

TECHNICAL CONDITIONS OF CONTRACT (TCC)
CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS
Tender Specification No: BHE/PW/PUR/WNT2-STR CHP AHP/1477

PART B: % weightage for amount of individual items of Schedule of quantity w.r.t. the total price				
Job Discription	Structural Work Package: ALL Steel Structural Works of CHP & AHP like WT, Tunnels, ERH, MCC, TP (Junction towers), Conveyors, Crusher House, Pump Houses, Silo, Pipe Rack, ETC AT 1 X 800 MW Thermal Power Station, Wanakbori, Distt-Kheda, Gujarat.			
ITEM SL. NO.	DESCRIPTION	UNIT	QUANTITY	% weightage w.r.t. the total price
2300 STRUCTURAL STEEL				
	Structural steel works including all labour, material, equipments, transportation, handling etc. at any level as per specification, drawings and as directed by engineer - in - charge. (MS PLATES, CHANNEL, ISMB, ANGLE, CHEQUERED PLATES, STAINLESS STEEL PLATE WILL BE SUPPLIED BY BHEL FREE OF COST AS PER TCC)			
2301A	Taking delivery of steel from BHEL stores / store yard, loading, Transportation, unloading, Fabrication and erection of structural steel with mild steel rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, baseplates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc in connection design & preparation of fabrication drgs, collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, peening, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 200 C for welding over 20 mm and upto 40 mm & 660 C for welding over 40 mm and upto 63 mm & 1100 C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, online production test coupons, inspection and testing, erection scheme, preparation of fabrication drawings, joint design calculations, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete. Including appointment of a separate agency, approved by BHEL, for preparation/re submission of fabrication/erection drgs for final approval, in consultation with BHEL. Approval of fabrication drawing does not relieve the bidder from the responsibility of its correctness and accuracy.			
(i)	Fabrication complete in all respect as per the direction of engineer	MT	10150	36.48313
(ii)	Erection in position, alignment and fixing etc	MT	10150	28.19233
A2302	Extra over ST NO. A2301 for shot blast cleaning of steel structures to near white metal surface (Sa 2 1/2) including epoxy resin based zinc phosphate primer in one coat of minimum 50 micron (DFT) at shop and one coat of 50 micron (DFT) after erection, instead of primer coat of red oxide zinc-chromate, including touch-up painting etc all complete.	MT	10150	13.63014
2305	Providing and applying two coats of epoxy resin based paint (over primer coat already done) with intermediate coat pigmented with titanium dioxide of 100 micron dry film thickness (DFT) and top coat of approved colour and shade with glossy finish of 75 micron DFT and finish coat of polyurethane of 25 micron dry film thickness (DFT) to achieve an even shade over steel sections already having primer coats and keeping total DFT with primer not less than 300 microns including protection and cleaning, scaffolding etc. all complete.	MT	10150	8.40278
2307	Supplying, fabrication, erection and alignment of factory made electroforged galvanised grating units with mild steel (having minimum galvanisation of 610 g/sqm) conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.	MT	22	0.86325
2308	Supplying, fabrication, erection and alignment of factory made galvanised welded grating units with mild steel conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including 2 coats of red oxide zinc-chromate primer (one coat at shop and one coat after erection), fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete	MT	19	0.55509
2309	Extra over above ST NO. 2301/2307 for finishing the grating units with hot dipped galvanisation @ 1000gm/sqm over blast cleaned steel surfaces instead of painting with two coats of red oxide zinc-chromate primer all complete.	MT	20	0.13159
2310	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	1.00	0.00332
2312	Dismantling of steel structure , lowering of material and carriage of the dismantled material up to field fabrication shop / projects storage including temporary dismantling, cutting, re-welding, supporting, and restoring to correct position all temporarily dismantled members, realignment of all adjacent connected members to their correct positions (weight of such adjacent members and temporarily dismantled members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	7	0.02005
2313	Addition to, alterations in and/or modification of " Erection Marks " including cutting of parts, gauging 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) etc all complete for the following:			0
a	In erected position	MT	6	0.02332
b	In fabrication yard	MT	6	0.02183
2314	Re-erection of dismantled fabricated structural steel members including carriage of modified "Erection Marks" from the field fabrication shop to erection site, lifting to required position, aligning in position, tack welding, final welding and touch up painting including temporary dismantling and re-erection of temporarily dismantled members, cutting, re-welding, supporting and restoring to the correct position of all temporarily dismantled members, re-alignment of adjacent connected members (weight of such temporarily dismantled members and adjacent members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	2	0.00591

TECHNICAL CONDITIONS OF CONTRACT (TCC)
CHAPTER XI – BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS
Tender Specification No: BHE/PW/PUR/WNT2-STR CHP AHP/1477

