



INVITATION TO TENDER

Ref.: OS/21-22/7916/H.O. Heater/13/017

Date: 14.10.2021

Sub: Fabrication of Hot Oil Heater against S.O. No. 7916 inside premises of BHEL-HPVP, Visakhapatnam

Dear Sir,

Sealed tenders are invited for the subject work in **two part bid** system from vendors who are experienced in fabrication of similar jobs subject to the following eligibility criteria:

ELIGIBILITY CRITERIA:

- 1.1** The bidder should have an experience of having successfully completed similar works i.e., **Fabrication of Structural items, Piping/ Coils during the last 7 years ending 30th Sept. 2021.**
Note: Work Order and Work Completion Certificate/ any other relevant document from the customer shall be enclosed in support of successful and satisfactory completion of the work.
 - 1.2** Bidders shall also have to enclose the documents of Registration of Firm/ Factory License/ Certificate of Incorporation, EPF, ESI, PAN, GSTIN, Udyog Aadhar Memorandum/ Udyam Registration (if registered with MSME) etc.
 - 1.3** The works executed in the name of individual / firm of the tenderer will only be considered for eligibility criteria.
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2. LOCATION OF WORK SPOT:

- 2.1** The fabrication work is to be carried out inside the premises of BHEL – HPVP, Visakhapatnam.

3. VENDOR'S SCOPE OF WORK:

Fabrication of Hot Oil Heater as per the drawings, Specifications & standards, QAP, WPS etc., which includes the following activities but not limited to the same:

- 3.1** Fabrication of various equipments / items of Heater which include Radiant Shell, Radiant Arch, Radiant Floor, Convection Section Modules, Header Box Panels, Flue Gas Duct, Stack, Stack supporting structure, Platforms, Staircase, Ladders, Handrails etc.
- 3.2** Collection of raw materials & BOCs from HPVP stores and shifting of the same to site including unloading, handing over of finished structural items and loose items like fasteners, gaskets etc., to logistics dept. inside the plant and finished equipments at ADM site including loading onto the trailers at ADM site.
- 3.3** Fabrication of Radiant Shell including Rolling of Shell Plates, Fabrication of Supporting Columns, Stiffeners etc. and welding with Shell section as per drawings. Radiant shell section shall be dispatched to site in three segments without refractory lining.
- 3.4** Fabrication of Radiant Floor in two segments and Radiant Arch in two segments as per drawings.
- 3.5** Trial Assembly of Radiant Section i.e., Radiant Shell segments, Arch & Floor segments and dismantling of the same for dispatch to site.
- 3.6** Fabrication of Convection Section in Two Modules (**Module-I:** 2300 width x 3276 Ht. x 5500 Lg. approx. and **Module-II:** 2300 width x 4000 Ht. x 5500 Lg. approx.) which includes the following:
 - a) Fabrication of Convection casing along with supporting structure
 - b) Fabrication of End Tube Sheets (ETS) and assembly of ETS with Convection modules after refractory lining.
 - c) Installation of Intermediate Tube Sheets
 - d) Fabrication, assembly & welding of instrument nozzles
 - e) Fit-up, assembly & welding of Convection coils, Cross-over & Jump-over piping including NDT like 100% Radiography, PWHT, Hydro-test as per approved QAP, insertion of coils in convection modules after refractory lining and dry out.
 - f) Fabrication of Convection Section Header Boxes and Trial assembly with Convection modules before refractory dry out and removal after dry out.

- 3.7 Fabrication of Flue Gas Duct including instrument nozzles, Stack supporting structure, Platforms, Staircase, Ladders, Handrails etc., as per relevant drawings.
- 3.8 Fabrication of Stack in three sections including Base plate ring, Stiffeners, Platform support cleats, Strakes etc. as per drawings. Fabrication of Stack involves Rolling of Shell, assembly & welding of Externals, assembly and welding of Instrument nozzles etc. Trial Assembly of Stack sections and dismantling of the same for dispatch to site.
- 3.9 Fabrication & Assembly of Breeching Door, Observation doors, Access doors, Pressure Relief doors, Tube pulling doors, Peep hole assemblies, SS Retainer plates wherever applicable as per relevant drawings, specifications and standards.
- 3.10 Fabrication of Tapping Sub-assemblies, Sleeves, Nozzles, Doors etc., required for Radiant Shell of Heater.
- 3.11 Surface Preparation by Abrasive Blast Cleaning to SA 2 ½, Application of total no. of coats of Paints as per Painting Schedule, EIL Specifications and Standards. Paints shall be issued as Free Issue material by BHEL-HPVP.
- 3.12 Hot Dip Galvanizing of Handrails (approx. weight of 3 MT) as per latest revision of BS 1461 and Coating weights as per Table-1 BS 1461. Sweep blasting of Galvanized steel surfaces using Aluminium oxide (or) garnet abrasive media.
- 3.13 NDT like LPI, MPT, Radiography, UT, PWHT etc., shall be carried out as per approved drawings, QAP, Specifications and standards.
- 3.14 Assistance for Refractory Lining works like handling / shifting of Modules / sections/ ducts to specified locations, rotation to facilitate application of refractory and assistance for refractory Dry out like arranging the refractory lined equipments as per the approved Dry out plan and schedule on the request of Refractory / Dry out contractor.
- 3.15 Suitable extra bracings / Stiffening as required shall be provided to prevent distortion / damage during handling, transportation and erection. Lifting arrangement for all fabricated items as per drawing is in the scope of the vendor.
- 3.16 Rectification of Raw materials such as straightening etc., if any and trial assembly after fabrication wherever required as per Drawings / QAP and rectification of defects, if any attributable to vendors, found after handing over to Logistics dept.
- 3.17 The fabricated items shall strictly conform to the dimensions and tolerances indicated in the drawings. It must be ensured that correct dimensions and deviations, if any, are recorded properly and is made available to BHEL officials or their authorized agencies.
- 3.18 Free issue materials should be collected within 3 days from the date of intimation by Outsourcing without failure. Any delay beyond 3 days shall be considered for levying of LD.
- 3.19 In case of requirement of off-cut materials, the vendor shall have to arrange for Gas Cutting at BHEL Stores.
- 3.20 Submission of economic cutting plans for all plate materials, Pipes, Tubes and sections issued by BHEL and obtaining approval of competent authority is mandatory before taking up fabrication.
Wherever fabrication is done without proper approved cutting plans, any loss of materials arising due to the same will be recovered as per BHEL recovery rates.
- 3.21 No extra rates are applicable for the additional joints to be made in Plates / Rolled sections / Pipes.
- 3.22 The work is to be executed as per the latest approved Drawings, Group Manufacturing Specification (GMS), Shipping List released for each PGMA, QAP, WPS, Standards & Specifications etc.
- 3.23 All indirect materials, consumables like electrodes, gases, grinding wheels etc., required for fabrication are in the scope of the Vendor.
- 3.24 Identification of all items shall be hard stamped by encircling with paint and stenciled in a specific format with details of Project name, Customer No., Work Order No., PGMA No., DU No., Qty., Weight, and match marking etc., for identification and dispatch as per the instructions of the concerned. Completed job without proper identification will not be accepted by HPVP - Stores / Logistics.
- 3.25 Vendors shall have to return the excess / balance materials including off-cuts and total scrap available with them exclusive of process allowance & invisible wastage to HPVP Stores after material reconciliation but before submission of their final bill. In case the same are not returned by the vendors, Recovery shall be made as per BHEL Rates / MSTC rates plus applicable taxes, prevailing at the time of processing of the final bills.

