

TENDER SPECIFICATION

NO: BHE/PW/PUR/DHJOI-CHIMNEY/907

CONSTRUCTION OF 80M HEIGHT RCC CHIMNEY WITH MILD STEEL TWIN FLUE IN ALL RESPECT INCLUDING INSULATION, AVIATION LIGHTING & ASSOCIATED ELECTRICAL AND EARTHING SYSTEMS COMPLETE.

AT

2X30MW STG + 4GTG WITH HRSG + 2 UB AT OPAL, DAHEJ- BHARUCH, GUJARAT

VOLUME II - PRICE BID SPECIFICATION

BHEL PSWR
T.S.No BHE/PW/PUR/DHJOL-CHIMNEY/907
VOL-II PRICE BID SPECIFICATION (BOQ & SCHEDULE OF QUANTITIES)

Item No.	Description of Work	UNIT	QUANTITY	RATE Rs (In Figures)	RATE (In Words) Rs	AMOUNT
1.0	EXCAVATION					
1.1	Earthwork in excavation in all kinds of ordinary and hard soil (including slushy soil) up to a depth of 2.0 m below ground level and stacking within a lead of 100 / 500 m,with necessary shoring, strutting, trimming and dressing of sides etc., including bailing / pumping out of surface water/rain water/sub soil water, cutting minor vegetation, if any, complete as per drawings and specification.					
a)	All kinds of soil (Ordinary and hard soil)	Cum	750.00			
b)	Same as item 1.1 above, but for soft rock up to 2.0m below GL requiring chiselling	Cum	600.00			
c)	Same as item 1.1 above, but for hard rock / sheet rock requiring blasting up to 2.0m below GL	Cum	0.00			
1.2	Same as Item no-1.1 above but from 2.0 m - 4.0 m depth					
a)	All kinds of soil (Ordinary and hard soil) from 2.0m to 4.0m below GL	Cum	375.00			
b)	Same as item 1.1 above, but for soft rock from 2.0m to 6.0m below GL requiring chiselling	Cum	0.00			
c)	Same as item no:-1.1 above, but for hard rock / sheet rock requiring blasting up to 2.0m to 6.0m below GL	Cum	0.00			
1.3	Extra over item no:- 1.1 for every additional lead of 1 km or part there of (beyond the initial lead of 500m as per item 1.1) and stacking within the compound wall.	Cum	150.00			
1.4	Extra over item no:- 1.2 for every additional lift of 1.0 km or part there of (beyond the initial lead of 500m as per item 1.1) and stacking within the compound wall.	Cum	150.00			
2.0	BACKFILLING					
2.1	Back filling up to any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 200 mm thickness using/with selected materials from compulsorily excavated soil available within a lead up to 500m and Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII) as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete. for the following including necessary men/women, materials, equipment, loading, transportation, unloading etc as per specification, drawing and as directed by engineer- in-charge	Cum	300.00			
2.2	Supplying approved earth (CNS / murum, obtained from borrow pits outside free from vegetation's and unuseful materials and filing the same where required within site boundary, under floors, etc., in layers not exceeding 200 mm in thickness, breaking clods, watering and consolidation of each deposited layer by roller / rammer to achieve at least 90 percent laboratory max. dry density , grading and finishing to final levels and slopes for all lifts and leads involved, complete as directed (Payment to be made for solid measure of the consolidated filling).	Cum	150.00			

