) from above control box to upto 0.5 metre below ground level for power cable entry					
	v)	Providing 400x400x1000mm deep 1:3:6 ratio cement concrete including excavation shuttering alignment of poles casting etc. including 100mm thick lean concrete shall be provided at the bottom					
		<b>Supply, installation, testing and commissioning of external post top lantern as mentioned above</b>	10	Set			
18.03		Supply, installation, testing and commissioning of Post top lantern with 70W SON lamp (Philips HPS370 1XSON 70(E) or equivalent) and its wiring with 2 x 2.5 sq.mm PVC insulated copper wire and 1.5 sqmm PVC insulated copper earth wire from control box - 1 set	2	Each			
18.04		Supply, installation, testing and commissioning of bollard lamps 1X18 watts CFL (Philips HCS360 1XPL-C 18W Sonara bollard in gree color or equivalent) control box - 1 set.	15	Each			

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
18.05	<b>Road Lighting Panel</b>					
	Supply, installation, testing and commissioning of following outdoor type with canopy, IP-54 protected M.V. cubicle type, totally enclosed, free standing type, dust, damp and vermin proof, MV Panel, busbars, M.V. danger notice plate, interconnections with suitable capacity aluminium leads/solid aluminium strips/rods, connection of incoming and outgoing cables with thimbles, stove enamelled painted and having following incoming and outgoing switchgears complete as required.					
	<b>INCOMER:</b>					
	1 No. 100 Amp 415 volts, FP MCCB 35 KA					
	1 Set of phase indicating lamp with HRC fuses					
	1Set of timer and 100A TP contactor with neutral link (for street lights control) with Photo sensor.					
	<b>BUSBARS:</b>					
	100 Amp TPN Aluminium busbars					
	<b>OUTGOING:</b>					
	18 Nos. 16 Amp 415 volts, DP MCB					
	<b>Road Lighting panel as mentioned above</b>	1	Set			
18.06	Spiral earthing made out of 6 SWG GI wire , 50mm Dia, 115 turns closely wound ,1.5 mtr below ground, earth pit of 350 Dia., 1.5 mtr depth including providing charcoal and salt for earthing at alternate layers of 300 mm depth (total 3 layers),connections etc. complete as required.	15	Set			
	<b>TOTAL SUB HEAD -18.00 OUTDOOR LIGHTING</b>					
	<b>SUB HEAD 19: CCTV</b>					



S.No.		Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00		2	3	4	5	6	7
19.00		<b>CLOSED CIRCUIT TELEVISION SYSTEM (CCTV)</b>					
19.01		Supply and fixing of following size of ISI marked MS conduit along with the accessories in surface/ recess including painting in case of surface conduit or cutting the wall and making good the same in case of recessed conduit as required.					
	i)	20 mm dia	500	Metre			
	ii)	25 mm dia	200	Metre			
19.02		Cabling with 2x1.5 sq. mm PVC insulated copper conductor cable in the existing MS conduit for power supply to the camera.	400	Metre			
19.03		Supply and drawing coaxial 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 conduit as required.	800	Metre			
19.04	A	<b>CAMERAS :</b>					
	i)	Supply, installation, testing and commissioning of indoor 520 TVL high resolution, 0.1 lux (day), 0.001 (night), weatherproof dome type, 1/3-inch Sony CCD imager colour Day Night camera with varifocal lens, 3.6-8mm including Connectors, Lens, camera Mounts. Power Supply and all ancillary equipment required for the proper functioning of the camera complete as per technical specifications and as required of approved makes.	2	Each			

S.No.	Description.	Qty.	Unit.	Rate in Figures (in Rs.)	Rate in words (in Rs.)	Amount (in Rs.)
1.00	2	3	4	5	6	7
	Supply, installation, testing and commissioning of indoor 520 TVL high resolution, 0.1 lux, dome type, 1/3-inch Sony CCD imager colour with varifocal lens, 3.6-8mm including Connectors, Lens, camera Mounts. Power Supply and all ancillary equipment required for the proper functioning of the camera. complete as per technical specifications and as required of approved makes.	19				
	<b>B. DVR</b>					
	i) Supply, installation, testing and commissioning of 16 channel real time, 400 fps, embedded Digital Video Recorder (DVR) with 2 video outputs and facility to record multiple camera signles while simultaneously providing live multi-screen viewing, recording, play back, remote viewing and archiving of recorded data. DVR having capacity of 2 TB HDD storage capacity. DVR will do real time recording at CIF resolution & H.264 compresssion. DVR will be embedded IP based web enabled DVRs. DVR racks and any other item required in the commissioning is in the scope of supply complete as per technical specifications and as required of approved makes.	2	Each			
	<b>C. Monitor</b>					
	Supply, installation, testing and commissioning of 22" CCTV colour LCD flat screen monitor including all accessoriess of approved makes.	2	Each			
	<b>TOTAL SUBHEAD 19 : CCTV</b>					
	<b>GRAND TOTAL FOR ALL ELECTRICAL WORKS</b>					

**SUMMARY OF COST ESTIMATE - SSB TANDA - ELECTRICAL WORKS**

<b>S.No.</b>	<b>Description</b>	<b>Amount Figure (In Rs.)</b>	<b>In Amount in Words (Rs.)</b>
1	<b>SUBHEAD 1: H.T. SUB STATION</b>		
2	<b>SUB HEAD 2: MAIN LT PANEL.</b>		
3	<b>SUB HEAD 3 : DG SETS</b>		
4	<b>SUB HEAD 4 : MV PANELS</b>		
5	<b>SUB HEAD 5 : UPS SYSTEM</b>		
6	<b>SUB HEAD-6: MCB DISTRIBUTION BOARDS.</b>		
7	<b>SUB HEAD: 7 - WIRING</b>		
8	<b>SUB HEAD: 8 - LIGHT FIXTURE AND FANS</b>		
9	<b>SUB HEAD 9: TELEPHONE SYSTEM</b>		
10	<b>SUB HEAD 10: LIGHTENING PROTECTION</b>		
11	<b>SUB HEAD 11 : FIRE DETECTION AND ALARM SYSTEM</b>		
12	<b>SUB HEAD 12: NURSE CALL BELL SYSTEM.</b>		
13	<b>SUB HEAD 13: PUBLIC ADDRESS SYSTEM.</b>		
14	<b>SUB HEAD 14 : LIFTS</b>		
15	<b>SUB HEAD 15: LT CABLES</b>		
16	<b>SUB HEAD 16: EARTHING SAFETY EQUIPMENT AND MISC. ITEMS</b>		
17	<b>SUB HEAD 17:CONDUITING FOR COMPUTER NETWORKING</b>		
18	<b>SUB HEAD 18: OUTDOOR LIGHTING</b>		
19	<b>SUB HEAD 19: CCTV</b>		
	<b>GRAND TOTAL FOR ALL ELECTRICAL WORKS</b>		

