



An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

MATERIALS MANAGEMENT

TITLE PROCUREMENT OF Quick Erect Scaffolding	Phone: +91 431 257 7022 Fax : +91 431 252 0719 Email : mathan@bheltry.co.in
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	Reference Number: Enquiry 1801201562	Enquiry Date: 31.12.12	Due date for submission of quotation: 28.01.13
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You are requested to quote the Enquiry number date and due date in all your correspondences. This is only a request for quotation and not an order

Tenders are invited for PROCUREMENT Of Quick Erect Scaffolding

BHEL commercial terms & conditions with Price Bid formats and all annexure can be downloaded from BHEL web site <http://www.bhel.com> or from the Government tender website <http://tenders.gov.in> (public sector units) Bharat Heavy Electricals Limited) under enquiry reference "1801201562 "

Tenders should reach us before 14:00 hours on the due date Technical bid will be opened at 14:30 hours on the due date Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present.	Yours faithfully, For Bharat Heavy Electricals Limited Senior Manager/MM/BOI Bldg 24, BHEL, Tiruchirapalli-620014 Ph: 0431- 2577022, Fax: 0431- 2520719 Email: mathan@bheltry.co.in
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General Note: **BHARAT HEAVY ELECTRICALS LIMITED**

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(A Government of India Undertaking)
HIGH PRESSURE BOILER PLANT
PURCHASE DEPARTMENT - FOSSIL BOILERS
THIRUCHIRAPALLI - 620014
TAMILNADU (INDIA)

PHONE : 2577074
GRAMS : BHARATELEC
FAX NO: 2520719
E-mail :
Web :

429-002/A

OFFICE COPY	Collective No.	Enquiry Date	Due Date For Quotation
	1801201562	29.12.2012	28.01.2013
Please quote Enquiry No, Date and due date in all correspondences. This is only a request for quotation and not an order			

Item	Description	Unit	Quantity	Delivery Quantity	Schedule Date
10	L170019950102001 Quick Erect Scaffold assembly as per the Specification MHS-HEQ-075/Rev.01 (15 Sheets)with Annexure -I, II & III (G.A.Drawing 0-99-501-40251)	SET	1.000	1.00	31.03.13

General Note:

- 1) The tender will be opened in two part bid basis and you are requested to submit your offers in two separate sealed covers viz Techno-commercial bid and Price bid.
- 2)The items pertaining to SI No 10 to be dispatched to our Barh project(Bihar State)
- 3) All the details as mentioned in the specification to be strictly adhered. Exclusions to be clearly spelt out by Vendor.
- 4) Filled in data for Annexure-II of this specification shall be furnished by the Vendor along with the offer.
- 5) Sample G.A Drawings to be submitted along with the offer.
- 6).Annexure - I is form and part of this enquiry (Special Terms & Conditions/Pre-Qualification requirement) which is to filled with confirmation for all the points and to be submitted along with your offer for evaluation.

Enclosures:

1. Specification MHS-HEQ -075/Rev.01(15 Sheets)
2. Annexure -I to specification MHS-HEQ-075/01(1 Sheet)
3. Annexure -II to specificationMHS- HEQ-075/01(5 Sheets)
4. Annexure - III (drq. 0-99-501-40251)(1 Sheet)

The offers should reach us 30 minutes before the time of opening of tenders.
The offers will be opened at 14.30 hrs on the due date of tender in the presence of tenderers who have submitted their offer and who may like to be present for the tender opening.Late and delayed offers are liable to be rejected.

Yours faithfully,
For **BHARAT HEAVY ELECTRICALS LIMITED**

R. Srinivasan
MANAGER / PURCHASE / FOSSIL BOILERS
Engineer / Purchase / SD
Materials Management / FB
BHEL, TRICHY - 620 014.



BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)
HIGH PRESSURE BOILER PLANT
PURCHASE DEPARTMENT - FOSSIL BOILERS
THIRUCHIRAPALLI - 620014
TAMILNADU (INDIA)

22130

1801201562 / 29.12.2012

5. Annexure- 1(Special Terms & Conditions/Pre Qualification Requirements PQR)(2 Sheets)

"LD clause has to be confirmed without fail."
"Payment to vendors will be made only thro E-Payment mode."

<u>PR Links</u>	<u>PR.No</u>	<u>PR.Item.</u>	<u>Quantity</u>	<u>Acc. Assign</u>	<u>Customer Number</u>
Material. L170019950102 001	85992380	00010	1.000	U6/1700-SY-727-1-99-501	U6/1700

list of suppliers

The offers should reach us 30 minutes before the time of opening of tenders.
The offers will be opened at 14.30 hrs on the due date of tender in the presence of
tenderers who have submitted their offer and who may like to be present for the tender
opening. Late and delayed offers are liable to be rejected.