- 3.26 Hydra crane of 14 MT capacity, Chains / Slings required for shifting, fabrication, loading & unloading etc., is in the scope of vendor. BHEL-HPVP will provide 75 MT crane where Hydra crane will not serve the purpose.
- 3.27 Shifting of Structural items to HPVP shops for Section Bending, wherever required and shifting back to ADM site after section bending.
- 3.28 Qualified Engineers & Supervisors shall be deployed for proper co-ordination of the job. **Deployment of Qualified QC Engineer for monitoring of all Quality aspects of the job is a mandatory requirement.**
- 3.29 Welding is to be carried out by qualified welders only. Qualification of welders shall be carried out by the vendor at HPVP under supervision of BHEL / WT dept. at their own cost. However, Test Coupons shall be provided by BHEL as free issue.
- 3.30 Compressor and other machinery/ equipments required for Blasting and Painting are to be arranged by the vendor at their cost. Blast cleaning and Painting as per Painting Schedule **is to be carried out in a closed enclosure. Painting is to be carried out by Painters qualified by HPVP as per Doc. No. SIP:H:PP:22.** All the necessary tests like checking of Surface preparation with Profile Gauge, Tape adhesion, Galvanizing DFT for applicable items, Elcho Meter for measuring DFT etc., required during the painting are to be carried out by the Vendor as per approved painting procedure, QAP, Specifications and standards.
- 3.31 **All the Bed materials required for fabrication, Scaffolding materials like Pipes, Clamps, GI sheets etc. required for closed enclosure for blasting and painting of the items are to be arranged by the vendor at their cost.**
- 3.32 Any modification work due to revision of the drawings during fabrication is to be carried out by the vendor without any additional cost.
- 3.33 Sufficient Area lighting at the work place shall be arranged by the vendor at their cost.
- 3.34 Adequate facilities like welding equipments, baking oven, handling facilities and measuring instruments duly calibrated must be available with the vendor. All the above equipments must be under working condition and relevant documents for the same are to be made available for verification by BHEL - HPVP / TPI Officials or their authorized agents.
- 3.35 All the measuring instruments used for inspection and testing shall have valid calibration certificates from NABL Laboratory or traceable to national / international standards.
- 3.36 Loading of finished items onto the trailer and Handing over of the same to Logistics dept.
- 3.37 Vendors shall abide by all the rules and statutory regulations in force from time to time as per the Factories Act. It is their responsibility to ensure the safety of their workmen and fulfilling the ESI, PF and other relevant statutory regulations.
- 3.38 Arrangement of Power Distribution Board with suitable capacity Switch Fuse unit as incomer, all outgoings with necessary safe trips like MCB, ELCB etc., as per the industrial safety norms and their installation, all outgoing cables from Distribution Board, termination at the distribution board, Working Area Lighting.
- 3.39 Though not mentioned specifically, any activity which is required for completion of the work is deemed to be included in the scope of work of bidders.

4. BHEL SCOPE:

BHEL – HPVP shall provide the following as free issue:

- 4.1 Supply of Drawings, GMS, QAP, NDE Procedures, WPS, Painting Schedule etc.
- 4.2 Raw materials like Plates (full / off-cuts), Pipes / Tubes, Round Bars, Rolled Sections / Structural items etc., and BOCs like Pipe Fittings, Flanges, Elbows, Fasteners, Gaskets etc., as per GMS from HPVP stores.
- 4.3 Paints as per Painting Schedule.
- 4.4 Sectional bending of structural items wherever required.
- 4.5 One 75 MT crane along with operator shall be provided by BHEL free of charge for fabrication where Hydra crane will not serve the purpose. **However, Riggers required for handling the job shall be provided by the vendor.** Diesel for operation of 75 MT crane shall be Free Issue by BHEL.
- 4.6 Area required for fabrication will be provided free of charge by BHEL. All other arrangements for site enabling including Jungle Clearance & Surface Levelling etc., if required, shall be done by the vendor only.
- 4.7 Power and Water shall be provided free of charge at one point but further distribution to the work location is to be carried out by the vendor. In case of power failure, the vendor shall have to make alternate arrangement for smooth functioning of the work without any extra cost to BHEL.

5. INSPECTION:

- 5.1 Inspection shall be carried out by M/s. BHEL-HPVP, Vizag / BHEL Authorized Inspection Agency / Customer as per approved QAP. Contractor shall have to offer for Stage wise and Final inspection as per approved QAP and obtain necessary stage wise & final clearances before proceeding for further operations.
- 5.2 Fabrication Vendor shall be solely responsible for preparation and submission of all Inspection Reports & documents duly certified by Inspection Authority for the finished items.
- 5.3 All the documentation related to inspection clearance of M/s. BHEL / TPI / Customer, Generation of Inspection Reports, Preparation of Final Documents as per BHEL standard formats etc., are included in the scope of vendor and scanned copy as well as hard copy of the same is to be submitted to BHEL-QA.