# HVAC WORKS

<b>BILL OF QUANTITIES - HVAC WORKS FOR SUPERSPECIALITY BLOCK, TANDA</b>						
<b>Item No.</b> 1	<b>Description</b> 2	<b>Qty</b> 3	<b>Unit</b> 4	<b>Rate In Rs (in Figure)</b> 5	<b>Rate in Rs (in Words)</b> 6	<b>Amount (Rs.)</b> 7
The prices are to be quoted in the below mentioned form and shall include the supply, installation, testing & commissioning at site of all the equipments, ancillary materials as specified and all such items what so ever which may be required to fulfill the intent and purpose as laid down in the specifications and or the drawings.						
The tenderer shall quote rates in figures and in words under column 5&6 and extend amount to column 7						
<b>A</b>	<b>EQUIPMENT</b>					
<b>1.0</b>	<b>WATER CHILLING UNITS.</b>					
1.1	Supply, installation, testing & commissioning of 250 TR (actual) capacity water cooled water chilling units (ARI Certified) as specified and shown in equipment schedule complete as per specifications with.					
	a. Screw Compressor with motor.					
	b. Drive package.					
	c. Mounting frames for all components					
	d. Water cooled condenser with accessories.					
	e. Chiller with accessories.					
	f. Refrigerant piping, fittings, accessories and valves etc.					
	g. Insulation of chiller and suction line.					
	h. First charge of refrigerant and oil.					
	i. Base frame with Vibration isolators					
	j. Automatic capacity control arrangement.					
	k. Lot Safety controls, flow switches, pressure gauge, thermometer etc. as per specifications.					
	l. Suitable capacity motor with necessary insulation , soft starter panel complete with all necessary switchgears and control complete as required					
	m. Necessary water drain & air purge valves wherever required					
	n. Necessary lubrication device as per specifications complete.					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	o. Microprocessor based control panel complete with accessories as per specifications and BMS compatible . ( 2Working +1Stand by )					
	Chilled Water Leaving temp. 44 deg. F					
	Chilled Water Entering temp. 54 deg. F					
	Chiller fouling factor = 0.0005 (FPS units)					
	Condenser Water Leaving Temp. 97.5 deg F					
	Condenser Water Entering Temp. 90 deg F					
	Condenser fouling factor = 0.0005 (FPS units)					
	ARI selection sheet required for full load and part load data at constant entering water of 90 deg. F to condenser shall be submitted.					
	<b>Chilling machine as above (2 W+ 1 S)</b>	3	Nos			
<b>2.0</b>	<b>WATER CIRCULATION PUMPS</b>					
2.1	<b>Primary Chilled Water Pumps</b>					
	Supply, installation, testing and commissioning of vertical split casing end suction type centrifugal chilled water pump sets factory assembled and tested for rated efficiency mounted on a common base frame etc each capable of delivering specified flow rate complete with following as per specifications & schedule of equipments.					
	a. Pump with IP 55 TEFC induction motor with class' F' insulation					
	b. Channel base with vibration isolators, coupling, coupling guard etc.					
	c. Cladded insulation and anti corrosive coating/cathodic electro deposit (CED) type coating inside and outside casing etc. of chilled water pump, etc.					
	d. 2 Nos.- 150 mm dia dial type pressure gauge					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	e. Pumps shall be suitable for operation on 415+/- 10% Volts/ 3ph / 50 Hz/AC power supply.					
	The pump characteristic shall be as follows:					
	Water flow rate= 600 USGPM					
	Head = 12 Metre WC					
	<b>Primary chilled water pumps as described above. (2W+1S)</b>	3	Nos			
2.2	<b>Secondary Pumps &amp; Variable Speed Pumping System</b>					
	Supply, installation, testing and commissioning of vertical split casing type centrifugal chilled water recirculation pumps mounted on a common base etc each capable of delivering specified flow rate complete with following as per specifications & schedule of equipments.					
	a. Pump with IP 55 TEFC induction motor with class F insulation					
	b. Channel base with vibration isolators, coupling, coupling guard etc.					
	c. Cladded insulation and anti corrosive coating/cathodic electro deposit (CED) type coating inside and outside casing etc. of chilled water pump, etc.					
	d. 2 Nos.- 150 mm dia dial type pressure gauge					
	e. Pumps shall be suitable for operation on 415+/- 10% Volts/ 3ph / 50 Hz/AC power supply.					
	f. The price will include control software and networking hardware and software for integration.					
	g. All pumps to be provided with separate VFD's (variable frequency drives). Control panel should also consist of cooling fan.					
	h. Electronic Differential Pressure Transmitters and PLC as required.					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	i. The cost will include making necessary flanged suction and delivery headers in C-Class MS					
	j. Complete set system to be mounted on a common MS base frame and shall follow following duty. The pump characteristic shall be as follows:					
	Water flow rate=710 USGPM					
	Head = 22 Metre WC					
	<b>Secondary chilled water pumps as described above. (2W+1S)</b>	3	Nos			
2.3	<b>Condenser water Pumps</b>					
	Supply, installation, testing and commissioning of vertical split casing end suction type centrifugal pump sets factory assembled and tested for rated efficiency mounted on a common base frame etc each capable of delivering specified flow rate complete with following as per specifications & schedule of equipments.					
	a. Pump with IP 55 TEFC induction motor with class F insulation					
	b. Channel base with vibration isolators, coupling, coupling guard etc.					
	c. Cladded insulation and anti corrosive coating/cathodic electro deposit (CED) type coating inside and outside casing etc. of chilled water pump, etc.					
	d. 2 Nos.- 150 mm dia dial type pressure gauge					
	e. Pumps shall be suitable for operation on 415+/- 10% Volts/ 3ph / 50 Hz/AC power supply.					
	The pump characteristic shall be as follows:					
	Water flow rate=1000 USGPM					
	Head = 20 Metre WC					



Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	<b>Condenser water pumps as described above. (2W+1S)</b>	3	Nos			
2.4	<b>Hot water Pumps</b> Supply, installation, testing and commissioning of vertical split casing type centrifugal hot water recirculation pump sets factory assembled and tested for rated efficiency mounted on a common base etc each capable of delivering specified flow rate complete with following as per specifications & schedule of equipments.					
	a. Pump with IP 55 TEFC induction motor with class F insulation					
	b. Channel base with vibration isolators, coupling, coupling guard etc.					
	c. Cladded insulation and anti corrosive coating/cathodic electro deposit (CED) type coating inside and outside casing etc. of chilled water pump, etc.					
	d. 2 Nos.- 150 mm dia dial type pressure gauge					
	e. Pumps shall be suitable for operation on 415+/- 10% Volts/ 3ph / 50 Hz/AC power supply. The pump characteristic shall be as follows:					
2.4.1	Water flow rate=200USGPM Head = 22 Metre WC	2	Nos			
	<b>Hot water pumps as described above. (1W+1S)</b>					
2.4.2	Water flow rate=75USGPM Head = 20 Metre WC	2	Nos			
	<b>Hot water pumps as described above. (1W+1S)</b>					
5.0	<b>COOLING TOWER</b>					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	Supply, installation, testing and commissioning of induced draft FRP type cooling towers for air conditioning system. Each tower shall be complete with distribution system, filling, louvers, steel ladder, fan and motor. Motor shall be IP 55 suitable for outdoor installation, 415±10% volts, 50 Hz, 3 phase power supply. Isolator enclosed in weather proof panel complete with earthing shall be included. Tower shall be selected on basis of water temperature 97.5 -90 degree F, ambient wet bulb 83 deg F and water flow rate 1000 US gpm. Capacity shall be as follows:-					
	325 TR capacity					
	<b>Cooling Tower as described above. ( 1W+1S)</b>	3	Nos.			
<b>6.0</b>	<b>Hot Water Generator</b>					
	Supply, installation, testing & commissioning of Electric Hot Water Generator for winter heating/monsoon reheating system. Hot water shall be with IP 55 protection and compatible with controls, sensors, control cabling, piping and fittings, thermal insulation, base frame etc. as per specifications.					
6.1	Capacity : 200 KW Status : 1(W) + 0(S) USGPM: 200 Temp IN/OUT : 45/ 50 Deg C	1	Nos.			
6.2	Capacity : 75 KW Status : 1(W) + 1(S) USGPM: 75 Temp IN/OUT : 45/ 50 Deg C	2	Nos.			
<b>7.0</b>	<b>AIR HANDLING UNITS</b>					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
7.1	Supply, installation, testing and commissioning of draw through type Air Handling Units (double skin type) of horizontal /vertical type as specified & shown in schedule of equipment complete with the following :-					
	a. Fan Section and canvas connection,Mixing Box, Thermal break profile. (double skin type)					
	b. Centrifugal blower					
	c. Coil section with cooling coil/s as per specifications.					
	d. Pre filters with filter section as required in all AHUs.					
	e. Fine and hepa filters with filter section wherever specifically specified as per AHU schedule .Wherever fine/hepa filters are specified, item shall include factory fabricated double skin plenum of same specifications as AHU panels and complete with filter frameworks.Fine/hepa filter section along with discharge plenum shall be part of AHU in upper tier.					
	f. Drain pan, drain connection.					
	g. Squirrel cage induction IP 55 TEFC drive motor, drive arrangement, guard etc.All AHU motors shall be compatible for working with VFD.					
	h. Necessary vibration isolators & supporting arrangement.					
	i. Fresh air intake arrangement,necessary water drain & air purge valves wherever required etc.					
	j. Canvass connections,necessary foundations, 2 nos pressure gauge, 2 nos thermometer etc					
	k Controls for AHUs comprising of a set of 3 way modulating proportional linear type motorised diverting/ mixing valve of required size having manual override facility alongwith proportional thermostat & wiring for interconnection with 1.5 sq. mm Cu Conductor multicore armoured complete as required.					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
7.1.1	AH-GF-01 - 13800cfm/ 4RD Cooling Coil/2RD heating coil/50 mm static	1	Nos.			
7.1.2	AH-GF-02 - 3200cfm/ 6RD Cooling Coil/ 2RD heating coil/ 135 mm static ( with Fine & Hepa filters)	1	Nos.			
7.1.3	AH-GF-03 - 2700cfm/ 4RD Cooling Coil/ 2RD heating coil/ 80 mm static ( with fine filters)	1	Nos.			
7.1.4	AH-GF-04 - 3500cfm/ 8RD Cooling Coil/ 2RD heating coil/ 80 mm static ( with fine filters)	1	Nos.			
7.1.5	AH-GF-05 - 3500cfm/ 8RD Cooling Coil/ 2RD heating coil/ 80 mm static ( with fine filters)	1	Nos.			
7.1.6	AH-GF-06 - 3350cfm/ 4RD Cooling Coil/ 2RD heating coil/ 50 mm static	1	Nos.			
7.1.7	AH-FF-01 - 9600cfm/ 4RD Cooling Coil/ 2RD heating coil/ 50 mm static	1	Nos.			
7.1.8	AH-FF-02 - 11350cfm/ 4RD Cooling Coil/ 2RD heating coil/ 50 mm static	1	Nos.			
7.1.9	AH-FF-03 - 1900cfm/ 4RD Cooling Coil/ 2RD heating coil/ 80 mm static (with Fine filters)	1	Nos.			
7.1.10	AH-SF-01 - 8550cfm/ 4RD Cooling Coil/ 2RD heating coil/ 50 mm static	1	Nos.			
7.1.11	AH-SF-02 - 2600cfm/ 4RD Cooling Coil/ 2RD heating coil/ 80 mm static (with Fine filters)	1	Nos.			
7.1.12	AH-SF-03 - 2000cfm/ 4RD Cooling Coil/ 2RD heating coil/ 80 mm static (with Fine filters)	1	Nos.			
7.1.13	AH-SF-04 - 4850cfm/ 4RD Cooling Coil/ 2RD heating coil/ 50 mm static	1	Nos.			
7.1.14	AH-SF-05 - 2300cfm/ 6RD Cooling Coil/ 2RD heating coil/ 135 mm static ( with Fine & Hepa filters)	1	Nos.			
7.1.15	AH-SF-06 - 4450cfm/ 6RD Cooling Coil/ 2RD heating coil/ 135 mm static ( with Fine & Hepa filters)	1	Nos.			
7.1.16	AH-SF-07 - 3050cfm/ 8RD Cooling Coil/ 2RD heating coil/ 135 mm static ( with Fine & Hepa filters) with HRW	1	Nos.			
7.1.17	AH-TF-01 - 8650cfm/ 4RD Cooling Coil/ 2RD heating coil/ 50 mm static	1	Nos.			

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
7.1.18	AH-TF-02 - 2600cfm/ 4RD Cooling Coil/ 2RD heating coil/ 80 mm static (with Fine filters)	1	Nos.			
7.1.19	AH-TF-03 - 2000cfm/ 4RD Cooling Coil/ 2RD heating coil/ 80 mm static (with Fine filters)	1	Nos.			
7.1.20	AH-TF-04 - 5000cfm/ 4RD Cooling Coil/ 2RD heating coil/ 50 mm static	1	Nos.			
7.1.21	AH-TF-05 - 2300cfm/ 6RD Cooling Coil/ 2RD heating coil/ 135 mm static ( with Fine & Hepa filters)	1	Nos.			
7.1.22	AH-TF-06 - 4400cfm/ 6RD Cooling Coil/ 2RD heating coil/ 135 mm static ( with Fine & Hepa filters)	1	Nos.			
7.1.23	AH-TF-07 - 3050cfm/ 8RD Cooling Coil/ 2RD heating coil/ 135 mm static ( with Fine & Hepa filters) with HRW	1	Nos.			
7.1.24	AH-4F-01 - 3500cfm/ 4RD Cooling Coil/ 2RD heating coil/ 50 mm static	1	Nos.			
7.1.25	AH-4F-02 - 2000cfm/ 4RD Cooling Coil/ 2RD heating coil/ 80 mm static (with Fine filters)	1	Nos.			
7.1.26	AH-4F-03 - 2300cfm/ 4RD Cooling Coil/ 2RD heating coil/ 50 mm static	1	Nos.			
7.1.27	AH-4F-04 - 1000cfm/ 4RD Cooling Coil/ 2RD heating coil/ 50 mm static (TFA)	1	Nos.			
7.1.28	AH-4F-05 - 1000cfm/ 4RD Cooling Coil/ 2RD heating coil/ 50 mm static (TFA)	1	Nos.			
7.1.29	AH-5F-01 - 3500cfm/ 4RD Cooling Coil/ 2RD heating coil/ 50 mm static	1	Nos.			
7.1.30	AH-5F-02 - 2000cfm/ 4RD Cooling Coil/ 2RD heating coil/ 80	1	Nos.			
7.1.31	AH-5F-03 - 2300cfm/ 4RD Cooling Coil/ 2RD heating coil/ 50	1	Nos.			
7.1.32	AH-5F-04 - 1000cfm/ 4RD Cooling Coil/ 2RD heating coil/ 50	1	Nos.			
7.1.33	AH-5F-05 - 1000cfm/ 4RD Cooling Coil/ 2RD heating coil/ 50 mm static (TFA)	1	Nos.			