Yours faithfully,
For BHARAT HEAVY ELECTRICALS LIMITED

T. Srinivasa Reddy
MANAGER (FOSSIL BOILER)
Engineer / Purchase / SD
Materials Management / FB
BHEL, TRICHY - 620 014

BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPPALLI-620 014

Fuel Systems/PE(FB)



Title Sheet

Quick Erect Scaffolding System

Specification Number: MHS-HEQ-075

Revision No. : 01

Revision No.	Revision Date	Revision statement	Checked & Approved
01	27-04-2006	In Cl.No. 6.10.1, the floor space Elevation 2.5 to 3.5M was 3 to 4 M. In Cl.No.7.8.1, No of copies of manuals: 3 Sets + 3 CD –ROMS were 26Sets + 5CD-ROMs.	SSR/JVVA

	Name	Signature	Date
Prepared	S.Selvaraju	-Sd-	30-06-03
Checked	S.V.Sivaramulu	-Sd-	30-06-03
Reviewed	C.Palanisamy	-Sd-	30-06-03
Approved	A.Rajamohan	-Sd-	01-07-03



**Specification for
Quick Erect Scaffolding System**

MHS-HEQ-075

Revision No.:01

Contents

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Annexure – III ----- Copy of Drawing (Furnace Arrangement for Quick Erect Scaffold)



Specification for Quick Erect Scaffolding System

MHS-HEQ-075

Revision No.:01

1.0 Intent:

The quick erect scaffolding system is intended for carrying out maintenance work inside a boiler furnace which comprises water walls, Burners, Soot blowers, Super heaters, Re-heaters etc. during shut down period. As the name implies, the scaffolding shall be safely erected and dismantled in the shortest possible time with less manpower and with minimum supervision.

The scaffolding system shall be sufficient enough to cover all the water wall areas, in a single set up, including inclined area of the boiler above rear wall and furnace bottom (Bottom hopper).

The system shall be preferably of modular and interchangeable construction and easily and quickly assembled inside the furnace.

2.0 Scope:

This specification covers design, manufacture, inspection and supply of quick erect scaffolding system. The specification is for ensuring a safe and trouble free quick erect scaffolding system used during shutdowns and overhauls, for inspection and maintenance of furnace internals of steam generator like Water walls, Burners, Superheaters etc.,

3.0 Requirements of the system

3.1 Quick erect scaffolding system shall be of fast erecting with suitable connecting/coupling arrangement.

3.2 Codes & standards

All equipment parts, systems and works covered under this specification shall comply with all currently applicable statutory regulations and safety codes of the Republic of India as well as of the Company where they will be installed. The offered system shall conform to national / international standards and the same may be clearly spelt out in the offer.

3.3 Material of construction

3.3.1 The material of construction of various components shall be Steel/Aluminium of proven design for Scaffolding application. It is suggested that the selected material shall also be light in weight to hasten the erection of scaffold in the shortest possible time. For general requirements of materials, refer to cl.8.1 of this specification.

3.3.2 All materials used for construction of different components shall individually conform to latest revisions of National / International Standards and it shall be specified in the offer.

3.3.3 All the components of the scaffolding system shall have **appropriate colour code** for easy identification. The colour code shall be specified in the offer and will have Purchaser's approval. For special painting requirements, refer to Annexure-I to this specification.



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- 3.4 The quick erect scaffolding system shall provide flexibility in erection of vertical posts & horizontal / diagonal connecting members.
- 3.5 Vertical posts & horizontal / diagonal connecting members shall have equal spacing for easy erection. Connections of the above shall be with suitable quick connect hardware arrangement. Vertical posts / horizontal / diagonal members shall have equal and standard lengths for easy interchangeability & modular assembly and disassembly.
- 3.6 The vertical posts and horizontal members shall be so designed to fill the space of furnace configuration..
- 3.7 Vendor shall offer a system which is erectable and dismantlable at the quickest possible time. Vendor shall indicate, in the offer, the man-hours required and also manpower (skilled and unskilled) needed to carry out erection and dismantling of the system. Vendor shall also provide the total erection /assembly time of the full scaffold. **The total time required for erection shall not exceed 4 days (96 hours) and dismantling 2 days (48 hours), considering the work force deployed for 24 hrs in 3 shifts a day.**
Vendor shall submit, along with the offer, a user certificate for the time taken for assembly and dismantling of a similar system which is equivalent to or bigger than the offered system. Vendor shall undertake guarantee to demonstrate the same (manpower & man days) during the installation (both erection and dismantling) of scaffold in any one of the shutdown period as and when demanded by the end user within 2 years after commissioning of the boilers or 48 months after completion of supply. The cost incurred for this shall be totally borne by the vendor.
- 3.8 Quick erect scaffolding system shall meet the shape & configuration of the Furnace arrangement to have easy access to all parts of furnace including rear water wall arch. (Ref. Annexure-III).
- 3.9 The requirement of the system, as spelt above, is indicative only. Vendor shall offer the most appropriate system for the intended specification and duty condition. The offered system shall be clearly illustrated with sketches and elaborate details.
- 3.10 All the required materials shall be introduced into the furnace for assembly through the access door opening (Refer Annexure-I) and or furnace bottom opening and all components shall be sized accordingly.
- 3.11 Vendor shall include the required number of Initial Spares in the base offer itself. *Initial spares means the spares required during first erection/commissioning of the system to replace the items that are either damaged or lost during transit/storage. Hence, vendor shall quote for the initial spares along with the base offer. The list of initial spares shall be clearly furnished in the offer.*
The spares required for long term usage shall be quoted separately.



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4.0 Safety

- 4.1 The locking arrangement shall not call for any welding.
- 4.2 Quick erect scaffolding system shall be arranged in such a manner to remove / erect individually without affecting other components.
- 4.3 Safety accessories like safety belt etc. shall also form part of the offer.
- 4.4 Scaffolds, as per ANSI A10.8-1988 / Section 4.6, shall be capable of supporting, without failure, their own weight and at-least four times the maximum intended load. In line with this, Scaffolding, which includes work platforms, bracings, and supporting members, shall be designed for a minimum safety factor of '4' which is applied to the design load.