Note:

QAP enclosed with the tender document is tentative only and may be subject to revision due to incorporation of comments of the approving authority. Hence, the approved QAP issued to the vendor after ordering shall only be followed for execution and inspection of the job.

6. DELIVERY:

Finished items along with inspection documents and all other certificates are to be handed over to HPVP-Logistics within **12 weeks** from the date of issue of First lot of Raw materials or **4 weeks** from the date of issue of last lot of materials whichever is later. The delivery period includes the time involved in collection of all raw materials, cutting plan approval, handing over of finished items at HPVP- Logistics.

Note:

a) In case the delivery period offered by the vendor is more than the tender delivery, Price quoted by the bidder shall be loaded for additional period @1/2 % per week or part thereof for the purpose of evaluation of Bidder Status.

b) For intermediate operations of Refractory vendor wherever applicable, the time period from the date of handing over to the date of taking over will be excluded from the delivery period for the purpose of computation of LD.

7. SITE MOBILISATION:

Successful bidders shall have to complete site mobilization within 10 days from the date of issue of sub-contract order.

8. PRICE:

- 8.1 The price shall be quoted **strictly** as per the Schedule of Rates enclosed at Annexure – I for the detailed scope of work and the quoted price shall be inclusive of all applicable taxes & duties **except GST**.
- 8.2 The prices shall be fixed & firm without any escalation during the entire period of contract and till completion of the work.
- 8.3 GST shall be reimbursable to the vendor as detailed in Clause - 9 and as per Annexure – GST.
- 8.4 Income tax will be deducted at applicable rates from RA & Final bills.

9. GOODS & SERVICES TAX (GST):

- 9.1 Bidders shall make a note of the following points of GST before submission of their offer:
 - a) Vendors shall have to mention their GSTIN no. (15 Digits) in their Technical Bid. If any specific exemption is available, a declaration with due supporting documents need to be furnished for considering the offer.
 - b) Semi-finished goods are to be delivered by the Vendors in BHEL, HPVP premises within a maximum period of one year from the date of issue of the material, failing which the whole transaction will be considered as Supply & Sale and GST is required to be paid along with interest (calculated @ SBI Base Rate + 6%) along with penalty, if any, from the date of Challan on the whole value of materials. Hence vendors shall have to ensure that materials issued to them are returned within 365 days.
 - c) After fabrication, the vendors shall have to deliver the Semi - finished Goods by fulfilling the following formalities:
 - i) GST invoice should be raised by the vendors by paying GST on job work charges at applicable rates and by incorporating the HPVP GSTIN no. in the invoice for availing the reimbursement of GST from HPVP.

- ii) The vendor shall also have to enter in their GST Return -1 (GSTR-1) the details of invoice raised for payment of GST so as to enable HPVP to avail input credit.

10. REVERSE AUCTION:

- 10.1 BHEL shall be resorting to Reverse Auction (RA) for this tender. RA shall be conducted among the techno-commercially qualified bidders. Business Rules for Reverse Auction are given at Annexure – V. Bidder may refer Guidelines for Reverse Auction available on our website, www.bhel.com → supplier registration → Guidelines for Reverse Auction 2021, before submission of their offer.
- 10.2 Sealed envelope / Electronic Price bids of all the techno-commercially qualified bidders shall be opened and the same shall be considered as initial bids of the bidders in RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope / Electronic price bid along with applicable loading, if any, shall be considered for ranking.
- 10.3 BHEL will inform bidders the details of service provider who will provide business rules, all necessary training and assistance before commencement of online bidding. The bidders participating in the Reverse Auction shall have to necessarily submit ‘**Process Compliance Form**’ (PCF) to the designated Service Provider.
- 10.4 Bidders are advised to read the ‘Business Rules’ (Annexure – V) indicating details of RA event carefully, before reverse auction event.

11. VALIDITY OF OFFER:

The offer shall be valid for a period of **3 months** from the date of Reverse Auction.

12. RISK PURCHASE:

In case the contractor fails to execute the work within the scheduled time or due to any other reasons, BHEL - HPVP reserves the right to get the same completed through some other party at the risk & cost of the contractor and any additional expenditure incurred due to the same shall be charged to the contractor.

13. GENERAL:

- 13.1 The bidders shall study the Tender documents, Drawings, Quality Documents and all other relevant documents in detail for understanding the scope of work and the processes involved before submission of offer. Bidders shall get clarifications, if any, from concerned officials on the scope of work, clarifications related to welding or any other details of the tender document, over phone between 09:00 AM and 04:00 PM on any working day or through e-mail.
- 13.2 **Conditional / Partial Price Bids** and any other deviations to the tender terms & conditions are not acceptable and BHEL reserves the right to reject such offers without further correspondence. Bidders shall confirm their acceptance to all the terms & conditions of the tender enquiry in the Techno-commercial Bids and any deviations mentioned in the Price Bids shall not be considered for evaluation.
- 13.3 BHEL reserves the right to modify or cancel the tender enquiry at any stage without assigning any reasons thereof.
- 13.4 The General Terms & Conditions, if any, contradicting with the specific terms & conditions given in the tender, then specific terms & conditions shall only be considered.
14. Other Terms & Conditions, whichever applicable, shall be as per Annexure – III enclosed
15. The following documents shall form part of the tender enquiry:

- | | | |
|------|---|------------------|
| i) | Schedule of Rates | : Annexure – I |
| ii) | List of Reference Drawings/ Documents | : Annexure – II |
| iii) | General Terms & Conditions | : Annexure – III |
| iv) | Acceptance to tender terms & conditions | : Annexure – IV |
| v) | Business Rules for Reverse Auction | : Annexure – V |
| vi) | GST Compliance for Indigenous Suppliers | : Annexure – GST |
| vii) | QAP, Drawings, Painting Schedule etc. | |