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
7.2	Supply, installation, testing and commissioning of Heat Recovery Wheel suitable for housing in AHUs mentioned above and conforming to standard specification. The capacity of Heat Recovery Wheel shall be as follows. The face velocity across HRW shall be 700 FPM					
7.2.1	3050 cfm	1	Nos.			
7.2.2	3050 cfm	1	Nos.			
7.3	<b>CEILING SUSPENDED UNITS</b>					
	Supply, installation, testing and commissioning of draw through type Air Handling Units (double skin type) of ceiling suspended type as specified & shown in schedule of equipment complete with the following :-					
	a. Fan Section and canvas connection,Mixing Box, Thermal break profile. (double skin type)					
	b. Centrifugal blower					
	c. Coil as per specifications.					
	d. Pre filters as required					
	e. Drain pan, drain connection.					
	f. Squirrel cage induction IP 55 TEFC drive motor, drive arrangement, guard etc.All AHU motors shall be compatible for working with VFD.					
	g. Necessary vibration isolators & supporting arrangement.					
	h. Fresh air intake arrangement,necessary water drain & air purge valves wherever required etc.					
	i. Canvass connections,suspension arrangement, 2 nos pressure gauge, 2 nos thermometer etc					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	j Controls for AHUs comprising of a set of 3 way modulating proportional linear type motorised mixing valve of required size having manual override facility alongwith proportional thermostat & wiring for interconnection with 1.5 sq. mm Cu Conductor multicore armoured complete as required.					
7.3.1	CSU -GF- 01 -1400cfm/4 RD Cooling Coil/2 RD heating coil/40 mm static	1	Nos.			
7.3.2	CSU -GF- 02 -5700cfm/4 RD Cooling Coil/2 RD heating coil/50 mm static	1	Nos.			
7.3.3	CSU -GF- 03 -1400cfm/4 RD Cooling Coil/2 RD heating coil/40 mm static	1	Nos.			
7.3.4	CSU -GF- 04 -2100cfm/4 RD Cooling Coil/2 RD heating coil/40 mm static	1	Nos.			
7.3.5	CSU -SF- 01 -1550cfm/4 RD Cooling Coil/2 RD heating coil/40 mm static	1	Nos.			
7.3.6	CSU -SF- 02 -1750cfm/4 RD Cooling Coil/2 RD heating coil/40 mm static	1	Nos.			
7.3.7	CSU -TF- 01 -1750cfm/4 RD Cooling Coil/2 RD heating coil/40 mm static	1	Nos.			
<b>8.0</b>	<b>FAN COIL UNITS</b>					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	Supply, installation, testing and commissioning of horizontal type sheet metal ceiling suspended FCU's each complete with 3 row deep chilled water cooling coil and 01 row deep heating coil of copper tubes aluminium fins construction, centrifugal fan, 3 speed, IP 55,class F insulation motor,aluminium cleanable filters insulated condensate drain pan, coil piping connections, condensate drain connection, 2 way modulaing motorised valves with proportional thermostate, vibration isolator,wiring complete as required complete with ball valve, ball valve with strainer as required as per specification & drawings with the following capacities:-					
8.1	1.0 TR	32	Nos.			
8.2	1.5 TR	45	Nos.			
8.3	2.0 TR	4	Nos.			
8.4	3.0 TR	2	Nos.			
<b>9.0</b>	<b>Inline Fans</b>					
9.1	Supply, installation, testing and commissioning of Inline Fans as shown in drawings and as per equipment schedule . Each fan shall be complete with centrifugal blowers, totally enclosed fan cooled motor. Fan motor shall be suitable for single phase, 220 +/- 6% V, 50 Hz AC supply. Item shall be complete with starter & cabling.					
	Duty:For OT					
9.1.1	Air Quantity :350 CFM Static Pressure :20 mm wg	2	Nos.			
9.1.2	Air Quantity :400 CFM Static Pressure :20 mm wg	1	Nos.			
9.1.3	Air Quantity :450 CFM	2	Nos.			



Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	Static Pressure :20 mm wg					
	Duty: For Scrub areas					
9.1.3	Air Quantity :250 CFM	7	Nos.			
	Static Pressure :20 mm wg					
<b>10.0</b>	<b>Propeller Fans/ centrifugal fans</b>					
10.1	<b>Propeller fans</b>					
	Supplying, installing, testing and commissioning of direct driven Propeller fan for exhaust air as shown in drawings. 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 selection arrangement and Electrical characteristics shall be as follows:					
10.1.1	300 mm dia 900 RPM fan suitable for 220 +/- 10% volts, 50 Cycles, 1 Phase AC Supply	12	Nos			
10.1.2	225 mm dia 900 RPM fan suitable for 220 +/- 10% volts, 50 Cycles, 1 Phase AC Supply	14	Nos			
10.1.3	150 mm dia 900 RPM fan suitable for 220 +/- 10% volts, 50 Cycles, 1 Phase AC Supply	22	Nos			
<b>11.0</b>	<b>Tube Axial Flow fans</b>					
11.1	<b>Single speed fans</b>					
	Supply, installation, testing and commissioning of tube axial flow fans as shown in drawings, Each fan shall be direct driven.. Fan motor shall be suitable for 3 Phase, 415+/- 10% V, 50Hz AC supply, IP 55 Class H insulation . Fan shall be complete with gravity louvers.					
11.1.1	Duty: Liftwell pressurization					
	Air Quantity : 4500 CFM					
	Static Pressure : 30 mm wg	3	Nos.			

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	250 deg C, 2Hrs					
<b>12.0</b>	<b>EXPANSION TANK</b>					
	Supply, installation, testing and commissioning of pressurised PVC., expansion tank of following capacities made of PVC 2 layer sheet complete with 50 mm thick fire retardant type 32 kg/mt cu density TF quality expanded polystyrene insulation finished with two layers of sand cement plaster and painted complete with vent, drain connections , float valve, quick fill connection, manhole cover etc as specified. (Of double layered Sintex or equivalent make).					
12.1	1000 ltrs. (for chilled water circuit)	1	No.			
12.2	1000 ltrs. (for hot water circuit)	1	No.			
12.3	500 ltrs. (for hot water circuit)	1	No.			
<b>B</b>	<b>PIPING</b>					
<b>13.0</b>	<b>CONDENSER WATER PIPING &amp; VALVES</b>					
	Supply, laying/fixing, testing and commissioning of M.S. heavy class ERW piping confirming to IS : 3589/IS:1239 with necessary clamps, supports, anti vibration mountings, hangers and fittings such as bends, tees, reducers etc. duly painted as per specifications :					
13.1	300 mm dia	120	RM			
13.2	250 mm dia	140	RM			
13.3	200 mm dia	60	RM			
13.4	50 mm dia	80	RM			
13.5	40 mm dia	60	RM			
<b>14.0</b>	<b>Valves</b>					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
<b>14.1</b>	<b>Butterfly valves :</b>					
	Supply, fixing and testing of following valves, strainers, in the chilled water piping complete with companion flanges, nut bolts, gaskets, supports etc. duly insulated and painted as per specifications:					
14.1.1	300 mm dia	3	Nos			
14.1.2	250 mm dia.	18	Nos			
14.1.3	150 mm dia.	2	Nos			
14.1.4	50 mm dia.	6	Nos			
<b>14.2</b>	<b>Balancing valves :</b>					
14.2.1	250 mm dia.	6	Nos			
<b>14.3</b>	<b>Non return/Check valves :</b>					
14.3.1	250 mm dia	3	Nos			
<b>14.4</b>	<b>Pot strainer with drain valve</b>					
14.4.1	300 mm dia.	1	Nos			
14.5	<b>Y- strainer with drain valve</b>					
14.5.1	250 mm dia.	3	Nos			
<b>15.0</b>	<b>CHILLED WATER PIPING</b>					
	Supply, laying/fixing, testing and commissioning of M.S. heavy class ERW piping confirming to IS : 3589/IS:1239 with necessary clamps, supports, anti vibration mountings, hangers and fittings such as bends, tees, reducers etc. duly insulated and painted as per specifications :					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
15.1	250 mm dia	160	RM			
15.2	200 mm dia	60	RM			
15.3	150 mm dia	150	RM			
15.4	125 mm dia	40	RM			
15.5	100 mm dia	310	RM			
15.6	80 mm dia	240	RM			
15.7	65 mm dia	570	RM			
15.8	50 mm dia	390	RM			
15.9	40 mm dia	650	RM			
15.10	32 mm dia	790	RM			
15.11	25 mm dia	830	RM			
15.12	20 mm dia	1120	RM			
15.13	15 mm dia	280	RM			
<b>16.0</b>	<b>VALVES &amp; STRAINERS</b>					
	Supply, fixing and testing of following valves, strainers, in the chilled water piping complete with companion flanges, nut bolts, gaskets, supports etc. duly insulated and painted as per specifications:					
<b>16.1</b>	<b>Butterfly valves :</b>					
16.1.1	250 mm dia	2	Nos			
16.1.2	200 mm dia.	8	Nos			
16.1.3	125 mm dia.	14	Nos			
16.1.4	100 mm dia.	6	Nos			
16.1.5	80 mm dia.	4	Nos			
16.1.6	65 mm dia	18	Nos			
16.1.7	50 mm dia.	10	Nos			
16.1.8	40 mm dia.	20	Nos			
16.1.9	32 mm dia	40	Nos			
16.1.10	25 mm dia	42	Nos			