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2.3	Disposal / Carriage of surplus excavated earth and debris including re-excavating the deposited soil earlier, transportation, loading, unloading, laying at all depths and heights, levelling and dressing both the area (viz. From where earth is transported and where it is deposited) to required levels and slopes complete with all lifts as directed.					
a)	Extra over 2.3 for every additional distance of 1.0 KM or part thereof .	Cum	1,200.00			
2.4	Supplying and filling sand in layers not exceeding 150 mm including compacting by mechanical means etc all complete as per specification and as directed by the Engineer.	Cum	120.00			
3.0	CONCRETE					
3.1	Supplying , laying in position , curing as per specifications plain cement concrete in foundations , footings, bases of columns, under floors - mass concrete , encasing of pipes etc, below G.L. and up to 1 mtr above G.L. including consolidation of subgrade wherever required excluding the cost of centering and shuttering					
a)	1:5:10 (1 cement : 5 coarse sand : 10 graded hard stone aggregate 40 mm nominal size)	Cum	42.00			
b)	1: 4 : 8 (1 cement : 4 coarse sand : 8 graded hard stone aggregate 40 mm nominal size)	Cum.	10.00			
c)	1: 3 : 6 (1 cement : 4 coarse sand : 8 graded hard stone aggregate 40 mm nominal size)	Cum.	10.00			
3.2	Supplying , laying in position , curing as per specifications controlled concrete (using 43 grade ordinary Portland cement) of the following grades (graded coarse aggregates of 40mm down, 20mm down 12mm down shall be used wherever applicable, excluding cost of centering and shuttering Note: 1) Cement for all concrete works shall be ordinary Portland Cement, 43 grade conforming to IS: 8112. The engineer in charge may permit the use of ordinary Portland cement (53 grade) or Portland puzzolana cement (fly ash/calcined based) conforming to is: 1489 or Portland slag cement conforming to is: 455 or sulphate resisting Portland cement conforming to IS: 12330 or high alumina cement conforming to is: 6452 without any extra cost. 2) The consumption of cement (per cum. of concrete) shall be as per recommended/approved concrete design mix subject to minimum requirement of IS 456/EIL Specifications/ Approved drawing (whichever is higher). However no extra claim shall be entertained on account of excess cement consumption as per t 3) Bipolar Corrosion Inhibiting Admixture shall be used for All Reinforced Concr 4) Admixture for corrosion inhibiting shall be paid separately under item no 10.18					
a)	For all depths below GL and up to 1.2 m above GL					
(ii)	Grade M 30	Cum	770.00			
iv)	Grade M 25	Cum	50.00			

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(b)	for all heights above 1.2m					
i)	Grade M 30 for shell including making recesses for plat form support	Cum	1,500.00			
ii)	Grade M 30 for roof platforms corbel and landings	Cum	21.00			
3.3	Providing and fixing in position 25mm thick 'shalitex' or approved equivalent fibre board in expansion joints etc all complete as per specifications.	Sq.m.	7.00			
3.4	Supplying and laying approved quality polysulphide joint sealing compound conforming to IS : 1835 for joints in concrete etc complete					
a)	20mm wide , 25mm deep	R.M.	48.00			
b)	10mm wide , 40mm deep	R.M.	10.00			
c)	25mm wide , 25mm deep	R.M.	10.00			
3.5	Grouting under column & equipment bases as required , curing and finishing the exposed surfaces including all materials as per specifications and directions of the Engineer					
	With non-shrink grout like conbextra GP2 or equivalent, including cost of grout mix etc., all complete as per drawings and specifications	Cum	1.00			
4.0	FORM WORK					
4.1	Supplying , installing , dismantling and removing the following classes of form work as per drawings and specifications at all levels using fairface steel / plywood shuttering.					
(a)	Straight above & below GL at all levels including platform	Sq.m.	300.00			
(b)	Curved in plan for raft and shell below GL and above GL up to 10.0 meter.	Sq.m.	120.00			
4.2	Supplying, installing , dismantling and removing slip form work for shell for all elevations above GL as per drawings and specifications at all levels, using steel / plywood.	Sq.m.	9,060.00			
4.3	Halting the slip form at each corbel level & Construction of corbels by Supplying, laying in position, compacting, curing as per specifications Controlled concrete (using ordinary Portland cement 43 grade conforming to IS:8112 of the following grades (graded coarse aggregates of 40mm down, 20mm down,12mm down shall be used wherever applicable). Reinforcement item to be paid as per item 5.1a and 5.1b.	Nos	7.00			
4.4	Providing and fixing Fairface Steel formwork in shell openings (above 0.1 sq.m surface area) including cutting, formation of shapes and all other operations required for making the required shape and size, removal of formwork, all complete as per specifications, drawings and instructions of the Engineer.	SQ.M	150.00			