5.0 Load Transfer

Vendor shall clearly spell out in his offer the load that is likely to be transferred to the furnace walls. This load shall include the dead weight of the scaffolding including the platforms and the safe working load that can be loaded on to the platform. With respect to the Load transfer, the following details shall be furnished in the offer.

- The no.of support points
- The location of support points
- The load per vertical post at the support points
- The load transfer points shall be clearly marked up in the drawing
- Vendor shall indicate the type of supports proposed with an aid of sketch/drawing. (Load transfer through all supports shall be at the fins zone only and not on the tubes)

6.0 Scaffolding system :

The scaffolding system shall be provided with :

- 6.1 Close access to inspection / maintenance of boiler tubes / water wall & other components.
- 6.2 Stair case with a width of minimum 600mm and not more than 45° inclination. Staircase shall be provided with hand rails.
- 6.3 System shall have upper / mid guard rail without any special components.
- 6.4 Access to Panel and Platen super heater and rear wall upper arch portion.
- 6.5 Arrangement for stable floor.
- 6.6 Suitable arrangement for supporting at furnace bottom without additional attachment with boiler tubes.
- 6.7 In total, the assembly shall have amongst other things vertical posts, horizontal members, vertical / horizontal / diagonal bracings, trusses and other fastening arrangements etc...



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- 6.8 Load per square metre (not less than 150 kg/sq.m) on the scaffolding system shall be furnished by vendor. Vendor shall indicate the overall permissible load at any given instant on the scaffolding system offered. (Refer clause 4.4 also)
- 6.9 Handrails shall be with a height between 900 mm to 1000mm.

6.10 Floors

- 6.10.1 Floors are to be provided peripherally at all elevations except at the levels specified in clause 6.10.2 where full planking is required. The elevation levels shall be determined by the vendor. However, the space between two floors shall be preferably 2.5 m below the top of wind box and shall not exceed 3.5 m there after (above windbox). However to provide access to all the areas within the floor space, suitable ladders shall be provided which can be safely fixed on to the floors. Minimum 6 nos. of such ladders shall be provided.
- 6.10.2 Full platforms/floors (not just peripheral) shall be provided at just below the upper rear arch and below the access door opening in the furnace hopper. The full floor elevation details shall be furnished by the vendor.
- 6.10.3 Floors shall be provided with guard rails, mid rails and toe boards installed on all open sides and ends. Mid-rails shall be of dismantlable type. All rails and posts shall be suitable for easy assembly & disassembly.
- 6.10.4 Toe boards/guards shall extend to a minimum of 150mm above the working surface.
- 6.10.5 Vendor to specify the type of flooring offered. The flooring material offered shall be of non-flammable/ non-combustible material.
- 6.10.6 The width of the floor and gap between the furnace wall and floor shall be clearly specified by the vendor and the same shall be clearly shown in the drawing. Floor width (peripheral) shall be minimum 700mm.
- 6.10.7 The number of floors offered with "elevation" details shall be clearly mentioned in the drawing.
- 6.10.8 The floor elevations and no. of floors shall be decided in such a way that access is available to all parts (especially burner area) of the water walls. (For burner level elevations refer to Annexure-III).

6.11 Tools and tackles

- The Vendor shall supply with the main equipment one complete set of special tools and tackles required for erection, assembly, dismantling and proper maintenance of the equipment and system. These special tools will also include special material handling equipment, jigs and fixtures if applicable. The list of such tools and tackles shall be submitted by the vendor along with the offer.



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- The price of each tool/tackle shall be deemed to have been included in the total bid price. These tools and tackles shall be packed and sent to site. All the tools and tackles shall be of reputed make acceptable to the Purchaser.

6.12 Any other items though not specifically mentioned in this specification but needed to complete the equipment and system [unless specifically mentioned under exclusions] shall form part of the offer.

6.13 Vendor shall specify the storage space requirement of the system components and shall furnish suggested storage layout with special instructions, if any, for proper storage of the material.

6.14 Vendor shall furnish reference list for having supplied similar equipment for a boiler capacity of 500 MW or bigger units at least for two different power stations. Vendor shall submit certificates from at least two users for the satisfactory performance of the system supplied.

6.15 Vendor may also submit necessary documents for justifying the design aspects of the scaffold offered both for stability and safety

7.0 General requirements

7.1 All materials, components used in the design, construction and installation of scaffolds shall meet the requirements of its specified application in accordance with good engineering practice.

7.2 The material of construction and its duty class shall be clearly spelt out in the offer and the same shall conform to specified National / International Standards. All materials used for the construction of the equipment shall be new and shall be in accordance with the requirements of this specification. Materials utilised for various components shall be those which have established themselves for use in such applications for atleast a period in excess of 2 years.

7.3 All fasteners used, if applicable, shall be of Metric threads only. (No British / American threads in the inch system is permitted)

7.4 Vendor shall follow International colour Code wherever applicable for various components, assembly and sub-assembly for easy identification of components of the system.

7.5 All assemblies /sub-assemblies and individual components shall bear proper identification numbers. The methodology followed shall be clearly spelt out in the base offer.



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7.6 Training:

- The Vendor shall extend all possible assistance and co-operation to the purchaser regarding the development of expertise in the area of assembly, disassembly, identification, storage & retrieval and safety aspects of the system offered.
- Vendor shall also impart the necessary training - training of personnel for the required days at the vendor's engineering/ manufacturing facility - training at the job site for the required period by the vendor's representative. This shall be an integral part of the offer.

