

# **TENDER SPECIFICATION**

## **BHEL PSSR SCT 1324**

**FABRICATION & ERECTION OF STRUCTURAL STEEL IN POWER HOUSE, MILL BUNKER BAY, AUXILLIARY BUILDINGS AND PIPE RACK ETC**

**FOR**

**2 X 600 MW TPP**

**FOR**

**TAMIL NADU ELECTRICITY BOARD**

**ATHIPATTU , TAMIL NADU**

**VOLUME - III**

**RATE SCHEDULE**

**BOOK NO .....**



**BHARAT HEAVY ELECTRICALS LIMITED**  
**( A GOVERNMENT OF INDIA UNDERTAKING)**  
**POWER SECTOR – SOUTHERN REGION**  
**690,ANNA SALAI, NANDANAM, CHENNAI – 600 035**

**BHARAT HEAVY ELECTRICALS LIMITED**  
(A Government of India Undertaking)  
Power Sector, Southern region  
690, Anna Salai, Nandanam, Chennai-35

**TENDER SPECIFICATION No. BHEL:PSSR:SCT: 1324**

NAME OF THE WORK

**FABRICATION & ERECTION OF STRUCTURAL STEEL IN POWER  
HOUSE, MILL BUNKER BAY, AUXILLIARY BUILDINGS AND PIPE  
RACK ETC**

**Volume III**

**RATE SCHEDULE**

Issued to  
M/s

For and on Behalf of  
BHARAT HEAVY ELECTRICALS LIMITED

Addl General Manager/Contracts

(This tender document is not Transferable )

Place: Chennai – 600 035

Date:

**PREAMBLE FOR THE SCHEDULE OF QUANTITIES.**

**PREAMBLE TO THE SCHEDULE OF QTS. (SOQ)**

- 1) Details of the items in this Schedule shall be read in conjunction with the corresponding TNEB specifications, drawings and other documents and shall have precedence over any contrary statement mentioned anywhere in this document.
- 2) The work shall be carried out as per construction drawings, specifications, the description of the items in this schedule and/or Engineer's instructions. Drawings enclosed with these documents are only indicative giving some idea of the type of work involved. The layout, sizes and details of the building, structures and foundations shown in tender drawings may vary to a large extent during actual construction. Final drawings will be issued progressively during the execution of the work.
- 3) Items of work provided in this schedule but not covered in the specifications shall be executed strictly as per instructions of the Engineer.
- 4) Unless specifically mentioned otherwise in the contract, the bidder shall quote his rates for the finished items and shall provide for the complete cost towards fuel, tools, tackle, equipment, constructional plant, temporary works, labour materials, levies, taxes, transport, layout, repairs, rectification, maintenance till handing over, supervision, shops, establishments, services, temporary roads, revenue expenses, contingencies, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the works according to the contract.
- 5) The rate quoted shall be inclusive of cleaning the site of any vegetations, dressing and leveling etc., required for commencement of site activities. No separate payment will be made towards the same.
- 6) The rate shall also be inclusive of carrying out survey of site to establish levels and coordinates at suitable intervals, from existing grid levels and coordinates furnished by the owner, establish bench marks, setting out the location and levels of the proposed structures, constructions and making references, pillars and other identification marks etc. No separate payment will be made towards the same.
- 7) The quantities of the various items mentioned in the schedule are approximate and may vary up to any extent or be deleted altogether. The quoted rates of each item shall remain firm as long as the variation in the total value of the works remain within +/- 30% (thirty percent) of the Bid Price of the work. The variation clause will be applicable as stipulated in the General conditions of contract, Volume 1 of this tender.
- 8) Rates shall be quoted both in figures and in words in clear legible writing. No over writing is allowed. All scoring and cancellation should be counter

signed by the bidder. In case of illegibility, the interpretation of the engineer shall be final. All entries shall be in English language.

- 9) Engineers decision shall be final and binding on the contractors regarding clarification of items in this schedule with respect to the other section of the contract.
- 10) Unless otherwise specified in the schedule of items structural and reinforcement steel will be issued by BHEL as FREE ISSUE as specified elsewhere in this tender document.
- 11) In case of any discrepancy between item description, relevant drawing and/or specification clarification shall be sought at tender stage itself. Otherwise it shall be assumed that the bidder has quoted for the more stringent requirement.