16. TENDER SUBMISSION (through E – Mail only):

- 16.1 Techno-commercial bids including the tender document duly signed & stamped by the bidder on all pages along with a covering letter on Company's Letter Head addressed to DGM (Outsourcing), BHEL-HPVP, Visakhapatnam – 530 012 (Andhra Pradesh) shall be sent through an e-mail to the e-mail ID technicalbid-hpvp@bhel.in
- 16.2 Tentative List of Man Power, Machinery, Tools & Tackles to be engaged by the vendor shall also be attached to the Techno-Commercial Bid.
- 16.3 Price bid (i.e., Annexure – I) shall also be sent separately through e-mail to another e-mail ID pricebid-hpvp@bhel.in
- 16.4 Offers completed in all respects along with all the supporting documents shall be sent to the above e-mails only latest by 14.00 Hrs. on **28.10.2021** duly mentioning the Name of Work, Tender Ref. No. & Date and Technical Bid / Price Bid in the subject of the e-mail.

Note: Don't mark CC and BCC while submitting your offer as the system is designed to reject such mails having more than one recipient. Max. file size of the attachment shall be 20 MB only. In case the file size is more, bidder can submit their offer through multiple mails within the due date and time.

- 16.5 Bidders shall ensure correctness of the e-mail addresses while submitting their offer. There shall be no other e-mail address at the receiving end while submission of the above bids otherwise the system will reject such mails. Bidder shall be solely responsible for non-receiving of such mails at the above mentioned e-mail addresses and no communication in this regard will be entertained.


16.6 TENDERS RECEIVED AFTER THE DUE DATE & TIME ARE NOT ACCEPTABLE.

16.7 OFFERS SENT IN ANY OTHER FORM WILL BE TREATED AS INVALID AND WILL BE SUMMARILY REJECTED.

17. TENDER OPENING:

- 17.1 Techno-commercial Bids will be opened at **14.00 Hrs** on **28.10.2021**. The bidders may depute their representatives at the time of opening of Technical bids.
- 17.2 After evaluation of the Techno-commercial Bids, intimation regarding date & procedure of conducting reverse auction shall be given by the service provider to all the eligible techno-commercially qualified bidders through an e-mail in advance at an appropriate time.

For Bharat Heavy Electricals Limited,


14/10/2021
D. N. MURTHY
Dy. Manager (OS)
Bharat Heavy Electricals Ltd.
HPVP, Visakhapatnam-530 012

SCHEDULE OF RATES

Ref: OS/21-22/7916/H.O. Heater/13/017

Date: 14.10.2021

Sub: Fabrication of Hot Oil Heater against S.O. No. 7916 inside premises of BHEL-HPVP, Visakhapatnam

Sl. No.	Item Description	Qty.	Unit	Unit Rate (Rs.)	Amount (Rs.)
	Fabrication, Assembly, Welding, NDT, Trial Assembly of various items of Hot Oil Heater against SO no. 7916 at HPVP - ADM site as per the drawings, QAP, WPS, Specifications and standards as per the detailed scope of work specified in the tender. (All consumables are in the scope of the vendor)				
1	Radiant Shell, Radiant Arch and Radiant Floor in segments including sub-assemblies like Sight / Observation doors, Access Doors, Pressure Relief Doors, Tube Pulling Door, Peep Hole Assembly, instrument nozzles etc.	22	MT		-
2	Convection Section in modules form including Access door, Breeching Door, instrument nozzles, Header Boxes, End Tube Sheets etc. (excl. Refractory and coils)	34	MT		-
3	Flue Gas Duct including stiffeners, instrument nozzles etc. (excl. Refractory)	2	MT		-
4	Stack including stiffeners, instrument nozzles, strakes etc. (excl. Refractory)	18	MT		-
5	Loose columns of supporting structure, Platforms, Ladders, Staircases, Handrails etc.	18	MT		-
6	Hot Dip Galvanising of Handrails	3	MT		-
7	Fabrication of Convection Coils including Cross overs & Jump overs and insertion in Convection Modules CS Coils - SA106 Gr.B	915	Inch Dia		-
	TOTAL				-

Notes :

- L1 Status will be evaluated based on the Total Quoted Amount.**
- The quantity and weights indicated above are tentative and may slightly vary on both sides depending upon the requirement at the time of ordering/execution. However, payment shall be made for the actual quantities & weights only.
- The quoted price shall be inclusive of all applicable taxes & duties **except GST**. GST shall be reimbursable to the vendor as detailed in Clause – 9. Income tax shall be deducted at applicable rates from the vendor's bills.
- The prices shall be fixed & firm without any escalation during the entire period of contract and till completion of the work.
- The evaluation currency for this tender shall be **INR**.
- Tenderer should quote the amount in figures & words. It may be noted that corrections, overwriting etc. are not allowed. If there is a discrepancy between amount in figures & words, the amount in words shall prevail unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail. If there is an error in the total corresponding to the addition or subtraction of sub-totals, the sub-totals shall prevail and total shall be corrected accordingly.

In case of any mismatch between quoted rate and amount in figures, rate in figures shall be taken into consideration for further evaluation and processing.

Signature of the Bidder with Stamp

Ref: OS/21-22/7916/H.O. Heater/13/017

Date: 14.10.2021

LIST OF REFERENCE DRAWINGS / DOCUMENTS

Sub : Fabrication of Hot Oil Heater against S.O. No. 7916 inside premises of BHEL-HPVP, Visakhapatnam

Sl. No.	S.O. No.	Description of Work	Description of Drawings / Documents	Drawing / Document No.	Rev. No.	No. of Sheets
1	7916	Fab. of Hot Oil Heater	General Arrangement and Fab. details of Convection Coil (Sheet 1)	1-11-001-U8025	0	1
2			General Arrangement and Fab. details of Convection Coil (Sheet 2)	1-11-001-U8025	0	1
3			General Arrangement of Hot Oil Heater Elevation and Plan	1-48-000-U6008	1	1
4			General Arrangement of Hot Oil Heater Plans	1-48-000-U6009	0	1
5			General Arrangement of Hot Oil Heater Stack and Plans	1-48-000-U6010	0	1
6			QAP	CQP 2519	0	3

Note : Documents indicated above are purely tentative and may be subject to revisions due to incorporation of comments of the approving authority. Hence, the approved drawings and documents issued to the vendor after ordering shall only be followed for execution & inspection of the job.