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Item No.	Description of Work	UNIT	QUANTITY	RATE Rs (In Figures)	RATE (In Words) Rs	AMOUNT
5.0	REINFORCEMENT					
5.1	Taking delivery of steel from BHEL stores/store yard, loading, transporting and unloading at site, straightening, cutting, bending, placing in position at any level of HYSD reinforcement confirming to IS 1786 of all diameters and at all locations					
	i) For works below bottom of shell					
	a) High strength deformed bars	MT	95.00			
	ii) For works above foundation raft/pile cap					
	a) Mild steel reinforcement bars	MT	20.00			
	b) High strength deformed bars (HYSD as per IS 1786)	MT	220.00			
6.0	STRUCTURAL STEEL					
6.1	Taking delivery of steel from BHEL stores/store yard, loading, transporting and unloading at site, Fabrication and Erection of structural steel work for internal support/portal frames /restraint/ access plat forms / landings at different levels and steel staircase / ladder up to 100 m level. including the cost of all labour, material and equipment, transporting, lifting to all heights, with necessary staging, fixing to proper level etc setting in place, high strength grout and grouting, anchor bolts, welding to cast-in fixing plates, cutting, grinding, drilling, bolts and bolting, welding, preheating and post-heating for welding, testing, grinding smooth or machining the support bearing plates, primer and finish painting, etc. complete as per drawings and specifications including supply and fixing with anchor fastener wherever required complete. Finish paint shall be paid seperately under item no. 8.4 Note : 1) High strength grouting shall be Paid by BHEL separately under item no : 3.5 2) Steel shall be provided by M/S BHEL Free of cost. 3)Grouting other than GP-2 will be considered under this item.	MT.	300.00			
6.2	Taking delivery of steel from BHEL stores/store yard, loading, transporting and unloading at site, fabrication and erection of structural steel work for rectangular / transition flue duct, ash hopper etc. made of plates with stiffeners and supporting structure at base.ie below 15m. including the cost of all labour, material and equipment, transporting, lifting to all heights, setting in place, high strength grout and grouting, anchor bolts, welding to cast-in fixing plates, cutting, grinding, drilling, bolts and bolting, welding, preheating and post-heating for welding, testing, grinding smooth or machining the support bearing plates, primer and finish painting, etc. with necessary staging, fixing to proper level etc. complete as per drawings and specification. Finish paint shall be paid seperately under item 8.3	M.T.	6.00			

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Item No.	Description of Work	UNIT	QUANTITY	RATE Rs (In Figures)	RATE (In Words) Rs	AMOUNT
6.3	Taking delivery of steel from BHEL stores/store yard, loading, transporting and unloading at site , fabrication and erection of mild steel flue conforming to IS : 2062 Grade A for chimney including one inner coat of primer, fixing etc. all complete as per drawings and specification. Steel shall be provided by M/S BHEL Free of cost. Finish paint shall be paid seperately under item no:8.3.	M.T.	280.00			
6.4	Supplying, fabrication and erection of stainless steel flue conforming to AISI type 316L for top 6m of chimney including cost of Stainless steel, fixing etc all complete as per specification.	M.T.	10.00			
6.5	Supplying & fabrication of structural steel work hot dip galvanised for strakes including cost of steel , fixing to chimney shell at top with anchor fasteners etc. all complete as per drawings and specifications.	M.T.	1.00			
6.6	Taking delivery of steel from BHEL stores/store yard, loading, transporting and unloading at site , Fabrication and Erection of Chequered plates for platforms and staircase steps all complete as per drawings and specifications	MT	26.00			
6.7	Supplying and Erecting anti skid G.I. Floor gratings, Hand Welded type - 2 (hot dip galvanised) and staircase steps all as per EIL drawing No. 7-68-0202 Rev 05 including all fasteners etc. complete	M.T.	6.00			
6.8	Supplying, fabricating and fixing G.I. hand rail including surface preparation and painting with synthetic enamel paint over red oxide primer complete as per EIL specifications 7-68-0501, rev 05.	RM	220.00			
6.9	Supplying , fabrication and fixing in concrete MS plates, pipes sleeves, anchor bolts etc. with necessary lugs welded including one coat of anti corrosive primer on exposed surfaces at all levels	MT	3.00			
6.10	Supplying, fabricating and installing at the top of chimney shell, grey cast iron caps of all material including asbestos mill boards, bronze belts and nuts, brass washers, non-shrink grout, acid resistant mortar, insulation over the A/R mortar etc. including the cost of all painting etc. complete as per drawings and specifications	MT	2.00			
7.0	FLOORING					
7.1	Supplying laying and fixing 25mm thk. Acid resistant tiles over acid resistant mortar of average thickness 50 mm at various elevations including preparation of base, laying underbed, finishing, polishing etc., as per drawings and specifications.	Sq.M	165.00			
7.2	Supplying and laying 50mm thick heavy duty cement flooring comprising 35mm cement concrete base laid over sub base in panels (max. 1 sq m in area) bound by 3X40mm PVC strips followed by 15mm thick wearing top layer of cement, metallic hardener and stone aggregate, finishing, curing etc. all complete as per specifications. (Using OPC/PPC/PSC/SRC cement)	SQ.M.	150.00			
8.0	PAINTING					

