

Bharat Heavy Electricals Limited
High Pressure Boiler Plant
Tiruchirappalli – 620 014. India
Civil Engineering Department (Factory)

TENDER DOCUMENT (PRICE BID)

Name of work	:	Fabrication & erection of Structural steel sections for Bay 5 by extending, the existing Bay 5A at Building 50 for AUSC Project at BHEL Trichy.
Value of work	:	Rs.77.78 Lakhs + Applicable GST
Tender Notice No.	:	CF:TN:006/18-19
Tender Schedule No.	:	CF:TS:019/18-19
Period of Contract	:	8 (Eight) Months
EMD	:	Rs 1,54,000.00/-
Issued to	:	

BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPALLI - 620 014
SCHEDULE - A

Name of Work: Fabrication & erection of Structural steel sections for Bay 5 by extending, the existing Bay 5A at Building 50 for AUSC Project at BHEL Trichy.

I / We _____ have read the condition of tender attached hereto and agree to abide by such conditions. I/We offer to execute the works in **T.S No. CF:TS:019/18-19 for a period of 08 (Eight) months** at the percentage below / at par / above the rates contained in Bill of Quantities appended **below from Page 03 to 08**

I / We further agree to sign an Agreement Bond to abide by the General Conditions of Contract and to carryout all works according to the specifications for materials and works of Bharat Heavy Electricals Limited, Tiruchirapalli-620 014. In case of acceptance of the tender by the BHEL, I/We bind myself/ourselves to execute the contract documents within 7 days after notice that my/our tender has been accepted and this contract has been awarded to me/us and thus failing which I/We shall have no objection to the forfeiture of the Earnest Money amount to **Rs.1,54,000/-** lodged with Bharat Heavy Electricals Limited, Tiruchirapalli-620 014.

I / We further agree to include all tools & plants and consumables required for the work in my / our scope but required power and water will be provided at one point by BHEL at free of cost and based on this, we have quoted our percentage.

Note: Details & Quantities of each item of work shown in the BILL OF QUANTITIES are only approximate and the same is appended below. They are given as a guide for the purpose of tendering only and are liable to variation and alteration of the Competent Authority. The work under each item as executed shall be measured and priced at the overall percentage quoted by the contractor **Below (100-X) % / At par (100%) / Above (100+X) %** of the rates provided in Bill of Quantities appended below from **Page 03 to 08**

Sl. No.	Approx. Value of work	Common single percentage rate, Below (100-X) % / At par (100%) / Above (100+X) % to be quoted with respect to the rates provided in Bill of Quantities appended below from Page 12 to 26	
		In Figures	In Words
1.	Rs. 77.78 Lakhs (Excluding GST) = 100%		

Note: BHEL estimate rates are given below. Contractor has to quote Common single percentage rate, Below (100-X) % / At par (100%) / Above (100+X) % with respect to the rates provided in Bill of Quantities below at page 2 both in figures and in words.

**BHEL / TRICHY-620 014
CIVIL ENGINEERING DEPARTMENT-FACTORY
BILL OF QUANTITIES**

Name of work : Fabrication & erection of Structural steel sections for Bay 5 by extending, the existing Bay 5A at Building 50 for AUSC Project at BHEL Trichy

S.No	Quantity	Description	Unit	Rate(Rs.P)	Amount (Rs.P)
1	5.00	Dismantling / removing / demolishing as the case may be of the following by manually/mechanical means and carefully stacking the serviceable materials at site of work or conveying and handing over the same at BHEL stores and disposal of unserviceable materials by transporting and dumping in the near by low level areas within a lead of 100 metres. All as per instructions of Engineer-in-charge. Steel structures / steel works in built up sections including bolts, nuts, cutting rivets, welding, dismembering, preparation of DODL etc.	MT	1527.31	7636.55
2	235.00	Collection from BHEL stores and transporting the raw structural steel sections to the contractor's site fabrication shop, fabrication of steel work including all materials going into the process of fabrication and forming an integral part of the steel work together with all shop welding including using low hydrogen electrode wherever necessary, all as per drawings and standard specifications. Rate includes delivery of fabricated steel work at erection site ready for erection, including preparation and supply of drawing office despatch list for BHEL's approval, all charges for packing (wherever called for) handling, conveying, stacking and all other incidental charges both for raw materials and fabricated steel works. Rate excludes raw structural steel sections which will be supplied by BHEL at stores at free of cost.	MT	12198.55	2866659.25
3	235.00	Carrying from stacks at erection site to erection positions and erection of fabricated steel work including all handling, conveying, assembling, hoisting, erecting in position and site welding and or bolting, alignment of structures, all as per drawings and standard specifications. Rate includes bolts & nuts, hire for welding tools and plants, labour etc., but excluding cost of fabricated components. If required, power will be given free of cost by BHEL. Weight of fasteners will not be accounted for payment	MT	6574.55	1545019.25
4	288.00	Supply and fixing cup type rail clamp with fittings over the insert plate which is embedded in the concrete. Rate includes welding including cost of consumables, all labour and other incidentals etc. complete, all as per instructions of Engineer-in-charge	each	248.92	71688.96