GENERAL TERMS & CONDITIONS**1. TECHNICAL DELIVERY CONDITIONS:**

The work should conform to the technical data given in our drawings, GMS, Shipping List Specifications, QAP, WPS etc.

2. PARTY'S SCOPE:

The scope of the party shall be as follows: -

- a) All welding equipments, baking oven, tools, jigs and fixtures, measuring instruments duly calibrated, handling facilities, testing facilities etc.
- b) All materials other than those mentioned under "Free Issue Materials", which are required for completion of the work.
- c) All consumables such as electrodes, gases, grinding wheels etc.

Note: Electrodes of specification mentioned in the drawings / WPS and of BHEL approved brands only shall be used and MTCs of the same shall be submitted to BHEL for verification before use.

3. REVISION OF DRAWINGS:

There may be minor changes in the drawings during execution. In such a case, party should accommodate the same without any extra claim.

4. WELDING QUALIFICATION: Qualification of required number of Welders is party's responsibility at their cost.**5. X-RAY:**

All welding shall be of X-ray quality where specified on drawings. Inspection would specify the quantum of X-ray based on drawings / code requirement. Party should strictly follow the WPS and QAP issued by BHEL during welding. Getting the welds radiographed and getting them cleared by inspection is the responsibility of the party.

6. RECTIFICATIONS / REJECTIONS:

Any rectification due to defective work, if required, shall be done by the party free of charge with a suitable technology approved before hand by BHEL in writing. The cost of material, if any used for rectification work / rejection work, will be estimated by BHEL and the same shall be debited to party's account. In case any rectification / rework is to be carried out due to defective material supplied by BHEL, the replacement material and consumables will be supplied by BHEL free of Cost.

7. SECURITY DEPOSIT:

Vendors shall have to submit a Bank Guarantee for **10%** of the order value towards Security Deposit and safe custody of free issue materials within 15 days from the date of issue of Order. The BG shall be valid for the entire contract period with a claim period of 12 months. This Bank Guarantee shall be released to the contractor after completion of work and on acceptance of the same by BHEL.

Bidder agrees to submit performance security required for execution of the contract within the time period mentioned above. In case of delay in submission of performance security, enhanced performance security which would include interest (SBI rate + 6%) for the delayed period, shall be submitted by the bidder. Further, if performance security is not submitted till such time the first bill becomes due, the amount of performance security due shall be recovered as per terms defined in NIT/contract, from the bills along with due interest.

8. PERFORMANCE BANK GUARANTEE:

Vendors shall have to submit Performance Bank Guarantee (claim period of 12 months) for 10% of the order value covering for the defects liability period. If PBG is not submitted, 10% of the order value shall be deducted towards PBG from the final bill and shall be refundable after performance guarantee period, if no defects are found during this period.

9. RAW MATERIALS ISSUE:

Raw materials shall be issued with appropriate processing allowance and invisible wastage over the theoretical requirement of raw materials (**Plates, Sheets, Sections and Pipes**).

10. TRANSFER / RETURN OF LEFT OVER MATERIALS:

Party should maintain proper records for receipt & use of all free issue materials. The left over materials & scrap as per the material accounting statement shall be returned to HPVP stores along with finished job. Material Transfer Vouchers (MTV) from one order to another or from one vendor to another and Material Return Vouchers should be submitted immediately after transfer / return. The material reconciliation statement shall be submitted by the contractor after verification and certification by BHEL along with the final bill **within 30 days from the date of completion of work**. Otherwise, recovery for the balance materials shall be made from any of their pending bills without further intimation.

11. MATERIAL RECONCILIATION:

Orders issued to the vendors have to be completed in all respects including Material Accounting within a maximum of **180 days** from the **date of issue of the first material** from BHEL - HPVP stores.

Maximum of 0.5 % on the requirement of materials (**Plates, Sections and Pipes**) is admitted towards **process allowance and invisible wastage**.

Scrap quantity is permissible up to a **maximum of 1% on Structural (Beams, Channels, Angles, Rods, Pipes etc.), 2% on Sheets, 3% for Plates** on the theoretical requirement of materials.

If wastage and scrap is beyond the above limits, it should be fully justified with cutting diagrams etc. which are to be approved in advance by BHEL. **Otherwise, the cost of raw materials beyond approved limits will be recovered from the contractor as per BHEL recovery rates including applicable taxes & duties.**

Material reconciliation including return of balance materials, off-cuts is to be completed within 20 days from the date of completion of the order. The material reconciliation statement shall be submitted by the contractor after verification and certification by BHEL-HPVP along with the final bill **within 30 days from the date of completion of work**. Otherwise, recovery for the balance materials shall be made from any of their pending bills without further intimation,

Repeated occurrence of inordinate delays in returning and settling the material accounting will entail BHEL the right to terminate the contract forthwith or impose a temporary suspension on further loading at the discretion of BHEL.

12. SCRAP & OFF-CUT NORMS:

Sl. No.	Description	Scrap Size (in mm)	Off-Cut (in MM)
1.	CS/AS Sheets & Plates	Below 500 × 250	500 × 250 & above
2.	Rolled sections Rod, angles etc. (other than -tubes, pipes)	Below 1000	1000 & above
3.	Tubes & Pipes	Below 500	500 & above
4.	Universal column	Below 1000	1000 & Above
5.	SS Sheets & Plates	Below 500 × 250	500 × 250 & above
6.	SS Structural, Rods, Tubes, Pipes	Below 250	250 & above
7.	Non – ferrous: sheets & plates, rods & tubes	Below 500 × 250 (S & PL), Below 250 (Rods & Tubes)	500 × 250 & above, 250 & above
8.	Big size Scrap	(2500 & above) × (150 to 249)	-

13. INSPECTION:

Party shall contact our Quality Control Dept. for stages of inspection before commencement of job and should strictly follow the stages of inspection as per QAP.