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Item No.	Description of Work	UNIT	QUANTITY	RATE Rs (In Figures)	RATE (In Words) Rs	AMOUNT
8.1	Providing one coat of approved sodium silicate solution of brushable consistency to give a smooth and even shade on the inner surface of RCC shell including cleaning and preparation of surface, scaffolding etc. all complete at all heights. Surface preparation as per clause 5.1.5 of EIL specifications 6987-0642-PT-F09 Rev. 0 and Table No.8 of EIL specifications 6987-0642-PT-F09 Rev. 0	Sq.M	3,500.00			
8.2	Providing complete protective coating system to outer surface of RCC shell (measured in SQM) with 2 coats of high build epoxy finish coating cured with polyamide hardener @ 100µ DFT/coat to obtain 2x100=200µ DFT shall be applied after making surface preparation as per clause 5.1.5 of EIL specifications 6987-0642-PT-F09 Rev. 0 and EIL specifications 6-68-0053 rev01 . Top 20 meters of the chimney shell shall be painted with two different colours (white and Orange) in alternate bands of 5m width each to serve as aviation warning signal.	Sq.M	3,500.00			
8.3	Providing complete protective coating system to Flues (measured in SQM) with 3 coats of heat resistant silicone Aluminium paint @ 20µ DFT/coat over one coat of two component inorganic zinc silicate coating primer @ 65µ DFT/coat shall be applied after making surface preparation by means of shot blasting with copper slag, AL ₂ O ₃ particles, chilled cast iron/malleable iron & steel all complete as per Table-8.0 of EIL specification no. 6987-0642-PT-F09 Rev. 0	Sq.M	3,000.00			
8.4	Providing complete protective coating system to structural steel work, chequered plates, cage ladders etc. (measured in MT) with finish coat of 2 coats of Chlorinated rubber finish paint @ 40µ DFT/Coat over 2 coats of high build chlorinated rubber zinc phosphate primer @ 40µ DFT/Coat including surface preparation by means of shot blasting with copper slag, AL ₂ O ₃ particles, chilled cast iron/malleable iron & steel all complete as per Sl.no. 8.2 of Table-8.0 of EIL specification no. 6987-0642-PT-F09 Rev. 0	MT	600.00			
9.0	DOORS, WINDOW & VENTILATORS, ROLING SHUTTERS					
9.1	Supplying and erecting including assembling, fitting and fixing best quality 40m thick pressed steel frames with flush shutter at various elevations including frames, shutters, fittings and fixtures, CP mortice lock cum handle, mastic caulking, grouting the frames etc. complete. EIL spec. 7-75-0070, rev03.	Sq.m.	7.20			

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Item No.	Description of Work	UNIT	QUANTITY	RATE Rs (In Figures)	RATE (In Words) Rs	AMOUNT
9.2	Supplying, erecting, assembling, fitting and fixing rolling steel shutters constructed with interlocking lath sections formed out of cold rolled 0.9mm thick, 80mm wide steel strips for shutter width up to 3.5M, or 1.25mm thick, 80mm wide steel strips for shutter width beyond 3.5M, jointless MS channel section of 3.15mm thickness for guide, MS girder and bottom rail, shutter suspension stud with pulley & cage, top rolling springs, locking arrangement etc, as per IS:6248 from approved manufacturers ,including shop coat of approved red oxide zinc chromate primer and two coats of synthetic enamel paint of approved brand and shade after erection with all fittings and fixtures etc all complete as per specifications and drawings.					
c)	Electrically operated, complete with all accessories, electrical motor, cabling, etc, as per approved manufacturers design and drawings.	SQ.M.	30.00			
10	MISCELLANEOUS ITEMS					
10.1	Supplying, transporting to site and fixing of preformed mineral wool insulation sheets of minimum thickness of 50 mm (25 mm in two layers) (Density 80kg/m ³) conforming to IS:8183 on the external surface of the flue including all operations such as lapping staggering, securing by means of studs which shall be paid under item 10.1a and 10.1b, wrapping with 20 gauge wire mesh of 25 mm hexagonal pattern conforming to IS:3150,speed washers and binding with 16 gauge GI wire (over lapping for insulation over stiffeners and joint flanges will not be paid extra) all complete as per specification / drawings	Sq. M	1,350.00			
a	10 SWG x 70 long Galvanised MS pins with washer	Nos	7,000.00			
b	8 SWG x 200 long Galvanised MS pins with washer	Nos	3,000.00			
10.2	Same as 10.1, but for providing 6 layers (Density 250kg/m ³) of (25 mm thick each) insulation instead of two layers for the portion of the flue extending beyond the roof level all as per specification/drawings.	Sq. M	165.00			
10.3	Same as 10.1 but for providing each additional layer of 25 mm	Sq. M	90.00			
10.4	Supplying, transporting to site, fabricating and erecting in position as per the manufacturer's requirement non-metallic expansion compensators (3000 mm ID and 550mm long flange to flange) including testing for impermeability and resistance to flue gas, with instructions for storage, fitting instructions, spare accessories, tools for installation etc. complete as per the specifications and manufacturer's recommendations. Expansion joint material shall be as per specification and shall be of High neck centre break design with Bolster and extended sleeve and bolster filled with glass fabric stuffed with glass felt B86of type KE FLUAFLEX 25X (Pre-assembled on steel parts)supplied by KELD ELLENTOFT or approved equivalent.	Nos	3.00			