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S.No	Quantity	Description	Unit	Rate(Rs.P)	Amount (Rs.P)
5	4.00	Collection from BHEL stores and transporting of rails CR 80/R 45 etc to the contractor's site fabrication shop, straightening the rails using Gim screw or any other equipments, preparation of edge for welding the rail joints as per drawing and erecting in position at all elevations (i.e, in floor or over the girders) using cup type rail clamps with fittings. The scope includes rail alignment after erection, fixing in position, welding the joints by using approved electrode (E 11018 for CR 80 & E7018 for R 45 rails), pre heating & post heating the joints, grinding the joints neatly etc as per drawings and instruction of Engineer in charge. Rate shall include cost of providing one coat of red oxide primer as per IS specification and supply of DODL's for BHEL approval in compact disc with two copies of print outs. Quoted rate shall also include cost of consumables, hire charges for tools and plants, labour and incidentals etc complete but exclude cost of rails which will be supplied by BHEL at free of cost.	MT	11339.00	45356.00
6	4.00	Welding of 90 Lbs/CR 80 rail joints erected already in alignment in crane gird-ers/gantry girder upto +14.00 meter including edge preparation, preheating welding using special type electrode (Elec grade 11018). The rate includes all labour charges, electrodes and incidental charges for dismantling the rail from its original position, edge preparation, preheating, welding, post heating as per the instructions of BHEL Engineer in charge. Also include cost of con-sumables for pre heating and post heating and labour charges for re fixing the 90 Lbs/CR 80 rail to alignment, level after welding etc., complete	Joint	2139.92	8559.68
7	70.00	Providing fibre glass reinforcement with UV resistant polyurethane compound lining, to a minimum thickness of 3 mm on M.S gutters of factory buildings at a height ranging from 12-24m from FFL, and making the gutters leak proof as per instructions of Engineer-in-charge. The work consists of removing the adjoining North light Glazing, Roofing Sheets and existing paint in the gutter completely and thoroughly cleaning the surface including the damaged por-tion of the gutters and applying an undercoat of resin over which the alternate layers(min. three layers) of fibre strand & resin to the required thickness be-fore applying polyurethane compound coating at top with one coat of Gel coat with surface mat and polish to provide even surface, preparation of surface with fibre reinforced plastic with 50 microns thick polyurethane lining, testing, refixing the removed north light glazing and Roofing sheets and also filling with fibre reinforcement prior to lining in areas badly worn out both in the bot-tom as well as sides of gutters etc., complete all as per instructions of Engi-neer- in -charge. Rate quoted shall also include cost of labour, material with all taxes, scaffolding charges, if any and all other incidental charges etc., complete (The Contractor is required to take all safety precautions during working and obtain work permit from the concerned departments. Working hour is restricted as it depends on shutdown by production department that may not be more than 4 hours at a stretch and only intermittent).	sqm	943.01	66010.70