14. WORKMANSHIP GUARANTEE:

The vendors should give workmanship guarantee for fabricated items for a period of 18 months from the date of last delivery of the order. Any defects due to incomplete work, faulty workmanship found in the fabricated items after delivery during the defects liability period shall be rectified / replaced by the vendor free of cost. Otherwise, the expenditure incurred towards the same will be recovered from the pending bills of vendors.

15. WORK PROGRESS:

The fabricator shall furnish a weekly report on the progress of work along with the status of availability of free issue materials and requirement of further materials, if any.

Outsourcing dept. personnel will visit vendor's works from time to time to assess and review the work progress. Free access shall be provided to BHEL or its inspection agency at all reasonable times of the day / night.

In case the progress is not satisfactory or supplies are delayed abnormally beyond the contractual delivery date, BHEL-HPVP, Visakhapatnam reserves the right to cancel the order in part or full or get the balance job in as is where is condition completed elsewhere by another agency at the risk and cost of Fabricator. The value of the work carried out by the party will be assessed by BHEL and the same shall be final. No compensation will be given to the fabricator in case of cancellation of order or diversion of balance job even if the jobs have been processed partly.

16. DELIVERY:

Finished items should be handed over to BHEL-HPVP on party's delivery challans along with Job completion certificate / Final Inspection Report from inspection agency / HPVP-QC department.

17. PENALTY:

If delivery exceeds the stipulated delivery schedule, penalty 1/2 % of the total value of order per week or part thereof subject to a maximum of 10% on the total value of the order will be levied. However, time taken for the following will not be considered as delay on the part of the Sub-Contractor.

- 1) Intermediate operations, if any, carried out by BHEL.
- 2) Waiting time for BHEL / Third party Inspection beyond a normal time of 3 days.

18. PAYMENT TERMS:

Payment shall be made against RA Bills within 45 days from the date of submission of Bill.

90% payment will be made after handing over of the finished equipments along with all inspection documents to HPVP shops / Logistics dept. / ADM site / Lova Garden site, duly inspected & cleared by Inspection authority. Balance 10% payment shall be made along with the Final Bill against completion of total order in all respects including documentation.

Vendors shall have to submit the bills in the formats specified by HPVP-Outsourcing and the bills submitted in the specified format along with necessary supporting documents are only admitted for processing. The following documents shall be submitted along with the Final Bill: -

1. No Claim Certificate from the contractor
2. No Dues Certificate from BHEL
3. Work Completion Certificate from BHEL
4. Material Reconciliation Statement submitted by the Contractor and certified by concerned authority of BHEL (if applicable)
5. Workmanship Guarantee certificate from the contractor

19. SECRECY:

All the documents of BHEL inclusive of Drawings, GMS and Standards made available to the fabricator should be kept in strict confidence and under no circumstance be made available to others or allow others to make use of them. Such documents shall be returned to BHEL on demand after completion of the job. This secrecy clause is binding on the employees of the fabricators also. Violation of the same may lead to suspension of business with the vendor and necessary legal action.

20. SUB-LETTING:

In general, sub-letting of jobs will not be permitted. But in special circumstances, this may be allowed. In such case, the party should obtain written approval from BHEL-HPVP, Visakhapatnam before sub-letting.

21. FACTORY RULES AND REGULATIONS:

Party shall abide by all the rules and statutory regulations in force from time to time as per factories act. It shall be party's responsibility to ensure the safety of their workmen and fulfilling the ESI, PF and other relevant statutory regulations.

22. SAFETY:

- a) Contractor shall adhere to safe construction practices, guard against hazardous & unsafe working conditions and shall comply with the safety rules of BHEL and local authorities. He shall maintain First Aid facilities for all his employees and labour. Contractor's responsibility includes supply of welder kit, all safety items such as safety belts, white and colour glasses, goggles, safety helmets, safety shoes etc.
- b) *Contractor and his employees shall follow all fire & safety, security regulations of BHEL.*

23. HOUSE KEEPING:

During execution of work, the contractor at all times keep the working place and storage area clean and free from accumulation of waste materials, rubbish etc.,

24. ACCIDENT / DAMAGE / CONDUCT ETC.:

Contractor will be held responsible for any disorderly conduct / misconduct, indiscipline, theft, smoking etc., on the part of his men. He will ensure summarily eviction of such men from his premises failing which BHEL would remove them from the factory on his responsibility. Any damage to and or loss of equipment, machinery, building etc., to BHEL or BHEL employees, visitors or other contractors resulting from his own or any of his men's negligence shall be liable to be made good by him. Contractor shall be solely responsible for any accident in which you or your men or your equipment may be involved during the execution of contract on account of any reason what so ever.

25. TERMINATION OF CONTRACT:

In the event of any failure on the part of the contractor, BHEL reserves the right to terminate the contract by giving a notice of 2 weeks for any of the following lapses and contractual violations: -

- a) Failure to make labour payments in time as per the rules
- b) Failure to progress the job according to the agreed schedule
- c) Failure to mobilize adequate man power, tools & tackles and consumables in time
- d) Failure to adhere to Quality Standards of BHEL
- e) Refused to co-operate with other agencies working in the same area
- f) Failure to resolve labour disputes like strikes etc., within 7 days of occurrence
- g) Failure to comply with statutory regulations applicable at BHEL

BHEL shall also be free to intervene and take necessary remedial measures. All costs incurred with interest and overheads shall be recovered from contractor by such foreclosing or off-loading any part of the contract work.

26. DISPUTES:

Head of BHEL- HPVP Unit will be the final authority for any disputes arising out of this contract. The disputes / arbitration / settlement of contractual or legal issues shall be under the Jurisdiction of Visakhapatnam Court.

- 27. For this procurement, Public Procurement (Preference to Make in India), Order 2017 dated 15.06.2017 & 28.05.2018 and subsequent Orders issued by the respective Nodal Ministry shall be applicable even if issued after issue of this NIT but before finalization of Contract / PO / WO against this NIT.