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Item No.	Description of Work	UNIT	QUANTITY	RATE Rs (In Figures)	RATE (In Words) Rs	AMOUNT
10.5	Supplying and erecting and fixing on flues manholes 800 mm square made with twin 8 mm thick MS Plates with a gap of 75 mm and stiffener plates with necessary hinges, handles, lugs for fixing removable insulation etc. all complete as per drawings and specifications	Nos	5.00			
10.6	Supply and erection of roof access cover with frame made of 6 mm thick stainless steel of type 316 L with locking lever and counter balance mechanism on both sides all complete as per drawing and specifications.	Nos	2.00			
10.7	Supplying, fitting and fixing 150mm dia cast iron "Roof Drain" pipes at various elevations including drain head, shoe bends, junctions, sockets, adapters, brackets, hangers, supports etc jointing, caulking. Prime coat of painting with anticorrosive paint including all materials etc complete as per drawings and specifications.	RM	270.00			
10.8	Same as item 10.7, but with 150 dia UPVC pipe with all UPVC fittings and fixtures as required	RM	270.00			
10.9	Supplying, detailing, fabricating, transporting to site and erecting in position the following additional material required for flue support brackets, restraint/support arrangements at all levels, including supporting ducting at flue inlet wind shield, etc all complete, as per specification/ drawings.					
a	10 thick stainless steel plates, conforming to 304L for wear plates, bearing including CS screws of stainless steel etc.	MT	1.20			
b	50 thick load bearing insulation blocks/sheets preset on MS plates as required.	SqM	6.00			
c	75 thick load bearing insulation blocks/sheets preset on MS plates as required.	SqM	6.00			
d	Supplying, transporting and providing 25 dia , 100 long dowels fabricated from load bearing insulation block materials.	Nos	120.00			
e	Supplying, transporting and placing dumped 5 mm thick polytetra fluoro ethylene film on recessed bearing surfaces with approved adhesive.	SqM	6.00			
f	Supplying, transporting and placing 3 mm thick preformed lead sheets on bearing surfaces.	Sqm	6.00			
10.10	Supplying and fixing 100 NB pipe sleeve 400 long with flange and blank plate, welded to steel flue for gas sampling	Nos.	9.60			
10.11	Supplying and fixing in position 300 dia. S.S. air outlet pipes including lugs etc. all complete	NOs	24.00			
10.12	Supplying and fixing S.S. insert plate in RCC slab at all ht. Including lugs etc. all complete	MT	1.20			
10.13	Supplying and erecting in position the following additional materials at all levels etc all complete, as per specification/ drawings.					
a	SS 316 L stud M12x35 with nut	Nos.	120.00			
b	SS 316 L screw M12x20	Nos	180.00			

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c	SS 316 csk screw M10x15	Nos	120.00			
d	SS 316/304L csk screw M6x20	Nos	480.00			
e	M16x50 with helical spring locking	Nos	1,440.00			
f.	M16x50 with helical spring locking washer with nut and washer (All H.T. grade 8.8)	Nos	360.00			
g	MS stud M16x55 with nut	Nos	60.00			
h	MS stud M12x325 with 2 nuts	Nos	24.00			
10.14	Supplying and erecting in position H.T. Bolt, nut and washer (8.8 grade) at all levels etc all complete, as per specification/ drawings					
a	M20x50	Nos	240.00			
b	M20x60	Nos	12.00			
c	M20x65	Nos	30.00			