7.7 Drawing and Documents:

- All documents/text information shall be in MSWord 2000 or latest version
- All drawings shall be made in AutoCAD- Release 2000 or latest Version.
- All drawings submitted by the Vendor including those submitted at the time of bid shall be in sufficient detail indicating the type, size, arrangement, weight of each component for packing and shipment, the external connection, fixing arrangement required, the dimensions required for installation and interconnections with other equipment and materials, clearance and spaces required between various portions of equipment and any other information specifically requested in the drawing schedules.
- Each drawing submitted by the Vendor (including those of sub-vendors) shall bear a title block at the right hand bottom corner with clear mention of the name of the Purchaser, the system designation, the specifications title, the specification number, the name of the Project, drawing number and revisions. If standard catalogue pages are submitted the applicable items shall be indicated therein. All titles, notes, markings and writings on the drawing shall be in English. All the dimensions should be in metric units.
- The Vendor shall also furnish a "Master Drawing List" which shall be a comprehensive list of all drawings/documents/calculations envisaged to be furnished by him during the detailed engineering to the Purchaser. Such list should clearly indicate the purpose of submission of these drawings i.e., "FOR APPROVAL" or "FOR INFORMATION ONLY". Similarly, all the drawings/documents submitted by the Vendor during detailed engineering stage shall be stamped "FOR APPROVAL" or "FOR INFORMATION" prior to submission.
- The furnishing of detailed engineering data and drawings by the Vendor shall be in accordance with the time schedule for the project. The review of these documents / data /drawings by the Purchaser will cover only general conformance of the data/drawings/documents to the specifications



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and contract, interfaces with the equipment provided by others. The review by the Purchaser should not be construed to be a thorough review of all dimensions, quantities and details of the equipment, materials, any devices or items indicated or the accuracy of the information submitted. The review and/or approval by the Purchaser shall not relieve the Vendor of any of his responsibilities and liabilities under this contract.

- After the approval of the drawings, further work by the Vendor shall be in strict accordance with these approved drawings and no deviation shall be permitted without the written approval of the Purchaser.
- The Vendor shall submit adequate points of drawing/data/document for Purchaser's review and or approval. When changes are required, drawings shall be resubmitted promptly, with revisions clearly marked, for final review. Any delays arising out of the failure of the Vendor to submit/rectify and resubmit in time shall not be accepted as a reason for delay in the contract schedule.

7.8 Operation & Maintenance (O & M) Manual

Typical O&M manual for the type of system offered shall be submitted along with the offer.

Manuals generally shall contain the following :

- Brief description
- Assembly drawings with part list, dimensional drawings and other applicable drawings.
- Manuals should pertain only to the type or model supplied for this contract.
- Drawing and catalogues
- Sequence of erection.
- Erection instructions
- Critical checks and permissible deviation/tolerances.
- List of tool, tackles,
- Bill of Materials.
- Procedure for erection and dismantling.
- Procedure for initial checking after erection.
- Procedure /Check list for commissioning of the system.

7.8.1 Format of manuals

- Manuals should be both in printed form and in electronic media with a text font size of 12.
- The size of manuals should be in correct A4 size with drawings in either A4 or A3 size. Large size drawings (greater than A3 size) should be reduced to A3 size and inserted.



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- Drawings shall be of printed or laser printed only.
- Spiral or comb bound copies should be totally avoided.
- If manuals are supplied in folders, the folder shall have 3 hole punching system.
- **No of copies of manuals: 3 Sets + 3 CD –ROMS**
- O & M manuals, should be submitted to BHEL / Tiruchirappalli prior to despatch of the equipment.

8.0 Quality

8.1 General requirements

- ◆ All materials used for equipment construction including plates, pipes, forgings, fittings etc., shall be of tested quality as per relevant codes/standards. All material shall be chosen from the fresh lots and shall be free from defects like scales, seam, lamination, pitting etc., Detail of results of the tests conducted to determine the mechanical properties, chemical analysis and the details of heat treatment procedure shall be recorded on certificates. Tests shall be carried out as per applicable material standards and or agreed details.
- ◆ All plates of thickness more than 21mm shall be ultrasonically tested.
- ◆ All bar-stock forgings above 21mm diameter shall be ultrasonically tested.
- ◆ All welding shall be carried out as per welding procedures drawn and qualified in accordance with the requirements of ASME Section IX/BS: 4870 and as per AWS D 1.1 for structures & non pressure parts. Only qualified welders shall be deployed on the job.
- ◆ All back-gauged welds shall be MPI / DPT before seal weld.
- ◆ All heat treatment shall be carried out as per applicable code
- ◆ All codes standards or specifications with latest editions shall be referred.

8.2 Quality plan

Vendor shall submit along with the offer the quality plan for Purchase's review / comments / approval to ensure that the equipment and services, under the scope of contract whether manufactured or performed, within the Vendor's works or at his sub-vendor's premises or at the Purchaser's site or at any other place of work are in accordance with the specifications, the Vendor shall adopt suitable quality assurance programme to control such activities at all points, as necessary. Such programmes shall be outlined by the Vendor and shall be finally accepted by the Purchaser/authorised representative after discussions before the award of the contract. The offer which is not complying with this requirement will not be considered for evaluation.