In the event of any Nodal Ministry prescribing higher or lower percentage of purchase preference and / or local content in respect of this procurement, same shall be applicable.

- 28. The Bidder declares that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s). This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

In case, the Bidder is found having indulged in above activities, suitable action shall be taken by BHEL as per extant policies/ guidelines.

Signature of the Bidder with Stamp

Acceptance to Tender Terms & Conditions

I / We hereby confirm that the Tender documents, Drawings, Quality documents etc. have been studied in detail and we have fully understood the scope of work.

I / We accept to all the Terms and Conditions of the Tender Enquiry and the prices quoted are in accordance with the same.

I / We give our acceptance to participate in reverse auction for this tender.

Tender documents duly signed & stamped on all the pages by the Owner / authorized representative of the bidder are attached herewith.

Signature of the Bidder with Stamp

BUSINESS RULES FOR REVERSE AUCTION (RA)

This has reference to tender no. **OS/21-22/7916/H.O. Heater/13/017, dated 14.10.2021**. BHEL shall finalize the Rates for **Fabrication of Hot Oil Heater against S.O. No. 7916 inside premises of BHEL-HPVP, Visakhapatnam** through Reverse Auction mode. BHEL has made arrangement with an authorized Service provider (details will be shared before reverse auction) for conducting RA. Bidders should go through the instructions given below and submit acceptance of the same.

The technical & commercial terms are as per (a) BHEL Tender Enquiry No. **OS/21-22/7916/H.O. Heater/13/017, dated 14.10.2021**, (b) Bidders' technical & commercial bid (in case of two-part bid) and (c) subsequent correspondences between BHEL and the bidders, if any.

1. Procedure of Reverse Auctioning:

- i) Price bids of all the techno-commercially qualified bidders shall be opened.
- ii) **Reverse Auction:** The 'bid decrement' will be decided by BHEL.
- iii) The lowest bidder in sealed envelope price bid shall be shown as current L1 automatically by the system and no acceptance of that price is required. System shall have the provision to indicate this bid as current L1.
- iv) Bidders by offering a minimum bid decrement or the multiples thereof can displace a standing lowest bid and become "L1" and this continues as an iterative process. However, no bidder shall be allowed to lower its bid below the current L1 by more than 5 decrements at one go.
- v) After the completion of the reverse auction, the Closing Price shall be available for further processing.
- vi) Wherever the evaluation is done on total cost basis, after Reverse Auction, prices of individual line items shall be reduced on pro-rata basis.

2. Schedule for reverse auction: The Reverse Auction schedule will be intimated to all the eligible techno-commercially qualified bidders at a later stage.**3. Auction extension time:** If a bidder places a bid in the last {5} minutes of closing of the Reverse Auction and if that bid gets accepted, then the auction's duration shall get extended automatically for another {5} minutes, for the entire auction (i.e. for all the items in the auction), from the time that bid comes in. Please note that the auto-extension will take place only if a bid comes in those last {5} minutes and if that bid gets accepted as the lowest bid. If the bid does not get accepted as the lowest bid, the auto-extension will not take place even if that bid might have come in the last {5} minutes. In case, there is no bid in the last {5} minutes of closing of Reverse Auction, the auction shall get closed automatically without any extension. However, bidders are advised not to wait till the last minute or last few seconds to enter their bid during the auto-extension period to avoid complications related with internet connectivity, network problems, system crash down, power failure, etc.

The above process will continue till completion of Reverse Auction.

Complaints/ Grievances, if any, regarding denial of service or any related issue should be given in writing thru e-mail/ fax to M/s. {Service provider} with a copy to BHEL within 15 minutes prior to initial closing time of Reverse Auction.

4. Bid price: The Bidder has to quote the {.....} Price **except GST** but inclusive of Packing & Forwarding charges, all the routine & type tests as per tender scope, taxes, duties, freight and insurance as specified in tender document including loading (if indicated by BHEL due to deviations in technical/ commercial terms) for the Items specified. Details are as shown in Excel Sheet for calculation of total cost to BHEL (To be specified by Unit as per NIT conditions).**5. Bidding currency and unit of measurement:** Bidding will be conducted in **Indian Rupees** per *Unit* of the material as per the specifications mentioned in the tender.

In case of foreign currency bids, exchange rate (TT selling rate of State Bank of India) as on scheduled date of tender opening (Part-I bid) shall be considered for conversion in Indian Rupees. If the relevant day happens to be a Bank holiday, then the forex rate as on the previous bank (SBI) working day shall be taken.

6. **Validity of bids:** Price shall be valid for **3 months** from the date of reverse auction. These shall not be subjected to any change whatsoever.
7. **Lowest bid of a bidder:** In case the bidder submits more than one bid, the lowest bid at the end of Reverse Auction will be considered as the bidder's final offer to execute the work.
8. Unique user IDs shall be used by bidders during bidding process. All bids made from the Login ID given to the bidders will be deemed to have been made by the bidders/ bidders' company.
9. **Post auction procedure:** BHEL will proceed with the Lowest Bid in the Reverse Auction for further processing.
10. Any commercial/ technical loading shall be separately intimated to respective bidders prior to RA. The excel sheet provided in this regard shall cover all these aspects. Commercial/ technical loading if any, shall be added by the respective bidder in its price during Reverse Auction.
Modalities of loading & de-loading shall be separately intimated to the bidders. The responsibility for correctness of total cost to BHEL shall lie with the bidders.
11. Reverse auction shall be conducted by BHEL (through M/s {Service Provider}), on pre-specified date, while the bidders shall be quoting from their own offices/ place of their choice. Internet connectivity shall have to be ensured by bidders themselves.

During the RA process if a bidder is not able to bid and requests for extension of time by FAX/ email/ phone then time extension of additional 15 minutes will be given by the service provider provided such requests come before 5 minutes of auction closing time. However, only one such request per bidder can be entertained.

In order to ward-off contingent situation of connectivity failure bidders are requested to make all the necessary arrangements/ alternatives whatever required so that they are able to circumvent such situation and still be able to participate in the reverse auction successfully. Failure of power or loss of connectivity at the premises of bidders during the Reverse auction cannot be the cause for not participating in the reverse auction. On account of this, the time for the auction cannot be extended and neither BHEL nor M/s. {Service provider} is responsible for such eventualities.