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d	M24x210	Nos	30.00			
e	M24x55	Nos	36.00			
f	M24x60	Nos	150.00			
g	M24x65	Nos	102.00			
h	M24x70	Nos	84.00			
i	M24x75	Nos	96.00			
j	M24x80	Nos	252.00			
k	M24x85	Nos	30.00			
l	M24x90	Nos	30.00			
m	M24x95	Nos	30.00			
n	M24x165	Nos	30.00			
10.15	Surface grinding of MS plate / SS plate (SS 316/304)	SQ.M	3.00			
10.16	Supplying and fixing in position S.S. insert / plug embedded in load bearing insulation block including lugs etc. all complete	Nos.	90.00			
10.17	Milling on 32mm plate	SQ.M.	3.00			
10.18	Providing and mixing approved Bipolar Concrete penetrating Corrosion inhibiting admixture (from EIL's approved manufacturer) in concrete as per Customer specification/ manufacturer recommendation etc. all complete.	Kg	8,200.00			
10.19	Providing and placing in position at all levels, building paper (Kraft paper), as per IS:1397, between concrete surfaces including the cost of labour, material, etc. complete as per drawings and instruction of the Engineer.	SQ.M	25.00			

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11.0	ELECTRICAL WORK					
	Supply, installation, testing and commissioning of the following Items of approved quality as per specification / IS : Codes					
11.1	Lightning Protection & Earthing System					
	Work shall be carried out as per EIL spec 7-51-0503 R2/ 3 / IS:2309					
a.	70 sq.mm lead coated copper conductor	RM	60.00			
b.	Vertical air terminal (25 mm dia 2000 mm long copper rods lead coated)	Nos.	3.00			
c.	Test Link	Nos.	3.00			
d.	Erection hardware like Saddles with clamp for cleating lightning conductor	Lot	2.00			
e.	40 x 5 GI flat	RM	540.00			
f.	12 SWS GI wire	RM	265.00			
g	Earth electrode with earth pit complete as per IS : 3043 (Material supply by BHEL-PED)	Nos.	3.00			
11.2	Lighting system					
a.	Twin Cluster LED type medium intensity (40W min) flashing lamps, maintenance free aviation lights as per aviation regulations and norms suitable for A.C . Mounting of aviation lamps & accessories shall be as per typical installation standard No.7-51-0220 Rev 02. (attached). Supply shall include twin cluster aviation lights/fixtures, G.I Pipe, Reducers, Suitable J.B, U Bolts etc	Set	11.00			
b.	Photo electric controller for aviation lighting	No.	2.00			
c.	Flash controller unit & all sub items for aviation lighting	No.	2.00			
d.	Non integral Industrial type, well glass dust tight with 70W HPSV lighting fixtures with external reflector	Nos.	180.00			
e.	Wall mounting bracket (1.5 m long 40 GI conduit with clamps) for 70 W HPSV light fixtures including fixing works	Lot	2.00			
f.	Hand rail mounting bracket (2.5 m long 40 GI conduit with clamps) for 70W HPSV lighting fixtures	Lot	2.00			

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g.	240V, 1 phase, 32A weather proof power receptible with interlock switch	Nos.	15.00			
11.3	Junction Boxes & Panels		0.00			
a.	4 Pole MCB for aviation lighting in a box	No.	2.00			
b.	Junction boxes for aviation lighting & light fixtures	No.	12.00			
c.	Lighting distribution board with 63A TPN MCB isolator as incomer & adequate no. of outgoing feeders for controlling the lighting fixtures provided with suitable rating outgoing MCBs. Loading of outgoing feeders maximum to 1000W & 25% of outgoing feeders to be left as spares.	No.	3.00			
d.	Power distribution board with 63A TPN MCB isolator as incomer & no. of outgoing feeders of suitable rating MCBs for the control of power receptacles. Loading of outgoing feeders to maximum to 1000W & 25% of outgoing feeders to be left as spares.	No.	3.00			
11.4	Cabling System :		0.00			
a.	4C x 2.5sqmm Cu. (1100 V grade HRPVC insulated armoured cable)	mtr	600.00			
b.	4C x 4sqmm Cu. (1100 V grade HRPVC insulated armoured cable)	mtr	420.00			
c.	Cable glands & lugs	Lot	2.00			
	Note :					
1)	All accessories shall be provided by contractor(like junction boxes, clamps etc.) including cables as required for the approval of the Owner / Consultant and other statutory authorities. The contractor shall estimate the requirement and provide for the same in the price for the items for which the quantity is given as 'LOT'					
GRAND TOTAL IN FIGURES						
GRAND TOTAL IN WORDS						