

TECHNICAL CONDITIONS OF CONTRACT (TCC)
CHAPTER XI –BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS

Job: ALL Steel Structural Works of CHP & AHP like Wagon Tippler, Tunnels, ERH, MCC, TP (Junction towers), Conveyors, Crusher House, Pump Houses, Silo, Pipe Rack, ETC for all four units AT 4 X 270 MW Bhadradi Thermal Power Station, Manuguru, Distt-KHAMMAM, TELENGANA.

PART B: % weightage for amount of individual items of Schedule of quantity w.r.t. the total price

ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	% weightage w.r.t. the total price
2300 STRUCTURAL STEEL				
Structural				
2,301	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, tie rods, bracings, cleats, trestles, base plates, 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., connection design & preparation of fabrication drgs, collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, 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 20° C for welding over 20 mm and upto 40 mm & 66° C for welding over 40 mm and upto 63 mm & 110° 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 productions of test Coupons , inspection and testing, erection scheme, 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 review and approval of fabrication drgs, in consultation with BHEL.			
(I)	Fabrication	MT	11,476.00	32.104775734930
(II)	Erection, alignment and welding			
	Payment Break up: a) Erection :70% (Seventy Percent) b) Alignment and Welding : 30 % (Thirty Percent)	MT	11,476.00	17.287186934193
A2302	Extra over ST NO. 2301 for surface preparation by shot blasting in accordance with IS 1477 (part I & II) and applying 2 or more coats of primer of epoxy resin based zinc rich primer in coats of minimum 25 micron (DFT) at shop and 25 micron (DFT) after erection, including touch-up painting etc all complete.	MT	11,476	10.812936466415
A2305	Providing and applying two or more coats of epoxy paint of 50 microns thickness each over primer coat so 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	11,476	5.527706812337
2,307	Supplying, fabrication, erection and alignment of factory made electroformed 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. Payment Break up: a) Supply including fabrication : 70%(Seventy Percent) b) Erection and alignment : 30 % (Thirty Percent)	MT	317	7.087905202355
2,308	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 or more coats of primer of epoxy resin based zinc rich primer in coats of minimum 25 micron (DFT) at shop and 25 micron (DFT) after erection, fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. Payment Break up: a) Supply including fabrication : 70%(Seventy Percent) b) Erection and alignment : 30 % (Thirty Percent)	MT	5	0.145404749741
2,309	Extra over above ST NO. 2301/2307 for finishing the grating units with hot dipped galvanisation @ 610 gm/sqm over blast cleaned steel surfaces instead of painting with 2 or more coats of primer of epoxy resin based zinc rich primer in coats of minimum 25 micron (DFT) at shop and 25 micron (DFT) after erection all complete.	MT	317	1.444533925244
2309A	Extra over above ST NO. 2301/2308 for finishing the grating units with hot dipped galvanisation @ 1000 gm/sqm over blast cleaned steel surfaces instead of painting with 2 or more coats of primer of epoxy resin based zinc rich primer in coats of minimum 25 micron (DFT) at shop and 25 micron (DFT) after erection all complete.	MT	5	0.032944319090
2,310	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	25	0.073283965024
2,311	Providing and fixing in positing of high strength structural 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 etc all complete. Payment Break up: a) Supply including fabrication : 70%(Seventy Percent) b) Erection and alignment : 30 % (Thirty Percent)	Quintal	200	1.591290274158
2,312	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, re-alignment 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	25	0.034897151956
2,313	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:			
a	In erected position	MT	30	0.041876582348
b	In fabrication yard	MT	30	0.041876582348
2,314	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	15	0.041876582348

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ST. NO	DESCRIPTION OF ITEM	UNIT	QUANTITY	% weightage w.r.t. the total price
ISG 2317	Providing and fixing in position PTFE type bearings of reputed manufacturer, individual bearing suitable for required loads & rotations as per the construction drawings and for maximum horizontal load of 15 Tons & displacement of ±220 mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.			-
c	40 Tons	EACH	35	0.131911209157
d	50 Tons	EACH	35	0.153896410683
e	60 Tons	EACH	35	0.241837216788
f	80 Tons	EACH	4	0.030151133521
g	100 Tons	EACH	4	0.038526445183
				-
2,319	Supply, fabrication and fixing of stainless steel pipe hand railing of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete..	MT	114	9.055711362968
ISG 2320	Supply, fabrication and fixing of GI pipe hand railing (Max of 1100 mm high) of 32 mm/40 mm dia (Medium Grade) including transportation, loading/unloading, painting etc. all complete..	MT	114	2.859698179910
2,321	Conducting radiography test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	100	0.037698435798
2,322	Conducting ultrasonic test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	200	0.125629723006
2,323	Conducting ultrasonic test on steel plates as per ASTM-A435 or equivalent wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	SQM	100	0.062831928211
2,324	Conducting magnetic particle test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	100	0.052345757982
2,325	Conducting dye penetration test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges etc. all complete (over and above the work already specified in the specifications.)	RM	50	0.007015018083
1500 ROOFING / SIDE CLADDING				
Roofing /				
ISG 1503	Designing,providing & fixing external sheet of Permanent colour coated metal cladding with troughed M.S. sheets manufactured out of 0.55 mm TCT(Total coated thickness) permanently colour coated zincalume sheet (150 gsm zinc-aluminium alloy coating total of both sides as per AS 1397:1993) having 300 Mpa yield strength. The colour coating shall be comprise of SMP.The colour coating shall comprise of 20 microns finish coat over a 5-micron primer coat on the exposed side and a back coat of 5 microns over a primer coat of 5 micron on the reverse side.The metal cladding shall have 500 mm cover width,47 mm high crests at 250 mm centers with special male/female side laps and anti siphoning feature to prevent leakage as per spec. Including fixing of sheet with the help of concealed compatible interlocking clips and wafer head zinc coated self drilling fasteners. The clips shall be concealed and no fasteners are to penetrate the sheeting. Payment Break up: a)Design & Supply to site : 70%(Seventy Percent) b) Erection and alignment : 30 % (Thirty Percent)	SQM	40,341	9.854435622690
1505A	Designing, providing and fixing inner sheet of Permanent colour coated metal cladding with troughed M.S. sheets manufactured out of 0.5 mm TCT(Total coated thickness) permanently colour coated zincalume sheet (150 gsm zinc-aluminium alloy coating total of both sides as per AS 1397:1993) having 550 Mpa yield strength . The colour coating shall be comprise of SMP.The colour coating shall comprise of 20 microns finish coat over a 5-micron primer coat on the exposed side and a back coat of 5 microns over a primer coat of 5 micron on the reverse side.The inner sheet shall have 980 mm cover width,28 mm high crests at 195 mm centers with special male/female side laps and anti siphoning feature to prevent leakage as per spec. Payment Break up: a)Design & Supply to site : 70%(Seventy Percent) b) Erection and alignment : 30 % (Thirty Percent)	SQM	100	0.026754589333
ISG 1512	Providing & fixing permanently at all heights and elevations, troughed sheets over roof purlins/beams/side runners etc. for roofing and side cladding (internal & external) including all labour, material, equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at any level as per specification, drawings and as directed by engineer - in - charge. Quoted rate shall include cost of all labour, material, tools and plants, consumables, lead, lift etc complete.			
	Fixing fire resistant and UV resistant polycarbonate translucent sheets of 2MM thickness on roof & side cladding as per the specification and approved drawings and directions of engineer in charge Payment Break up: a)Design & Supply to site : 70%(Seventy Percent) b) Erection and alignment : 30 % (Thirty Percent)	SQM	4,489	1.053061684187
GRAND TOTAL Weightage				100