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S.No	Quantity	Description	Unit	Rate(Rs.P)	Amount (Rs.P)
8		Supplying at site of work , hoisting and fixing in position of 0.50 mm thick TCT/0.45 mm BMT colour coated Aluminium zinc alloy coated high tensile steel rib profile sheets with accessories such as ridge pieces, barge boards, North light curves, end curves, etc., as per technical specifications given in note below, at all heights up to (+) 30.00 m with necessary xylan coated self tapping / self drilling screws of size minimum M 5.5 X 63 mm, Confirming to AS 3566-2002 Class 3 with EPDM washers at every ribs/trough in all purlins etc., complete. In addition, minimum 3 Stitching screws of minimum size M 4.8 X 19 mm per meter length of sheet at sheet overlapping location are also to be provided. All as per drawings, manufacturers specifications and instructions of Engineer-in-charge .Rate includes cost of all materials like color coated Aluminum zinc alloy coated high tensile steel rib profile sheets with accessories such as ridge pieces, barge boards, curves, etc., wherever required self tapping / self drilling screws with EPDM washers at every ribs etc., and labour charges for fixing, hire charges for tools and plants like drilling machines, providing scaffolding, lifeline, fall arrester and other provisions for safety, and all other incidental charges etc., complete. The payment will be made for the actual Covered area only. (1) The Aluminium zinc alloy coated high tensile steel sheets and specials shall be 0.50 mm thick (TCT) (Aluminium around 55%, Zinc around 43%) alloy coated high tensile steel (Yield strength 550 MPA) colour coated rib profile sheets as per ASTM A792M, coating standard as per AS 1397-1933 Conforming to AZM 150 (Min Coating mass of 150 gsm) having cover width of 1000 plus or minus 10mm and over all width of 1060mm of any length to suit site conditions(2) About 90% area of the Aluminium zinc alloy coated high tensile steel sheets shall be colour coated with Light Blue RAL 5012 and 10% of the covered area is of with off white as per instruction of Engineer in charge . All ridge pieces and barge boards are off white. (3) The Aluminium zinc alloy coated high tensile steel sheets shall be Pre- Primed with a Primer of 5µm and finished with a final SMP paint/Super Polyester coat of minimum 20 µm on top surface. A single backing coat of SMP paint/Super Polyester minimum 10µm over primer of 5µm should be applied on reverse side(4) Sheet should have minimum trough depth of minimum 28 mm & at a crest distance of 200mm - 250 mm ± 5 mm (5) Manufacturers of pre coated sheets should be Tata Bluescope /JSW /Bhushan / Ilyods			
a	1500.00	Supply & Fixing sheets in roof – Self drilling screws should be provided in all ribs only & in all purlin locations	sqm	551.96	827940.00
b	500.00	Supply & Fixing sheets in cladding - Self drilling screws should be provided in all troughs only & in all runner locations	sqm	577.40	288700.00

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S.No	Quantity	Description	Unit	Rate(Rs.P)	Amount (Rs.P)
9	150.00	Supplying at site of work, hoisting and fixing in position of 3 mm thick compact Opal White Colour having Light transmission of 45% to 50 % poly carbonate roof light sheets with both side UV coated (50 micron each side) The Sheet shall weigh a minimum of 3.6 kg per sqm (flat Sheet) as per IS 14443-1997 in specified locations and at all heights up to 30.00 m with necessary xylan coated self tapping / self drilling screws with EPDM washers at every ribs, etc., complete to match the profile of Aluminium zinc alloy coated high tensile steel roof sheets, as per instructions of Engineer-in- charge. The rate includes cost of poly carbonate sheets ,self tapping / self drilling screws with EPDM washer, at every ribs, and labour charges, all scaffolding charges, tools and plants and all other incidental charges etc., complete Brand (TUFLITE/LUXALON/SABIC)	sqm	1519.33	227899.50
10	330.00	Supplying at site of work, hoisting and fixing in position of 4 / 6mm thick multi-walled clear (UV coated) Polycarbonate sheet for north light glazing / glazing in monitor type roof to suit the rows of glazing runner (inclined and vertical) as per drawing including provision of suitable aluminium frames as required. The scope of work includes supply of polycarbonate sheets,aluminium frames (top & bottom) in required profile fitted with EPDM rubber gaskets and fixing in the glazing runner using SDST screws of approved make and the polycarbonate sheets are suitably placed between the aluminium frames be-fore driving the top frame screws all as per standard specification , instructions of Engineer-in-charge. The top and bottom portion of polycarbonate sheets shall be closed with aluminium U channels to prevent dust and insects. Rate shall include cost of polycarbonate sheets, aluminium frames, U chan-nels, EPDM rubber gaskets, SDST screws, required labour, tools and plants etc.,complete.	sqm	1774.80	585684.00
11	16.00	Supplying roof extractors (Turbo Air Ventilators) of dia 600mm or there abouts, fixing in position on AC / Aluminium zinc alloy coated high tensile steel sheet roofs at all heights with necessary screws,, bolts etc., and finishing to match with existing roof. Rate to include cost of all labour charges for fixing the roof extractors with necessary cutting of sheets to the required size ,drilling to suit the screws/ bolts, and finishing to match the existing profile in-cluding cost of roof extractors / ventilators. All as per manufacturers specifications and as directed by the Engineer in charge	each	8676.80	138828.80
12	235.00	Painting one priming coat with approved Red oxide primer over structural steel works in roof structures, columns etc., including preparing the surfaces by thorough-ly cleaning oil, grease, dirt and other foreign matters and scoured with wire brushes, fine steel wool scrapers and sand paper, all as per standard specifications.	MT	554.48	130302.80