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8.3 Quality assurance- general requirements

- ❖ All materials, components and equipment covered under this specification shall be procured, manufactured, erected, commissioned and tested at all the stages, as per a comprehensive Quality Assurance Programme which shall be submitted along with the offer. It is the vendor's responsibility to draw up and implement such programme duly approved by the Purchaser. The detailed Quality Plans for manufacturing should be drawn up by the Vendor and will be submitted to Purchaser for approval. Schedule of finalisation of such quality plans will be finalised before award of contract.
- ❖ Manufacturing Quality Plan will detail out for all the components and equipment, various tests/inspection, to be carried out as per the requirements of this specification and standards mentioned therein and quality practices and procedures followed by the Vendor, the relevant reference documents and standards, acceptance norms, inspection documents raised, etc. during all stages of materials procurement, manufacture, assembly and final testing.
- ❖ The Vendor shall also furnish copies of the reference documents/plant standards/acceptance norms/tests and inspection procedure, etc., as referred in Quality Plans along with Quality Plans. These Quality Plans and reference documents/standards, etc. will be subject to Purchaser's approval without which manufacture shall not proceed.
- ❖ These approved documents shall form a part of the contract. In these approved Quality Plans, Purchaser shall identify customer hold points (CHP), i.e., test/checks which shall be carried out in presence of the Purchaser's engineer or his authorised representative and beyond which the work will not proceed without consent of Purchaser/Authorised representative in writing. All deviations to this specification, approved quality plans and applicable standards must be documented and referred to Purchaser along with technical justification for approval and dispositioning.
- ❖ No material shall be despatched from the manufacturer's works before the same is accepted subsequent to pre-despatch final inspection including verification of records of all previous tests/inspections by Purchaser's engineer / Authorised representative.

8.4 Site checks/tests

The Vendor shall prepare and submit detailed field quality plans in the format setting out the quality practice and procedures to be adopted for assuring quality for each equipment of material at this specification from the receipt of material at site, during storage & erection. These procedures shall necessarily include all checks/tests conducted at site for preservation, assembly, alignment, positioning



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of the equipment etc. The Vendor shall also furnish detailed quality procedure proposed by him for storage & preservation to the Purchaser.

9.0 Inspection

- 9.1 The complete System has to be offered for inspection by Purchaser / enduser and the vendor shall give 30 days advance notice for arranging the inspection after the system is fully ready. After inspection the equipment can be despatched only after obtaining the MDCC (Material Despatch Clearance Certificate) . No material shall be despatched without MDCC.
- 9.2 The word "inspector" shall mean the Purchaser and / or his authorised representative and or an outside inspection agency acting on behalf of the Purchaser to inspect and examine the materials and workmanship of the works during its manufacture or erection.
- 9.3 The Purchaser or his duly authorised representative and / or an outside inspection agency acting on behalf of the Purchaser shall inspect the materials and workmanship of the works during its manufacture or erection and its part of the works, if any, being manufactured or assembled at other premises or works. In case of inspection at other premises/ works, the Vendor shall obtain from the sub-vendor permission to inspect as if the works were manufactured or assembled at the Vendor's own premises or works.
- 9.4 The Vendor shall give the Purchaser / inspector fifteen (15) days written notice of any material being ready for testing. Such tests shall be to the Vendor's account except for the expenses of the inspectors. The Inspector, unless the witnessing of the tests is virtually waived, will attend such tests within fifteen (15) days of the date on which the equipment is noticed as being ready for test/inspection, failing which the vendor may proceed with test which shall be deemed to have been made in the inspector's presence and he shall forthwith forward to the inspector duly certified test reports in two (2) copies.
- 9.5 Scaffolds shall be inspected and tested as per approved quality plan. The certificates and documents generated during inspection of above shall be furnished.
- 9.6 The Inspector shall within fifteen (15) days from the date of inspection as defined herein give notice in writing to the Vendor of any objection to any drawings and / or any equipment and workmanship which is in his opinion not in accordance with the contract. The Vendor shall give due consideration to such objections and shall either carry out the necessary modifications as called for by the



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Purchaser/Inspector or inform in writing to the Purchaser / inspector giving reasons therein that no modifications are necessary to comply with the contract.

9.7 The inspection by Inspector and issue of inspection certificate thereon shall in no way limit the liabilities and responsibilities of the vendor in respect of the agreed quality assurance programme forming a part of the contract.

9.8 All inspection measuring and test equipment used by vendor shall be calibrated periodically depending on its use and criticality of the test / measurement to be done. The contractor shall maintain all the relevant records of periodic calibration and instrument identification and shall produce the same for inspection by Purchaser. Wherever asked specifically the vendor shall re-calibrate the measuring / test equipment in the presence of Purchaser/ Inspector.

10.0 Protection , preservation, packaging and transportation

10.1 Protection

All coated surfaces shall be protected against abrasion, impact, discoloration and any other damages. All exposed threaded portions shall be suitably protected with non-metallic protection device. The ends of all piping and conduit equipment connections shall be properly sealed with suitable devices to protect them from damage. The parts which are likely to get oxidized or corroded, due to exposure to weather, should also be properly treated and protected in a suitable manner. All primers/paints/coatings shall take into account the hot humid, corrosive & alkaline, over ground environment.

10.2 Preservation

All exposed metallic surfaces subject to corrosion shall be protected by shop application of suitable coatings. All surfaces shall be thoroughly cleaned of all mill scales, oxides and other coatings and prepared in the shop. The surfaces that are to be finish-painted after installation or require corrosion protection until installation, shall be shop painted with at least two coats of primer. *For special painting requirements refer to Annexure-I to this specification.*

10.3 Packaging and transportation

- All the equipment shall be suitably protected, coated, covered or boxed and crated to prevent damage or deterioration during transit, handling and storage at Site till the time of erection.
- The over dimensional consignment (ODC) w.r.t Indian road / rail conditions shall be mutually discussed and finalised during the execution of contract.



