

PIPE AND CABLE RACK & LHS BUNKER PACKAGE BOQ DETAIL FOR 1X500 MW UKAI TPS						
ST. NO.	DESCRIPTION	UNIT	QTY (BOQ FOR STRUCTURAL STEEL)	RATE IN RS IN FIGURE	RATE IN WORDS IN RS	Amount (Rs.)(ie rate x quantity)
2300	STRUCTURAL STEEL WORKS FOR PIPE AND CABLE RACKS INSIDE THE PLANT BOUNDARY , MILL AND BUNKER BUILDING INCLUDING BUNKERS: All items for fabrication should include supply, transportation of materials from stores and return of surplus/waste steel materials to stores, preparation of fabrication drawings, including appointing an independant agency with the approval of BHEL/PEM for checking of fabrications drawings prepared by the bidder, joint design calculations, fabrication, surface preperation, painting with primer coat, delivery of fabricated structure to site, erection, labour and all other general & specific requirements, all other activities required for completion of work as per specifications and also inclusive of all necessary non destructive and special testing, rectification to the satisfaction of BHEL/customer for the following:					
2301	Fabrication, erection, alignment, welding, primer painting (primer coat shall consist of two coats of epoxy resin based zinc phosphate primer having minimum DFT of 70 microns in two layers of 35 microns each) of structural steel made from mild steel conforming to IS: 2062, pipes conforming to IS: 1161/ IS: 1239, chequered plate conforming to IS: 3052 and mild steel rounds, at all elevations involving rolled sections (including mild steel rounds), built up sections fabricated out of plates, rolled sections and combination of plates and rolled sections, in columns, beams, bunkers, gratings, portals, space frames, shear connectors, hangers, struts, monorails, stiffeners, wall beams, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, diaphragm, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, G.I. hand-rails, toeplates, MS Rungs, --					

**BHEL : PS WR
TS NO : BHE/PW/PUR/UKT-STR/840
VOL-II-PRICE BID-840**

RATE SCHEDULE

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	insert plates, edge angles, embedments, lugs, posts,stays, louvers, lacings, gusset plates, safety chains for walkways adjacent to crane girders etc, collection of steel from BHEL stores/store yard,loading, transportation from fabrication yard/plant,unloading at site,straightening, making cutting plan, cutting, bending, rolling, grinding, drilling, bolting, erection bolts & nuts (weight of erection bolts & nuts not payable in this item, Supply of permanent bolt of grade C mild steel bolts & nuts to be paid separately), assembly, edge preparation, preheating(minimum preheat and interpass temperature of 20 degrees for welding over 20 mm and upto 40 mm & 66 degrees centigrade for welding over 40 mm and upto 63 mm & 110 degrees centigrade for thickness over 63 mm) & use of low hydrogen/ radiogenic electrodes as per specification, post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary --	MT				

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	structures (Scaffolding, Access ladders, Working Platforms etc.), protection against damage in transit, stability of structures, installation of temporary structures (Scaffolding, Access ladders, Working Platforms etc.), setting column bases, surface preparation by means of shot/grit blasting which shall conform to Sa2-1/2 Swiss standard, touch-up painting, dismantling and removal of all temporary structures (weight of temporary structures not payable) complete with all labour, material, electrodes and other consumables, equipment, testing (mechanical and non-destructive), preparation of fabrication drawings by the bidder, joint design calculations and all other general and special requirements including appointment of a					
	seperate agency approved by BHEL/PEM for review and approval of fabrication drawings (in consultation with BHEL) and all other activities required for completion of the work including return of surplus/ waste steel materials to store etc. as per specification, drawings and instructions of the Engineer. Approval of fabrication drawings does not relieve the bidder from the responsibility of its correctness and accuracy. HSFG bolts shall be paid separately.					
a)	Fabrication	MT	4150			
b)	Erection,alignment ,welding	MT	4150			
2306	Extra over ST No. 2301 for providing and applying two coats of synthetic enamel paint with minimum 50 micron (25 micron each) total dry film thickness (DFT) of approved make and shade to achieve an even shade over steel sections already having primer coats and keeping overall DFT with primer not less than 110 microns including protection and cleaning, scaffolding etc. all complete.	MT	4150			
2307	Supplying, fabrication , transportation, erection and alignment of factory made hot rolled electroforged galvanised gratings of steel (having minimum galvanisation of 610 g/sqm) conforming to IS:2062 at all elevations including preparation of design drawings and fabrication drawings in flooring, platforms, drain and trench covers, walk ways, passages, staircases with edge binding strips and anti-skid nosing in treads, fixing clamps etc. complete with other fittings and fixtures including all taxes, duties, transportation, packing, grinding, drilling, bolting (supply of permanent grade `C' mild steel bolts and nuts to be paid separately under ST NO. 2309 (i), all welding, edge preparation, blast cleaning of steel surfaces to near white metal surface (Sa 2 1/2), testing, complete as per specifications, drawings and instructions of the Engineer.	MT	10			