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S.No	Quantity	Description	Unit	Rate(Rs.P)	Amount (Rs.P)
13	235.00	Painting Two coats (excluding priming coat) on structural steel works in roof structures, columns etc.with synthetic enamel paint of approved brand and shade, brushing to give an even shade including cleaning the surfaces of all dirt, dust and other foreign matters, scaffolding charges etc complete as per standard specification	MT	1558.37	366216.95
14	20.00	Conveying raw structural steel sections from BHEL stores, transporting to contractor's fabrication shop/site, fabricating the components using submerged arc welding with single (or) multiple electrodes and with approved quality of flux following the procedure stipulated in AWS D 1.1 (latest). The components shall be preassembled with required facilities for turning, inverting, tilting to facilitate fabrication and inspection. Edge preparation for welds shall be as per AWS D 1.1 (latest) or as per Q.C.P of BHEL. Sequence of welding shall be worked out by the contractor and submitted to BHEL for approval. The components to be fabricated shall be preheated / post heated to remove residual stresses due to welding and to remove distortion using temporary fixtures as per Q.C.P of BHEL. Erection mark and stacking the fabricated components shall be executed in accordance with standards. Payment will be made only for the members / parts which were welded together using auto welding under this item. Any other attachment like bracings, attens, stiffeners, gussets, cleats, ribs etc which will be welded during assembly will be paid separately under respective item. The rate shall include cost of providing one coat of red oxide primer to relevant IS specification and delivery of fabricated steel work at erection site ready for erection including preparation and supply of DODL for BHEL's approval in floppy with two copies of printout. Quoted rate shall include cost for handling, leading, conveying, stacking, consumables hire charges for tools, plants, fuels, labours and other incidental etc complete.	MT	19738.95	394779.00
15	525.00	Carrying out LPI test wherever required as per QCP, in fabrication and erection work as per standard specification and as per the instruction of Engineer-in-charge. The rate to include supply of chemicals, labour, hire charges for tools and plants, scaffolding, other accessories and all incidentals etc., complete.	RM	191.41	100490.25
16	700.00	Carrying out MPI test wherever required as per QCP, in fabrication and erection work as per standard specification and as per the instruction of Engineer-in-charge. The rate to include supply of chemicals, labour, hire charges for tools and plants, scaffolding, other accessories and all incidentals etc., complete.	RM	95.70	66990.00
17	125.00	Carrying out radiographic test using Iridium source for butt welds upto a thickness of 40mm wherever required / as per QCP as per standard specification and direction of Engineer in charge The rate includes supply of required labour, films, tools, plants etc complete	SQCM	9.57	1196.25

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S.No	Quantity	Description	Unit	Rate(Rs.P)	Amount (Rs.P)
18	15.00	Conducting ultrasonic test on welds as per standard practice and instruction of engineer in charge,The rate include cost of labor, hire charges for tools & plants accessories, incidentals etc complete	RM	191.41	2871.15
19	35.00	Conducting Ultrasonic testing at BHEL inside fabrication yard for steel plates using straight beam probe 24mm OD of 10mm 100% coverage from one major surface of plate in scanning direction-1 as per standard specification SA 435 / SA 435-M. The rate shall include all labour charges for marking, testing, punching of defective spots, preparation and submission of UT reports, punching of identification numbers and cost of consumables like couplants, cotton waste, etc., Qualified NDE personal certified level II as per ASNT standard of latest edition shall conduct testing. Also includes all incidental charges, hire and running charges for equipments tools and plants, transportation, leading, loading, conveyance, etc.,complete.	sqm	1004.89	35171.15
				Total(Excluding GST)	7778000.24

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