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11.0 Guarantee / Warranty

The offered system shall be guaranteed for 18 months from the date on which the equipment / system is put into use (by the end user) or 24 months from the date of supply whichever is later against defective design, defective material usage, defective workmanship, defective packaging and forwarding.

12.0 Deviations

Deviations to specification, if any, shall be clearly spelt out in the offer stage itself. During contract/ inspection/ final erection stages, the Purchaser reserves the right to entertain or deny such deviation.

13.0 Exclusions

Any exclusion from scope of supply shall be clearly spelt out in the offer. Exclusion of major / critical items shall make the offer liable for rejection.

14.0 Documents to be submitted by vendor

14.1 Documents to be submitted along with the offer:

- Product literature / catalogue and drawings in support of the offer shall be submitted in three copies along with the quotation to evaluate the offer.
- Sectional arrangement drawing with plan, elevation, and end view along with major dimensions and weight particulars
- Filled in check list. (Annexure-II to this specification)
- Weight and quantity of individual components as per the scope of supply shall be indicated in the drawing as bill of quantity / material.
- The quality plan for the product under supply shall be furnished along with the offer. (This will be amended in consultation with the ultimate customer/end user, if required)
- List of Special tools and tackles
- List of initial spares
- Qualification Requirement: Vendor shall submit the reference list (list shall give the information like, name of customer / power station, name of the contact person, capacity of the power station, size of the scaffolding system offered etc..) for having supplied similar type design of equipment for boiler of equivalent or higher physical size and which have been put to use for atleast a minimum period of two years.
- User Certificate: Vendor shall submit a certificate issued by atleast two end users of the equipment under subject item for the satisfactory service and use of the system, each used for a period of 2 years minimum before the date of the certificate.



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- A certificate for the components from Safety Steward of the country of make shall be provided.
- Document for justifying the design aspects of the offered system both from stability and safety aspects.
- List of Deviations
- List of Exclusions
- Typical O&M manual of the offered system similar to the earlier job executed by the vendor.(preferably that applicable for the certificate provider)

14.2 Documents to be furnished after award of contract

- The complete arrangement drawing giving particulars like
 - Bill Of Quantity (of all individual components)
 - Weight details of all components individually
 - Identification marks / Numbers
- Packaging procedure detailing the list of components shall be despatched individually with identification and with preservation and storage.
- Test certificates shall be furnished before despatch of components.
- Material test certificate for all the major components.
- Quality control / Inspection documents generated during the stages of inspection, performance inspection and final inspection inline with the final approved quality plan.
- Guarantee certificate shall be furnished by the vendor.
- O & M manual

15.0 General

- The language used in offer, O & M manual, Labels, drawings etc. shall be “English only”
- For Equipment and other special requirements pertaining to the contract, refer **Annexure - I** to this specification.
- **Annexure - II** is the Check list to be filled in completely by the vendor and submitted **along with the offer**. Offer with incomplete Check list is liable for rejection.
- **Annexure – III (Drawing)**, Furnace arrangement for Quick Erect Scaffold, contains all details of the requirements like furnace width, depth, height, location of access / manhole doors, goose neck / furnace bottom position, elevations of burners etc.



**Annexure-I to Specification No.
MHS-HEQ-075/Rev.01**

- 1 Name of Project : NTPC BARH 2x660MW**
- 2 Customer No. : 1700 & 1701**
- 3 Quantity : 1 Set**
- 4 Reference Drawing No. :0-99-501-40251
(Furnace arrangement for Quick Erect Scaffold)**
- 5 Man Hole (Access Door)
Opening Size : 610x762mm (Above the bottom ring header)**

	Name	Signature	Date
Prepared & Checked	J.V.V Aruna Kumar		21/11/2012
Approved	M. Thandapani		21/11/2012

BHEL TRICHY

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REF: MM / BOI/QES

DT: 28.12.12


Annexure-I **SPECIAL Terms & CONDITIONS / Pre Qualification requirements (PQR)**

1. This tender is for the supply of **Quick Erect Scaffolding system for BARH NTPC project (Bihar State)** , as per technical specifications /Drawings attached and quantity mentioned in our enquiry.
2. The vendor shall have adequate experience in manufacturing and supply of these Items.
3. The tender will be operated in two part bid system. One part consisting of Technical bid with Commercial terms & conditions and other part is Price Bid. Techno-Commercial bid and Price bid are to be submitted in separate sealed covers. In addition to technical and commercial conditions, vendors who are not registered vendor of BHEL, Trichy have to submit the filled in "Supplier Registration Forms" (available in www.bhel.com) along with the techno –Commercial bid. Based on this and other conditions, as well as technical capability, vendors will be short-listed. Both these covers are to be put in a single cover duly super scribing the Enquiry Number. The Techno-commercial bid will be opened on the due date and based on the acceptance of techno-commercial bid and vendor evaluation/Approval, the price Bid/Reverse Auction of the qualified vendors will be opened on a suitable date with due intimation.