### **HIERARCHY**

**In case of any conflict/deviations amongst various documents, the order of precedence shall be as follows**

- Statutory Regulations
- TNEB specification
- Items in Schedule of quantities
- IS/BS standards
- BHEL's standard specification (with prior approval of Engineer-in-charge).

**GENERAL :**

**The following points to be taken care while submitting the offer in this tender specification**

**Technical requirements in Volume- II should be read in conjunction with BOQ in Volume – III and other sections of the tender / contract. In case of any conflict between the contents of BOQ in Volume – III and Technical Requirements in Volume – II, BOQ will prevail over Technical requirements.**

**In case of any conflict between Technical requirements in Volume – II – Book 1 ( Customer specification) and standard technical specification in Volume – II – Book 2, Technical specification in Volume – II – Book 1 ( customer specification) will prevail over standard technical specification in Volume – II – Book 2.**

**Volume – II – Technical specification consists of Customer Technical specification and BHEL specification is for the total Project of 1X600 MW EPC tender ( reproduced ).**

## **MODE OF AWARD OF WORK FOR UNIT 1 & UNIT 2**

- i) There are two units of 600MW each at North Chennai. Tender SCT 1324 is for unit 1 - 600MW (at North Chennai) only. The quantity indicated in the price bid is for Unit-1 only.
- ii) The L1 bidder against this quote will be awarded the contract for Unit 1 of North Chennai TPP - 600MW.
- iii) However, BHEL reserves the right to award the contract for Unit 2 at North Chennai, on the same terms and conditions of SCT 1324, to the next lowest bidder in the order of competitiveness who should match his rates / price with L1 bidder of unit 1.
- iv) Thus the work will be awarded to two agencies i.e. Unit 1 work for one agency and Unit 2 work for another agency
- v) Each unit will be treated as a separate contract.

AGM/CONTRACTS

**2X600 MW NORTH CHENNAI TPS**

SCT 1324

SPECIFICATION

**BILL OF QUANTITIES****FABRICATION & ERECTION OF STRUCTURAL STEEL WORKS IN POWER HOUSE, BUNKER, PIPE RACK ETC**

VOLUME III

ST. NO	DESCRIPTION	UNIT	Qty for Unit-1	RATE	AMOUNT
				In figures	
2300	<b>Structural steel works. All items for fabrication should include preparation of fabrication drawings, approval as per specifications including transportation from BHEL stores with in the plant Premises, painting with a coat of primer and also inclusive of all necessary quality test to the satisfaction of engineer/customer for the following.</b>				
2301	Preparation of detail fabrication drawing, fabrication of <b>structural steel</b> (rolled section, built up section or combination), delivery at site, transportation, work in columns, girders, beams, gantry girders, trusses, purlins, circular coal bunkers, bracings, cleats, shear connectors, platforms, lugs, safety chains etc. along with base plates & other fittings & fixtures including cutting, grinding, machining, wherever applicable, drilling, bolting (including cost of HT & HSFG bolts of property class 8.8 minimum as per IS:1367(Latest) of GKW or equivalent make for field connection, etc.), welding (shop connections are welded), preheating of welded joints (& use of low hydrogen /radiogenic electrodes as per spec.), shop coat of painting & touch up painting, complete as per specifications.  Nominal connections in field like purlins, stairs, wall beams shall be done by 16mm dia. MS black bolts as per IS:1363(Latest). Builtup section shall be submerged welded as per specification. The primer coats shall be 1 coat of Redoxide Zinc Chromate applied in shop as per IS:2074 & IS:1477(Part I & II). preparation of fabrication drawings, joint design calculations and all other general and special requirements including appointment of a separate agency, approved by BHEL, for review and approval of fabrication drawings (prepared by the bidder) 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. <b>Structural steel supply by BHEL.</b>	MT	14318		
2302	Fabrication of Chequered plates and delivery at site including shop coat of painting and touch up painting complete as per specifications. The primer coat shall be as per details explained under item no 2301.	MT	203		
2303	Supply, fabrication of <b>MS grating</b> and delivery at site including shop coat of painting and touch up painting complete as per specifications. The primer coat shall be as per details explained under item no 2301.	MT	173		
2304	Fabrication and delivery at site, transportation, loading/unloading of various sizes, <b>GI pipe hand railing</b> including painting and fixing as per specification, labour and material complete for heavy duty class.	MT	76		