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
16.1.11	20 mm dia	48	Nos			
<b>16.2</b>	<b>Balancing valves :</b>					
16.2.1	250 mm dia	3	Nos			
16.2.2	200 mm dia.	6	Nos			
16.2.3	125 mm dia.	2	Nos			
16.2.4	100 mm dia.	4	Nos			
16.2.5	80 mm dia.	2	Nos			
16.2.6	65 mm dia	14	Nos			
16.2.7	50 mm dia.	4	Nos			
16.2.8	40 mm dia.	10	Nos			
16.2.9	32 mm dia	20	Nos			
16.2.10	25 mm dia	22	Nos			
16.2.11	20 mm dia	24	Nos			
<b>16.3</b>	<b>Non return/Check valves :</b>					
16.3.1	200 mm dia	3	Nos			
	150 mm dia.	3	Nos			
16.3.1	100 mm dia	2	Nos			
	65 mm dia.	2	Nos			
<b>16.4</b>	<b>Y- strainers with drain valve</b>					
15.4.1	250 mm dia	3	Nos			
15.4.2	200 mm dia.	6	Nos			
15.4.3	125 mm dia.	2	Nos			
15.4.4	100 mm dia.	4	Nos			
15.4.5	80 mm dia.	2	Nos			
15.4.6	65 mm dia	14	Nos			
15.4.7	50 mm dia.	4	Nos			
15.4.8	40 mm dia.	10	Nos			
15.4.9	32 mm dia	20	Nos			
15.2.10	25 mm dia	22	Nos			

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
15.2.10	20 mm dia	24	Nos			
<b>16.5</b>	Providing and fixing in position the following Gate Valves duly insulated as per specifications:					
16.5.1	50 mm dia Valves	6	Nos.			
16.5.2	40 mm dia Valves	4	Nos.			
16.5.3	32 mm dia Valves	4	Nos.			
<b>16.6</b>	Motorized Butterfly Valves					
	Providing and fixing the following motorized butterfly valves for chillers, chilled water pumps and boiler at inlet and outlet. All valves shall be BMS compatible and complete with electric wiring, earthing and control wiring etc.					
16.6.1	200 mm dia	3	Nos.			
16.6.2	150 mm dia	3	Nos.			
<b>16.7</b>	Supply, installation, testing and commissioning cooling thermostats for various Air Handling Units					
16.7.1	For AHUs	40	Nos.			
16.7.2	For FCUs	83	Nos.			
<b>17.0</b>	<b>DRAIN PIPING</b>					
	Supply, laying/fixing, testing and commissioning of G.I. medium class ERW piping confirming to IS:1239 with necessary clamps, supports, anti vibration mountings, hangers and fittings such as bends, tees, reducers etc. duly insulated and painted as per specifications for condensate drain from air handling units and chillers etc.					
17.1.1	50 mm dia	80	RM			
17.1.2	40 mm dia	150	RM			
17.1.3	32 mm dia	175	RM			
17.1.4	25 mm dia	150	RM			

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
<b>C</b>	<b><u>AIR DISTRIBUTION</u></b>					
<b>18.0</b>	<b>DUCTING</b>					
<b>18.1</b>	<b>GSS DUCTING</b>					
	Supply, installation, testing, commissioning and balancing of G.S.S ducting of following thickness including necessary supports, hangers, nut bolts, gaskets, splitter dampers, vanes canvass connections etc. complete as per specifications & drawings:					
18.1.1	1.25 mm(18 G) GSS	400	Sqm.			
18.1.2	1.0 mm (20 G ) GSS	950	Sqm.			
18.1.3	0.80 mm (22 G) GSS	1500	Sqm.			
18.1.4	0.63 mm (24 G) GSS	4000	Sqm.			
<b>18.2</b>	<b>ALUMINIUM DUCTING</b>					
	Supply, fabrication, installation and testing of aluminium ducts in accordance with the approved shop floor drawing and specifications. Material should confirm to IS 737 latest edition.					
18.2.1	22 gauge	500	Sqm.			
18.2.2	20 gauge	250	Sqm.			
18.2.3	18 gauge	100	Sqm			
<b>19.0</b>	<b>FIRE DAMPERS</b>					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
19.1	Supply, installation, testing and commissioning of motorized combined smoke & fire dampers made out of GI sheet of at least 120 minutes fire rating complete with GI damper of required size, smoke sensor, etc as per specifications and shop drawings.					
19.1.1	Fire/smoke Damper	45	Sqm			
19.1.2	Actuator & control panel	66	sets			
<b>20.0</b>	<b>VOLUME CONTROL DAMPERS</b>					
	Supply, installation and testing of volume control dampers of GI sheet, box type to be provided in ducts complete with suitable links, levers and quadrants for manual control of air volume and air balancing as per specifications and drawings.	50	Sqm.			
<b>21.0</b>	<b>CEILING DIFFUSERS</b>					
21.1	Supply, Installation, testing and balancing of square/circular supply air diffusers of powder coated aluminium construction with attached volume control dampers as per specs. and drawings.	25	Sqm.			
21.2	Supply, installation, testing and balancing of square/circular return air diffusers of powder coated aluminium construction without volume control dampers as per specifications and drawings	25	Sqm.			
<b>22.0</b>	<b>GRILLES</b>					



Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
22.1	Supply, installation, testing and balancing of supply/return air grilles with/without volume control dampers of powder coated aluminium construction suitable for installation in walls, false ceiling boxing etc as per specifications and drawings.					
22.1.1	Supply air grilles in single louvers with volume control dampers.	5	Sqm.			
22.1.2	Return air grilles in single louvers without volume control dampers.	5	Sqm.			
22.2	<b>LINEAR GRILLES</b>					
	Supply, installation,testing and balancing of air linear grilles of powder coated aluminium construction suitable for installation in walls/false ceiling, boxing etc as per specifications and drawings.	35	Sqm.			
22.3	<b>GRILLE DAMPERS</b>					
	Supply, installation and balancing of aluminium construction volume control dampers for linear grills.	15	Sqm.			
24.0	<b>SLOT DIFFUSER</b>					
	Supply, installation,testing and balancing of <b>slot diffusers</b> of powder coated extruded aluminium construction suitable for installation in walls/false ceiling, boxing etc as per specifications and drawings.the diffusers shall be with hit and miss damper at the supply air portion as per specification and approved shop drawings.	5	Sqm.			
25.0	<b>LAMINAR FLOW DIFFUSERS</b>					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	Providing & fixing of stainless steel plenum duly reinforced and made 100% air tight complete with 55% free perforated grilles( 18 Gauge SS) at bottom for laminar flow in OTs. The plenum shall be insulated with 15 mm closed cell polyethylene insulation & shall be manufactured & installed by specialised agency as per designed to be approved by customer/Consultant Size: 1000 x 600	56	Nos.			
<b>26.0</b>	Providing & fixing of aluminium powder coated grilles with 60% face area. The grill shall be complete with damper & complete 25 mm thick aluminium filters	8	Sqm			
<b>27.0</b>	<b>Fresh Air Louvers with bird screen</b>					
27.1	Supply, installation, testing, commissioning and balancing of fresh air opening comprising of powder coated extruded aluminium louvers with bird screen, projection with frame and volume control damper with lever mounting arrangement etc. as per specifications and drawings.	10	Sqm.			
<b>28.0</b>	<b>Pan type Humidifier</b>					
28.1	Supply, installation, testing and commissioning of electric pan type humidifiers in each Air Handling Rooms to provide humidification during winter months heating operation. The humidifier shall evaporate 12 liters water per hour and complete with all required water valves incoming MCB, humidistat and ,electrical & control wiring and earthing as required.					
28.1.1	6 KW	8	Sets			
28.1.2	4.5 KW	2	Sets			
<b>D</b>	<b>INSULATION</b>					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
<b>29.0</b>	<b>DUCT INSULATION</b>					
29.1	Supply and fixing resin bonded fibre glass insulation on supply/return air ducts covered with polythene and finished as specified.					
29.1.1	50 mm thick insulation ( For duct in Non AC area)	500	Sqm.			
29.1.2	25 mm thick insulation ( For duct in AC area)	3500	Sqm.			
29.2	Supply and fixing of 15 mm thick foil faced FR Closed Cell Chemically Crossed Linked PolyEthylene Foam insulation for supply air ducting as per the specifications and approved shop drawings.	500	Sqm.			
29.3	Supply and application/fixing of underdeck insulation with 50 mm thick TF quality expanded polystyrene of exposed roof as per specification.	1150	Sqm.			
<b>30.0</b>	<b>DUCT ACOUSTIC LINING</b>					
30.1	Supply,application and fixing of resin bonded fibre glass hard board acoustic insulation in supply air ducting/plenum covered with tissue paper and perforated aluminium sheet as specified.	500	Sqm.			
<b>31.0</b>	<b>PLANT ROOMS ACOUSTIC INSULATION</b>					
31.1	Supply and fixing of acoustic insulation on walls and ceiling of Air handling units rooms with 50mm thick resin bonded fibre glass slabs fixed in frame work and finished with vapour barrier and perforated aluminium sheet complete as per specifications and drawings.	600	Sqm.			

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
<b>E</b>	<b><u>ELECTRICAL</u></b>					
<b>32.0</b>	<b>AIR- CONDITIONING PANELS</b>					
	<b>All bill of items are to be read in conjunction with specifications and drawings.</b>					
	Supply, installation, testing and commissioning of A/C panels suitable for 415 V, 3 phase, 4 wires, 50 Hz power distribution system. The panel shall be cubicle non draw out type free standing floor mounting sheet metal enclosed flush front with aluminium busbars, separate earth bus bars to be provided throughout the length of the panel. The incoming & outgoing feeder breakers, fuses, indicating lamps etc. shall be accomodated in a modular multitier arrangement. The painting shall be done as per relavant IS codes as specified in the specifications. Adequate size cable alley shall be provided all round the panel and in the back for each cable bending and termination. The outgoing feeders inside the panel shall be connected through solid bus bar. Flexible cable links are not acceptable. Bus bars shall be provided with sleeves or heat resistant insulated paint. The panel shall be suitable for cable entry from top. The panel shall be fabricated after the approval of fabrication drawings.All the panels shall have minimum 20%spare capacity.					
	i)All doors to have pad locking and shrouding arrangement.					
	ii)All switches to be heavy duty type base mounted having operating handle.					
<b>32.1</b>	<b>Main/ Emergency Air-conditioning MCC in plant room in basement INCOMER</b>					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	2 No. 1250A, 415/500V, Motorised, Fully Drawout type (EDO), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit, Instantaneous & earth Fault trip including under voltage release and lockable trip push button. The ACB should have Icw =Ics= 50KA for 1 sec.R, Y & B Phase indicating lamps (LED type) with 2A control SP MCBs.Digital multi function meter with one set of suitable CTs, CT shorting links, R/Y/B LED indicating lamps and 2A control SP MCBs.					
	1 set of indicating lamps to indicate OPEN, CLOSE, TRIP.					
	Push button to CLOSE the ACB.					
	1 Set of A meter with ASS and CTs.					
	<b>BUSBARS :2000 A TPN</b>					
	<b>Bus Coupler</b>					
	1 No. 1250A, 415/500V, Motorised, Fully Drawout type (EDO), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit, Instantaneous & earth Fault trip including under voltage release and lockable trip push button. The ACB should have Icw =Ics=1 35KA for 1 sec.					
	1 set of indicating lamps to indicate OPEN, CLOSE, TRIP.					
	Push button to CLOSE the ACB.					
	1 Set of A meter with ASS and CTs.					
	<b>OUTGOING</b>					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
i)	3 No. 800A, 415/500V, Motorised, Fully Drawout type (EDO), Four Pole, Air Circuit Breaker with microprocessor based overload, short circuit, instantanoious & earth Fault trip including under voltage release and lockable trip push button. The ACB should have I <sub>cw</sub> =I <sub>cs</sub> =35 KA for 1 sec.1 set of indicating lamps to indicate OPEN, CLOSE, TRIP.1 set of indicating lamps to indicate OPEN, CLOSE, TRIP.Push button to CLOSE the ACB. 1 Set of A meter with ASS and CTs. For Water chilling machines(3W)).					
ii)	1 nos 400 Amp 415 volts, 35 KA (I <sub>sc</sub> ), FP MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In.Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB.Ampere Metre of suitable range with suitable set of CT's and ASS.For hot water genetators.(1W)					
iii)	2 nos 200 Amp 415 volts, 35 KA (I <sub>sc</sub> ), FP MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In.Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB.Ampere Metre of suitable range with suitable set of CT's and ASS.For hot water genetators.(2W)					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
iv)	4 Nos. 125 Amp 415 volts, 36 KA (Isc), FP MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In.Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB.Ampere Metre of suitable range with suitable set of CT's and ASS with fully automatic star delta starter suitable for 40 hp condenser water pumps.(3W+1S)					
v)	4 Nos. 63 Amp 415 volts, 36 KA (Isc), FP MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In.Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB.Ampere Metre of suitable range with suitable set of CT's and ASS with fully automatic star delta starter suitable for 15 hp Primary chilled water pumps.(3W+1S)					
vi)	4 Nos. 125 Amp 415 volts, 35 KA (Isc), FP MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In.Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB.Ampere Metre of suitable range with suitable set of CT's and ASS with DOL starter suitable for 30 hp Secondary chilled water pumps.(3W+1S)					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
vii)	3 Nos. 63 Amp 415 volts, 30 KA (Isc), FP MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In.Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB.Ampere Metre of suitable range with suitable set of CT's and ASS with fully automatic star delta starter suitable for 10 hp Hot water pumps.(2W+1S)					
viii)	3 Nos. 32 Amp 415 volts, 30 KA (Isc), FP MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In.Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB.Ampere Metre of suitable range with suitable set of CT's and ASS with fully automatic star delta starter suitable for 5 hp Hot water pumps.(2W+1S)					
ix)	8 Nos. 32Amp 415 volts, 30 KA (Isc), FP MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In.Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers.Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB.Ampere Metre of suitable range with suitable set of CT's and ASS with fully automatic star delta starter suitable for 7.5 hp cooling towers.(6W+2S)					
	<b>Complete panel as above</b>	1	Panel			



Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
32.2	<b>AHU MAIN DISTRIBUTION PANEL ( in plant room)</b>					
	Supply, installation, testing and commissioning of AHU panel suitable for 415 V, 3 phase, 4 wires, 50 Hz power distribution system. The panel shall be cubicle non draw out type free standing floor mounting sheet metal enclosed flush front with aluminium busbars, separate earth bus bars to be provided throughout the length of the panel. The incoming & outgoing feeder breakers, fuses, indicating lamps etc. shall be accommodated in a modular multitier arrangement. The painting shall be done as per relevant codes as specified in the specifications. Adequate size cable alley shall be provided all round the panel and in the back for each cable bending and termination. The outgoing feeders inside the panel shall be connected through solid bus bar. Flexible cable links are not acceptable. Bus bars shall be provided with sleeves or heat resistant insulated paint. The panel shall be suitable for cable entry from top. The panel shall be fabricated after the approval of fabrication drawings. All the panels shall have minimum 20% spare capacity.					
	i) All doors to have pad locking and shrouding arrangement.					
	ii) All switches to be heavy duty type base mounted having operating handle.					
32.2.1	<b>AHU PANEL AHP I</b>					
	<b>INCOMER</b>					
	01 nos. 630 Amp 415 volts, 35 KA (Isc), FP MCCB with thermal magnetic release having variable current settings of 0.8 to 1.0 In. Extended rotary operating mechanism with door interlock with defeat feature and padlock facility. MCCB should be with spreader link and phase barriers. Indicating lamps with 2A protection MCBs to indicate OPEN, CLOSE, TRIP for MCCB.					
	1 set phase indication lamps with control fuses.					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	1 no. voltmeter with VSS.					
	1 no. ammeter with ASS and CTs.					
	800 A TPN Aluminium conductor bus bar dully sleeved.					
	<b>OUTGOING</b>					
	4 sets-125 A FP MCCB 15 KA outgoing with ON/OFF indiacting lamps and push buttons complete for (GF,2F,3F+spare)					
	4 sets-63 A FP MCCB 15 KA outgoing with ON/OFF indiacting lamps and push buttons complete for (1F,4F,5F+Spares)					
	<b>Complete panel as above</b>	1	Panel			
32.2.3	<b>AHU PANEL AHP GF ( For AHUs on GF)</b>					
	<b>INCOMER</b>					
	1 no. 125A, FP MCCB 15 KA with					
	1 set phase indication lamps with control fuses.					
	1 no. voltmeter with VSS.					
	1 no. ammeter with ASS and CTs.					
	150 A TPN Aluminium conductor bus bar dully sleeved.					
	<b>OUTGOING</b>					
	1 sets-63 A FP MCCB 15 KA outgoing with ON/OFF indiacting lamps and push buttons complete					
	4 sets-32 A FP MCCB 10 KA outgoing for with ON/OFF indiacting lamps and push buttons complete					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	5 sets-16A FP MCCB 10 KA outgoing with ON/OFF indiacting lamps and push buttons complete					
	<b>Complete panel as above</b>	1	panel			
32.2.4	<b>AHU PANEL AHP 1F ( For AHUs on 1F)</b>					
	<b>INCOMER</b>					
	1 no. 63A, FP MCCB 15 KA with					
	1 set phase indication lamps with control fuses.					
	1 no. voltmeter with VSS.					
	1 no. ammeter with ASS and CTs.					
	100 A TPN Aluminium conductor bus bar dully sleeved.					
	<b>OUTGOING</b>					
	2 sets-32 A FP MCCB 10 KA outgoing for with ON/OFF indiacting lamps and push buttons complete					
	1 sets-16A FP MCCB 10 KA outgoing with ON/OFF indiacting lamps and push buttons complete					
	<b>Complete panel as above</b>	1	panel			
32.2.5	<b>AHU PANEL AHP 2F ( For AHUs on 2F)</b>					
	<b>INCOMER</b>					
	1 no. 125A, FP MCCB 15 KA with					
	1 set phase indication lamps with control fuses.					
	1 no. voltmeter with VSS.					
	1 no. ammeter with ASS and CTs.					
	150 A TPN Aluminium conductor bus bar dully sleeved.					
	<b>OUTGOING</b>					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	1 sets-63 A FP MCCB 15 KA outgoing with ON/OFF indiacting lamps and push buttons complete					
	4 sets-32 A FP MCCB 10 KA outgoing for with ON/OFF indiacting lamps and push buttons complete					
	4 sets-16A FP MCCB 10 KA outgoing with ON/OFF indiacting lamps and push buttons complete					
	<b>Complete panel as above</b>	1	panel			
32.2.6	<b>AHU PANEL AHP 3F ( For AHUs on 3F)</b>					
	<b>INCOMER</b>					
	1 no. 125A, FP MCCB 15 KA with					
	1 set phase indication lamps with control fuses.					
	1 no. voltmeter with VSS.					
	1 no. ammeter with ASS and CTs.					
	150 A TPN Aluminium conductor bus bar dully sleeved.					
	<b>OUTGOING</b>					
	1 sets-63 A FP MCCB 15 KA outgoing with ON/OFF indiacting lamps and push buttons complete					
	4 sets-32 A FP MCCB 10 KA outgoing for with ON/OFF indiacting lamps and push buttons complete					
	3 sets-16A FP MCCB 10 KA outgoing with ON/OFF indiacting lamps and push buttons complete					
	<b>Complete panel as above</b>	1	panel			
32.2.7	<b>AHU PANEL AHP4F ( For AHUs on 4F)</b>					
	<b>INCOMER</b>					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	1 no. 63A, FP MCCB 15 KA with 1 set phase indication lamps with control fuses. 1 no. voltmeter with VSS. 1 no. ammeter with ASS and CTs. 100 A TPN Aluminium conductor bus bar dully sleeved.					
	<b>OUTGOING</b>					
	5 sets-16A FP MCCB 10 KA outgoing with ON/OFF indiacting lamps and push buttons complete <b>Complete panel as above</b>	1	panel			
32.2.8	<b>AHU PANEL AHP 5F ( For AHUs on 5F)</b>					
	<b>INCOMER</b>					
	1 no. 63A, FP MCCB 15 KA with 1 set phase indication lamps with control fuses. 1 no. voltmeter with VSS. 1 no. ammeter with ASS and CTs. 100 A TPN Aluminium conductor bus bar dully sleeved.					
	<b>OUTGOING</b>					
	8 sets-16A FP MCCB 10 KA outgoing with ON/OFF indiacting lamps and push buttons complete <b>Complete panel as above</b>	1	panel			
33.0	<b>AHU STARTER PANELS (AHSP)</b>					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	Supply, installation, testing and commissioning of cubicle type totally enclosed wall/floor mounted free standing type, dust, damp and vermin proof for AHU made of 2mm thick CRCA sheet steel in compartmentalized design as per specification and drawings. These distribution boards shall be mounted on 50x50x6 MS angle frame work grouted to floor/walls of recessed. The rate includes the angle iron frame, support, painting, numbering, earthing etc. as required					
33.1	<b>STARTER PANEL</b>					
	<b>OUTGOING :</b>					
	1 No. 63 Amps MCCB 10 KA for 10 HP Motor with suitable Starters for motor with thermal overload protection, single phase preventor, spare NO_NC contacts for interlocking, ON-OFF indication lamps with push button, ammeter with ASS and CTs for AHU motor as required.	3	Nos.			
33.2	<b>STARTER PANEL</b>					
	<b>AHU STARTER PANEL (AHSP -</b>					
	<b>OUTGOING :</b>					
	1 No. 32 Amps MCCB 10 KA for 7.5HP Motor with suitable Starters for motor with thermal overload protection, single phase preventor, spare NO_NC contacts for interlocking, ON-OFF indication lamps with push button, ammeter with ASS and CTs for AHU motor as required.	7	Nos.			
33.3	<b>AHU STARTER PANEL (AHSP -</b>					
	<b>OUTGOING :</b>					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	1 No. 32 Amps MCCB 10 KA for 5 HP Motor with suitable Starters for motor with thermal overload protection,single phase preventor,spare NO_NC contacts for interlocking, ON-OFF indication lamps with push button,ammeter with ASS and CTs for AHU motor as required.	7	Nos.			
33.4	<b>AHU STARTER PANEL (AHSP -</b>					
	<b>OUTGOING :</b>					
	1 No. 16 Amps MCCB 10 KA for 3 HP Motor with suitable Starters for motor with thermal overload protection,single phase preventor,spare NO_NC contacts for interlocking, ON-OFF indication lamps with push button,ammeter with ASS and CTs for AHU motor as required.	6	Nos.			
33.5	<b>AHU STARTER PANEL (AHSP -</b>					
	<b>OUTGOING :</b>					
	1 No. 16 Amps MCCB 10 KA for 1.5/2 HP Motor with suitable Starters for motor with thermal overload protection,single phase preventor,spare NO_NC contacts for interlocking, ON-OFF indication lamps with push button,ammeter with ASS and CTs for AHU motor as required.	11	Nos.			
33.6	<b>AHU STARTER PANEL</b>					
	<b>OUTGOING :</b>					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	1 No. 16 Amps MCCB 10 KA for 1/0.75 HP Motor with suitable Starters for motor with thermal overload protection, single phase preventor, spare NO_NC contacts for interlocking, ON-OFF indication lamps with push button, ammeter with ASS and CTs for AHU motor as required.	9	Nos.			
<b>34.0</b>	<b>CABLING</b>					
	Supplying, laying, effecting proper connections, testing & commissioning of following size of 1.1 kv PVC insulated aluminium conducting armoured cables as per IS 1554 Part-1 laid underground/cable tray/on surface of wall/hume pipe etc. & termination with brass compression glands as required.					
34.1	3.5Cx 300 sq.mm cable	40	Mtr			
34.2	3.5Cx 240 sq.mm cable	180	Mtr			
34.3	3.5C x 185 sq.mm cable	40	Mtr			
34.4	3.5C x 95 sq.mm cable	425	Mtr			
34.5	3.5C x 70 sq.mm cable	140	Mtr			
34.6	3.5C x 50 sq.mm cable	50	Mtr			
34.7	3.5C x 35 sq.mm cable	550	Mtr			
34.8	4Cx 25 sq.mm Cable	20	Mtr			
34.9	4 C X 16 sq. mm. Cable	50	Mtr			
34.10	4 C X10 sq. mm. Cable	300	Mtr			
34.11	4 C X 6 sq. mm. Cable	680	Mtr			
34.12	3 C X 6 sq. mm. Cable	500	Mtr			
34.13	3 C X 4 sq. mm. Cable	1080	Mtr			
34.14	4C X4 sq. mm. Cable	1040	Mtr			
34.15	3C X 2.5 sq.mm Cable	400	Mtr			
<b>35.0</b>	<b>CABLE TRAYS</b>					



Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	Supply & installation of following sizes of perforated MS cable trays including horizontal & vertical bends, reducers, tees, cross members and other accessories as required and duly supported from the ceiling/wall/floor with MS suspenders/supports and including painting etc. as required					
35.1	300 mm widthx50 mm deep x1.6 mmthickness	150	Mtr			
35.2	200 mm widthx50 mm deep x1.6 mmthickness	300	Mtr			
35.3	150 mm widthx50 mm deep x1.6 mmthickness	250	Mtr			
35.4	100 mm widthx50 mm deep x1.6 mmthickness	600	Mtr			
<b>36.0</b>	<b>EARTHING</b>					
	Earth pits with GI earth plate of size 600mmx600mmx6mm thick including all accessories , down watering GI pipes 40mm dia and providing masonry enclosure with cover plate having interlocking arrangement and watering pipe etc. with charcoal (of or coke and salt) complete as required	4	Set			
36.1	Providing & fixing GI earth strip 40mm x 6mm on surface or in recess for earth connections etc. as required	70	Mtr			
36.2	Providing and fixing GI earth strip on walls/ trenches complete as per specifications and as required.					
36.2.1	38mmx 6mm	100	Mtr			
36.2.2	25mm x 3mm	180	Mtr			
36.3	Providing and fixing earth wire of complete as per specifications as required.					
36.3.1	4 SWG wire	100	Mtr			

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
36.3.2	6 SWG wire	250	Mtr			
36.3.3	8 SWG wire	600	Mtr			
<b>37.0</b>	<b>CONTROL CABLING</b>					
	Supply, laying, effecting proper connections, testing & commissioning of 1.5 sq.mm. PVC insulated copper multicore cables from AHU's and AC equipments to central control console					
37.1	37 core cable	120				
37.2	27 core cable	120				
37.3	19 core cable	50				
37.4	14 core cable	80				
37.5	10 core cable	500				
37.6	8 core cable	300				
37.7	6 core cable	600				
37.8	5 core cable	500				
37.9	3 core cable	200				
<b>38.0</b>	<b>CONTROL CONSOLE /DESK</b>					
	Supplying, installation, testing & commissioning of floor mounted desk type control console cum indicating panel in the A.C. plant room containing various indications and controls for the complete air-conditioning system comprising chilling units, chilled/ Hot/ condenser water pumps, cooling towers and AHUs/ Ex. blower/ Fans etc , Hot water boiler with test push button facility. The panel shall be fabricated from minimum 1.6mm thick M.S. powder coated sheet of approved design. The air-conditioning module of the central control cum indicating panel shall contain the following accessories.					

Item No. 1	Description 2	Qty 3	Unit 4	Rate In Rs ( in Figure) 5	Rate in Rs (in Words) 6	Amount (Rs.) 7
	Status indication (ON, OFF & fault) of each compressor for each chilling machine, hot water boiler etc.					
	Push buttons and indicating lamps for remote start & stop and status indication for every nos of the water circulating pumps, Air Handling Units, Ex blower, Fans etc.					
	Push buttons and indication lamps for remote start & stop and status indication (On, Off & Fault) for every nos. cooling tower motors and low water level indication for every Nos. cooling towers.					
	Hooter and flashing lamp to indicate operation of any safety/ shut down with necessary contactors, accept, reset and test push buttons.					
	Complete wiring with copper conductor PVC insulated multicore 2.5 sq.mm stranded cable (including supply of cable, tray, clamps etc) from various equipments in the A.C. plant room, AHU's Terrace plant room and cooling towers etc to the control console panel as required.					
	<b>COMPLETE PANEL AS ABOVE</b>	1	Panel			
	<b>Total For HVAC Works</b>					

<b>SUMMARY SHEET FOR HVAC WORKS FOR PROPOSED SUPER SPECIALITY BLOCK ,TANDA</b>					
<b>SUB HEAD</b>	<b>DESCRIPTION OF WORK</b>				<b>AMOUNT(Rs.)</b>
<b>A</b>	<b>EQUIPMENT</b>				
<b>B</b>	<b>PIPING</b>				
<b>C</b>	<b>AIR DISTRIBUTION</b>				
<b>D</b>	<b>INSULATION</b>				
<b>E</b>	<b>ELECTRICAL</b>				
	<b>GRAND TOTAL</b>				

SUMMARY SHEET FOR CONSTRUCTION OF SUPER SPECIALITY BLOCK AT Dr. R.P.  
GOVT. MEDICAL COLLEGE - KANGRA AT TANDA (H.P)

<b>S.No</b>	<b>Name of Head</b>	<b>Total Quoted Amount</b> (In Indian Rupees)
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- |   |                           |  |
|---|---------------------------|--|
| 1 | Civil Works               |  |
| 2 | Public Health Engineering |  |
| 3 | Fire Fighting             |  |
| 4 | Electrical works          |  |
| 5 | HVAC Works                |  |

Total in Figures :-

Total in Words :-