Following will be the criteria for vendors to qualify:

- a. Vendor should have been approved by BHEL Trichy for this items (OR)
- b. Vendor should submit the following documents for considering them for approval :
 - i. Duly filled-in Supplier Registration Forms, alongwith all credentials and supporting documents, Certificate of Rating from D&B (Dun & Brad) sheet or equivalent agencies (For Foreign vendors) , Financial Performance / Profit & Loss Account / Balance sheet for last three years etc. (With Techno-Commercial Bid)
 - ii. Availability of minimum manufacturing, handling, testing and measuring facilities ,to be detailed in the Supplier Registration Form.
 - iii. Apart from Qualifying the Techno-Commercial requirements of the Enquiry , BHEL has the right for spot assessment of the facilities for evaluation ,approval and for Registration.
 - iv. The offers will be considered for Price-Bid opening /Ordering subject to approval by customer (NTPC)
 - v. Vendors should have supplied such QES system in the past and should be in use atleast in one thermal power station of capacity 210 MW and above for a period of minimum one year and shall produce performance certificate for the same from end user
 - vi. Offers from Manufacturers alone will be considered for evaluation .
 - vii. **Offers are liable for rejection, if not satisfying above qualifying criteria or If the forms or documents are incomplete.**
4. Tender will be evaluated on package basis and on Total cost to BHEL only.
5. BHEL may negotiate the L1 rate, if not meeting our budget/estimated cost.

6. BHEL may re-float the tender opened, if L1 price is not the acceptable price to BHEL.
7. BHEL standard LD condition is 0.50 % per week to a maximum of 15 % for the undelivered portion of materials
8. Risk Purchase clause is applicable.
9. For indigenous vendors, 100 % payment will be made in 45 days from the date of receipt of materials at site with 10 % performance bank guarantee in BHEL standard format.
10. For indigenous vendors, offer shall be quoted on FOR /BARH Project site destination basis
11. For Import orders, 100% payment will be made through irrevocable unconfirmed LC at sight against presentation of original shipping documents including clean Bill of Lading with 10% PBG . LC opening charges to BHEL account. LC will have validity of 90 days including negotiation period and all other charges for operating LC to seller's account. LC will be opened in Two weeks after hearing tentative readiness of materials.
12. In case of Foreign vendors, they have to indicate Country of origin and prices shall be quoted on CFR /Chennai Sea port basis.
13. All bank charges outside India to Seller's account (for Import orders)
14. For Foreign offers, Foreign Exchange rate (of SBI) prevailing on Techno-Commercial bid opening date will be taken for calculation
15. Please indicate Net / Gross weight of the total consignment in your technical offer.
16. Performance Bank Guarantee for 10% value of order in BHEL format shall be submitted along with negotiation documents. This will have validity till the end of guarantee period. (24 Months from the date of supply)
17. Prices shall be firm and shall have validity of 90 days from Techno- Commercial Bid Opening date.
18. All applicable Taxes, Duties and any other extra cost applicable shall be indicated clearly in the offer.
19. Document approval (Drawings /Data sheets / QAP) is applicable by BHEL and customer NTPC. Materials are to be dispatched after inspection & clearance.
20. Earliest possible delivery period shall be indicated in the offer.
21. For Indigenous vendors ED is exempted against applicable documents being BARH –Mega Power Project.
(Exemption documents will be provided at the time of dispatch)


R. Srija Mole
Engineer/Purchase/BOI
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CHECK LIST OF VENDOR'S OFFER-QES

<i>This check list is to be filled up by the vendor and submitted along with the offer. This shall form part of ordering specification and shall be approved by the purchaser incorporating all the comments if any. Vendor to completely fill up the column under "vendor's compliance/confirmation/comments". Non applicability shall be clearly spelt out. Offer with incomplete data sheet/ check list is liable for rejection.</i>					
S.No.	Description	Spec.Clause No.	As per specification	Compliance / confirmation / particulars(to be filled up by vendor)	Remarks
1	Name of the equipment	1.0	Quick Erect scaffolding system		
2	Type of sytem offered	Vendor to specify		
3	Model of the system offered	Vendor to specify		
4	Type of jointing arrangement Provided	3.1	Vendor to specify		
5	Standards / Codes followed	3.2	Vendor to specify		
6	Materials of construction:	3.3.1	Steel / Aluminium		
6.1	Tubes				
6.2	Coupler / Jointing				
6.3	Fastners				
6.4	Stair ways				
6.5	Decking				
6.6	Others				
6.7	Others				
6.8	Others				
7	All components shall have appropriate colour code	3.3.4	Vendor to confirm		
8.0	Quick erect / Quick dismantle	3.7			
8.1			Total Man-hours required for erecting the complete system		
8.2			No. of manpower required for erection:		
8.2.1			Skilled		
8.2.2			Unskilled		
8.3			Total Man-hours required for dismantling the complete system		
8.4			No. of manpower required for dismantling:		
8.4.1			Skilled		

CHECK LIST OF VENDOR'S OFFER-QES

S.No.	Description	Spec.Clause No.	As per specification	Compliance / confirmation / particulars (to be filled up by vendor)	Remarks
8.4.2			Unskilled		
8.5			User certificate for the time taken for assembly and dismantling of a similar system shall be furnished along with the offer.		
8.6	Vendor's confirmation to demonstrate the mandays & man power requirement during the actual installation of QES at site.		Vendor to confirm		
9	Furnace configuration	3.8	The offered system shall meet the shape and configuration as shown in BHEL drawing.(Refer Annexure-I). Vendor's compliance.		
10	Provision to introduce all materials thro Access door opening	3.10	Opening size given in annexure -I		
11	Spares	3.11		—	
11.1	Initial spares		Shall be included in the base offer		
11.2	List of initial spares		Vendor to furnish the list of initial spares offered		
11.3	Long term spares		To be quoted separately		
12	Safety Accessories	4.3	Shall form part of the offer. Vendor to furnish the list of accessories supplied.		
13	Factor of safety	4.4	4 times the rated load		
13.1	Maximum intended load of 6 tons		Vendor to confirm for having taken this into the design		
14	Load transfer	5.0			
14.1	No.of support points		Vendor to specify		
14.2	Location of support points		Vendor to furnish		