ST. NO	DESCRIPTION	UNIT	Qty for Unit-1	RATE	AMOUNT
2305	Fabrication including preparation of fabrication drawings, delivery at site, transportation, loading, unloading etc. of <b>MS coal bunkers</b> in cylindrical or rectangular shape with bottom conical portion (with circular or rectangular mouth piece attached) with all special fixtures such as stiffeners, supporting brackets for mounting of steel frame structure as per specification, labour, material, welding (use of low hydrogen radiographic electrodes) complete including shop coat of painting and touch up painting.	MT	1650		
2307	<b>Erection of structural steel works</b> including the receiving the fabricated material either from Project site or from any where at Project site, all field connections, bolting including HSFG bolts wherever applicable and welding and fixtures wherever necessary as shown on drawings and as directed by the engineer, labour and material, for all heights as per the drawings issued from time to time at the time of execution.	MT	14318		
2308	<b>Erection of chequered plate, handrail and grating</b> including the receiving material either from Project store or from any where at Project site all field connection, bolting, welding and fixtures wherever necessary as per specifications and as shown on drawings and as directed by the engineer, labour and material, for all heights as per the drawings.	MT	452		
2309	<b>Erection of coal bunkers</b> as mentioned above on structural steel frame work including deceiving fabricated material either from project store or anywhere at project site, all field connections, bolting, welding complete as shown on drawings and as directed by engineer, labour and material complete. <b>Structural steel supply by BHEL.</b>	MT	1650		
2310	Supply and application of 2 coats of <b>synthetic enamel paint</b> of Berger or equivalent make, approved colour over one coat of primer after completion of Erection, Alignment & welding at all heights and levels for all steel structures including chequered plates and gratings. Total DFT of finished paint shall be minimum 100 microns complete as per specifications.	MT	14318		
2311	<b>Painting of structural steel works for coal bunkers</b> with 2 coats of synthetic enamel paint of Berger or equivalent make, approved colour over one coat of primer after completion of Erection, Alignment & welding at all heights and levels on <b>external face</b> . Total DFT of finished paint shall be minimum 100 microns complete as per specifications.	MT	1650		
2312	Fabricate and erect <b>6.00mm (thickness may vary between 4mm to 8mm) thick stainless steel liner</b> of grade AISI-304; Finish Grade 2B (Cold rolled, Annealed & Pickled and Skin passed) on M.S. plate for entire inside surfaces of hopper & mouth of hopper of bunker as directed by the Engineer including fixing with studs, bolting/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. <b>Stainless steel supply by BHEL.</b>	MT	270		
2313	<b>Grouting of pocket holes</b> , pipe sleeves of any shape and size under base plate after erection and alignment if necessary, structural steel work, machinery at any elevations including roughening surface, cleaning, ramming, curing, etc., complete as per specifications. (Cost of cement shall be in the scope of the contractor and clearing the pocket by compressed air before placement of concrete).	CUM	39		

ST. NO	DESCRIPTION	UNIT	Qty for Unit-1	RATE	AMOUNT
2314	Conducting <b>radiography test</b> 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	106		
2315	Conducting <b>ultasonic test on welds</b> 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	44		
2316	Conducting <b>magnetic particle test on welds</b> 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	42		
2317	Supply, fixing and placing of <b>poly tetra floro ethylene bearings</b> of reputed manufacturer for loading as specified below and displacement of (+)50mm, complete with fixtures as per specification.				
	i) Vertical Load of 20 Tons	Nos.	8		
	ii) Vertical Load of 30 Tons	Nos.	8		
	iii) Vertical Load of 50 Tons	Nos.	2		
2318	<b>Dismantling of existing steel structures</b> at any elevations including lowering of material and carriage of materials to fabrication shop as per specifications and instructions of engineer.	MT	29		
2319	<b>Re-erection of dismantled fabricated structural steel</b> members requiring modifications including carriage from field fabrication shop complete as per specification and instructions of the engineer.	MT	14		
	<b>GRAND TOTAL</b>				