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ST. NO.	DESCRIPTION	UNIT	QTY (BOQ FOR STRUCTURAL STEEL)	RATE IN RS IN FIGURE	RATE IN WORDS IN RS	Amount (Rs.)(ie rate x quantity)
2309 (i)	Supply and fixing in positing of high strength structural bolts/HSFG/HT bolts (of property class 8.8 and product grade `C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class `8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work complete as per specification, drawings and instructions of the Engineer.	QUINTAL	61			
2309 (ii)	Providing and fixing in position of permanent mild steel bolts (class 4.6 as per IS : 1367 and grade `C' as per IS: 1363) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work etc all complete.	QUINTAL	1			
2310	Dismantling of steel structure at any elevation, lowering of material and carriage of the dismantled material up to field fabrication shop, or, return to projects storage including temporary dismantling, cutting, re-welding, supporting, and restoring to correct position all temporarily dismantled members, re-alignment of all adjacent connected members to their correct positions, (weight of such adjacent members and temporarily dismantled members not payable) including scaffolding, staging, tools & tackles, gas cutting, welding, consumables, etc complete as per specification, drawings and instructions of the Engineer.	MT	6			
2311	Addition to, alterations in and/or modification of "Erection Marks" either in erected position or in the shop including cutting of parts, gouging of welds, cutting, grinding, fabrication, welding, drilling holes, straightening, removal of bends, raising to the required level, painting, transportation, return of unutilised steel pieces to the project store, temporarily dismantling, cutting, re-welding, supporting and restoring to correct position of all the temporarily dismantled members, realignment of adjacent connected members, (weight of such temporarily dismantled and adjacent members not payable), complete as per specifications, drawings and instructions of the Engineer.					
	i) In erected position	MT	5			
	ii) In fabrication yard	MT	4			

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ST. NO.	DESCRIPTION	UNIT	QTY (BOQ FOR STRUCTURAL STEEL)	RATE IN RS IN FIGURE	RATE IN WORDS IN RS	Amount (Rs.)(ie rate x quantity)
2312	Re-erection of dismantled fabricatied structural steel members requiring additions, modification, (dismantling and additions to, alterations in and/or modification to be paid separately under ST NO. 2310 and 2311 respectively) including carriage of modified "Erection Marks" from the field fabrication shop to erection site, lifting to required posiion, aligning in position, tack welding, final welding and touch up painting including temporary dismantling and re-erection of temporarily dismantled members, cutting, rewelding, supporting and restoring to the correct position of all temporarily dismnatled members, re-alignment of adjacent connected members, (weight of such temporarily dismantled members and adjacent membersnot payable) including scaffolding, staging, tools & tackles, gas cutting, welding, consumables, etc complete as per the specifications, drawings and instructions of the Engineer.	MT	5			
2313	Fabrication and erection of 3.15 mm thick stainless steel liner of grade AISI-304; Finish Grade 2B (Cold rolled, Annealed & Pickled and Skin passed) on M.S. plate for inside surfaces of hopper & mouth of hopper of bunkers as directed by the Engineer including fixing with stainless steel studs, bolting (including countersunk), welding etc. complete as per specifications and IS standards. Electrode classification shall be E308L for welding of stainless steel to stainless steel and E309 for stainless steel to mild steel etc. complete as per specifications, drawings and instructions of the Engineer.	MT	25			
2316	Providing and fixing flexible open ended bellow strap of neoprene of minimum thickness of 2mm and minimum width 200 mm with aluminium strip edges as sealing below top of bunker and bottom of tripper floor to avoid coal dust nuisance.	RM	75			
2317	Conducting radiography test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges, materials and labour as per specifications complete (over and above the work already specified in the specifications.	RM	15			
2318	Conducting ultrasonic test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges, materials and labour as per specifications complete (over and above the work already specified in the specifications.	RM	25			

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2319	Conducting magnetic particle test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges, materials and labour as per specifications complete (over and above the work already specified in the specifications.	RM	25			
2320	Conducting dye penetration test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges, materials and labour as per specifications complete (over and above the work already specified in the specifications.	RM	25			
2322	Providing & grouting of pocket holes, pipe sleeves of any shape and size under base plate after erection, and alignment if necessary, of heavy machinery at any elevations including roughening surface, cleaning, ramming, curing, etc with ConbextraGPX-2 OR GP1 of 'Fosroc' or equivalent all complete as per specifications. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).	CUM	4			
TOTAL OF ALL ABOVE ITEMS IN RS						
Total Amount (In words):						