CHECK LIST OF VENDOR'S OFFER-QES

S.No.	Description	Spec.Clause No.	As per specification	Compliance / confirmation / particulars (to be filled up by vendor)	Remarks
14.3	Load per vertical post at support point		Vendor to specify		
14.4	Load transfer points		To be marked up in the drawing		
14.5	Type of support at the furnace hopper		Explain with a drawing. Is the support calling for any welding? If yes, it is accommodated only at the fins and not on the water wall tubes.		
14.6	Maximum safe working load that can be loaded onto the platform		Vendor to specify		
15	Scaffolding System	6.0			
15.1	Staircase width	6.2	Min. 600mm		
15.2	Staircase inclination	6.2	Not more than 45 deg.		
15.3	Provision of upper / mid guardrail	6.3	Vendor to confirm		
15.4	Access to panel and platen superheater and upper rear arch areas	6.4	Vendor to confirm		
15.5	Permissible load on each floor	6.8	Vendor to specify. Shall not be less than 150 kg/sq.m		
15.6	Hand rails height	6.9	900 - 1000mm		
16	Floors	6.10			
16.1	Provision of floor	6.10.1	All floors/ All elevations peripherally only.		
		6.10.2	Full floor platforms shall be provided at just below the upper arch and below the access door opening in the furnace hopper		
16.2	Width of peripheral floor	6.10.6	Min. 700 mm		
16.3	Provision of dismountable midrails	6.10.3	Vendor's compliance		
16.4	Height of Toe boards	6.10.4	Min. 150 mm		
16.5	Materials of construction of floors	6.10.5	Vendor to specify		
16.6	Arrangement drawing of floor	6.10.7	Vendor to enclose		
16.7	No. of floors offered	6.10.7	Vendor to specify		

CHECK LIST OF VENDOR'S OFFER-QES

S.No.	Description	Spec.Clause No.	As per specification	Compliance / confirmation / particulars(to be filled up by vendor)	Remarks
16.8	Elevation details	6.10.7	Vendor to indicate in the drawing. Spacing between two successive floors shall be preferably 2.5 m shall not exceed 3.5m		
16.9	Access to all parts	6.10.8	Vendor to confirm		
17	List of Tools & Tackles	6.11	List to be attached with the offer. If vendor states that special tools are required for the offered system, then the same has to be listed in detail		
18	Storage of scaffold	6.12	Storage volume required and the suggested storage layout		
19	Reference list	6.14	Vendor to submit		
19.1	User certificate	6.14	Vendor to submit		
20	Design justification document	6.15	Vendor to submit		
21	Fasteners with Metric threads	7.3	Vendor to confirm		
22	Applicable colour code	7.4	Vendor to specify		
23	Methodology followed for marking up identification number	7.5	Vendor to specify		
24	Training of purchaser's engineers	7.6	Vendor's compliance		
25	Drawing & documents	7.7	Vendor's compliance		
26	O & M manual	7.8	Vendor to furnish a typical O&M manual of the offered system. Vendor's compliance		
27	Quality plan	8.2	Vendor's compliance		
27.1	Site checks / tests	8.4	Field quality plan - vendor's compliance		
27.2	Inspection	9.0	Vendor's compliance		
28	Packaging and Transportation	10.3	Vendor's compliance		
29	Painting	Annexure-I	Vendor's compliance		
30	Guarantee / Warranty	11.0	Vendor's compliance		

CHECK LIST OF VENDOR'S OFFER-QES

S.No.	Description	Spec.Clause No.	As per specification	Compliance / confirmation / particulars(to be filled up by vendor)	Remarks
31	Deviations	12.0	Shall be spelt out in the offer. If there are no deviations, the same shall be confirmed by the vendor		
32	Exclusions	13.0	Shall be spelt out in the offer. If there are no deviations, the same shall be confirmed by the vendor		
33	Documents along with offer	14.1	Vendor to furnish all the documents along with the offer		
33.1	Product literature / catalogue				
33.2	Drawing --- covering:		Specify vendor drawing No.		
33.2.1	General Arrangement		Vendor's compliance		
33.2.2	Sectional arrangement		Vendor's compliance		
33.2.3	Plan view		Vendor's compliance		
33.2.4	Elevation		Vendor's compliance		
33.2.5	Illustrated sketch of coupler / jointing arrangement		Vendor's compliance		
33.2.6	Marking up of load transfer points		Vendor's compliance		
33.2.7	Elevation details of all floor levels		Vendor's compliance		
33.2.8	Weight details		Vendor's compliance		
33.2.9	BOQ covering all components		Vendor's compliance		
33.7	Reference list		Vendor's compliance		
33.8	User certificate		Vendor's compliance		
33.9	Typical O&M manual		Vendor's compliance		
33.3	Deviations		Vendor's compliance		
33.4	Exclusions		Vendor's compliance		
33.5	Quality plan		Vendor's compliance		
33.6	List of special tools & tackles		Vendor's compliance		
34	Documents after placement of Purchase Order	14.2	Vendor's confirmation to furnish all the documents enlisted in Cl.14.2 of specification.		