PART B: % weightage for amount of individual items of Schedule of quantity w.r.t. the total price				
Job Discription	Structural Work Package: ALL Steel Structural Works of CHP & AHP like WT, Tunnels, ERH, MCC, TP (Junction towers), Conveyors, Crusher House, Pump Houses, Silo, Pipe Rack, ETC AT 1 X 800 MW Thermal Power Station, Wanakbori, Distt-Kheda, Gujarat.			
ITEM SL NO.	DESCRIPTION	UNIT	QUANTITY	% weightage w.r.t. the total price
2317	Providing and fixing in position PTFE type sliding bearings of reputed manufacturer, individual bearing suitable for required vertical loads as per the construction drawings and for maximum displacement of ±50 mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.			0
a	20 Tons	EACH	32	0.16946
b	25 Tons	EACH	32	0.19299
c	40 Tons	EACH	32	0.29196
d	50 Tons	EACH	32	0.30542
e	60 Tons	EACH	32	0.37475
2320	Supply, fabrication and fixing of Galvanised (610 gms/sqm as per IS 4736) MS pipe medium class conforming to IS: 277 hand railing (1000 mm high) of 40 mm dia (Medium Grade) including transportation, loading/unloading, painting etc. all complete.	MT	120	3.6829
1500 ROOFING / SIDE CLADDING				0
Roofing/side cladding work including all labour, material, equipment, transportation, handling, scaffolding, laps, hooks,				0
1501	Taking delivery of steel from BHEL stores / store yard, loading, Transportation, unloading, and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour and conforming to class3 of IS 14246 over roof purlins for cast-in-situ intermediate & roof slabs as per relevant IS code and specification. Bare metal thickness of deck plate shall be minimum 0.8mm with minimum trough depth of 44 mm having minimum yield strength of 250 MPa and shall serve as permanent shuttering to the roof slab 100mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 150 kg/sqm during construction between purlins as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to purlins, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyester paint of minimum 20 micron DFT on exposed surface (facing operating floor) and minimum 7 micron on other face over epoxy primer applied over hot dipped galvanising @ 275 gm/sqm including fixing of sheet to purlin with self drilling white zinc plated heat treated carbon steel screws of minimum 5.6 mm dia @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant. Measurement of profile sheeting shall be of the plan area of roof covered by MS trough metal decking, including design of installation pattern with its erection drawing specifying Bill of Material.			0
a	Span Upto 1800mm	SQM	3270	0.29724
1502	Providing and fixing self drilling shear connectors of mild steel studs having 16mm dia and minimum 75 mm projected length above purlin passing through metal decking as per relevant IS codes and specification.	QUINTAL	14	0.03533
A1504	Taking delivery of steel from BHEL stores / store yard, loading, Transportation, unloading, and fixing External sheet of Permanent colour coated metal cladding with high strength tensile steel sheet 0.6 mm total coated thickness(TCT) having minimum yield strength 550 MPa and zinc-aluminium alloy (Zn:43%,Al:55%,Si:1.5%) organic coating not less than 150 gm/sqm total on both sides including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping /self drilling type fasteners with suitable cap, flashing etc. all complete. The exposed face of the sheet shall be permanently colour coated with Polyfluro Vinyl Coating (PVF2) or SMP of minimum dry film thickness (DFT) 20 microns over suitable primer. Inner face of the sheet shall be provided with suitable pre-coating of minimum DFT 7 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability including design of installation pattern with its erection drawing specifying Bill of Material.	SQM	36858	3.14053
B 1504	Providing and fixing 2mm thick Translucent sheet / perspex sheet of polycarbonate material on roof and side with necessary fastners, fixing arrangements, tools and rttackles, labours, etc complete as per specification and direction of engineer in Charge	SQM	3737	1.27752
				0
908	Providing and fixing steel windows/ventilators with steel sections as per IS-1038 , IS-1361, IS- 7452 latest revision including all fittings , metal beadings , hold fast , shop and final painting , glazing etc. all complete. (glazing shall be paid separately).			0
a	Openable type	SQM	797	0.78688
b	Fixed Type	SQM	341	0.32259
915	Providing, fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete.			0
d	6 mm thick wired glass	SQM	785	0.20703
e	6mm thick Polycarbonate sheet multi (twin) wall/cell fire retardant and ultra violet resistant with sealed open edges.	SQM	432	0.32181
1833	Supply & fixing FRP (fibre reinforced plastic) sheets 2 mm thick including GI hooks/ J or L bolts, nuts, washers, bitumen washers etc. complete including overlap 100mm	SQM	843	0.26085
GRAND TOTAL				100.0000