12. **Proxy bids:** Proxy bidding feature is a pro-bidder feature to safe guard the bidder's interest of any internet failure or to avoid last minute rush. The proxy feature allows bidders to place an automated bid in the system directly in an auction and bid without having to enter a new amount each time a competing bidder submits a new offer. The bid amount that a bidder enters is the minimum that the bidder is willing to offer. Here the software bids on behalf of the bidder. This obviates the need for the bidder participating in the bidding process until the proxy bid amount is decrementally reached by other bidders. When proxy bid amount is reached, the bidder (who has submitted the proxy bid) has an option to start participating in the bidding process.

The proxy amount is the minimum amount that the bidder is willing to offer. During the course of bidding, the bidder cannot delete or change the amount of a proxy bid.

Bids are submitted in decrements (decreasing bid amounts). The application automates proxy bidding by processing proxy bids automatically, according to the decrement that the auction originator originally established when creating the auction, submitting offers to the next bid decrement each time a competing bidder bids, regardless of the fact whether the competing bids are submitted as proxy or standard bids. However, it may please be noted that if a manual bid and proxy bid are submitted at the same instant manual bid will be recognized as the L1 at that instant.

In case of more than one proxy bid, the system shall bid till it crosses the threshold value of 'each lowest proxy bid' and thereafter allow the competition to decide the final L1 price.

Proxy bids are fed into the system directly by the respective bidders. As such this information is privy only to the respective bidder(s).

13. Bidders are advised to get fully trained and clear all their doubts such as refreshing of Screen, quantity being auctioned, tender value being auctioned etc. from M/s. {Service provider}.

14. M/s. {Service provider}, shall arrange to demonstrate/ train the bidder or bidder's nominated person(s), without any cost to bidders. M/s. {Service provider}, shall also explain the bidders, all the business rules related to the Reverse Auction. Bidders are required to submit their acceptance to the terms/ conditions/ modalities before participating in the Reverse Auction in the process compliance form as enclosed. Without this, the bidder will not be eligible to participate in the event.
15. Successful bidder shall be required to submit the final prices (L1) in prescribed format (Annexure – VI) for price breakup, quoted during the Reverse Auction, duly signed and stamped as token of acceptance without any new condition (other than those already agreed to before start of auction), after the completion of auction to M/s. {Service provider} besides BHEL **within two working days of Auction** without fail.
16. Any variation between the final bid value and that in the confirmatory signed price breakup document will be considered as tampering the tender process and will invite action by BHEL as per extant guidelines for suspension of business dealings (as available on www.bhel.com).
17. Bidders' bid will be taken as an offer to execute the work/ supplies the item as per enquiry no. **OS/21-22/7916/H.O. Heater/13/017, dated 14.10.2021**. Bids once made by the bidder, cannot be cancelled/ withdrawn and bidder shall be bound to execute the work as mentioned above at bidder's final bid price. Should bidder back out and not execute the contract as per the rates quoted, BHEL shall take action as per extant guidelines for suspension of business dealings (as available on www.bhel.com).
18. Bidders shall be able to view the following on their screen along with the necessary fields during Reverse Auction:
 - a. Leading (Running Lowest) Bid in the Auction (only total price of package)
 - b. Bid Placed by the bidder
 - c. Start Price
 - d. Decrement value
 - e. Rank of their own bid during bidding as well as at the close of auction.
19. BHEL's decision on award of contract shall be final and binding on all the Bidders.
20. BHEL reserves the right to extend, reschedule or cancel the Reverse Auction process at any time, before ordering, without assigning any reason, with intimation to bidders.
21. BHEL shall not have any liability to bidders for any interruption or delay in access to the site irrespective of the cause. In such cases, the decision of BHEL shall be binding on the bidders.
22. Other terms and conditions shall be as per bidder's techno-commercial offers and other correspondences, if any, till date.
23. If there is any clash between this business document and the FAQ available, if any, in the website of M/s. {Service provider}, the terms & conditions given in this business document will supersede the information contained in the FAQs. Any changes made by BHEL/ service provider (due to unforeseen contingencies) after the first posting shall be deemed to have been accepted if the bidder continues to access the portal after that time.
24. Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action *as per extant BHEL guidelines for suspension of business dealings (as available on www.bhel.com)*, shall be initiated by BHEL.

Signature of the Bidder with Stamp

GST COMPLIANCE FOR INDIGENOUS SUPPLIERS

1. In Response to Tenders for Indigenous supplier will be entertained only if the vendor has a valid GSTIN which should be clearly mentioned in the offer. If any specific exemption is available, a declaration with due supporting documents need to be furnished for considering the offer.
2. Supplier shall mention their GSTIN in all their invoices and invoices shall be in the format as specified/prescribed under GST laws. Invoices shall necessarily contain Invoice number (in case of multiple numbering system is being followed for billing like SAP invoice no, commercial invoice no etc., then the Invoice No which is linked/uploaded in GSTN network shall be clearly indicated), item description as per PO, Quantity, Rate, Value, applicable taxes with nomenclature (like IGST, SGST, CGST & UTGST) separately, HSN/ SAC Code, etc.
3. All invoices shall bear the HSN Code for each item separately (Harmonized System of Nomenclature)/ SAC code (Services Accounting Code).
4. A declaration to the effect that all invoice particulars are/were uploaded in the GSTN network/ portal & all tax liability as per GST rules and regulations have been and will be discharged, shall be mentioned in the invoice. If not mentioned in the invoice, a separate declaration shall be submitted as per the requirement of BHEL.
5. All documents like Test Certificate, LR copy, Guarantee/Warranty certificate, work completion certificate, any other document mentioned in PO, shall be sent along with the vehicle/consignment where ever applicable. For all consignments received within the calendar month, input credit will be availed within that month in line with monthly returns filing cycle. In case of any discrepancy in the document or non-submission of documents mentioned in the PO, then BHEL will not be able to accept or account the material, in such case availing of tax credit will be deferred to next month or so.
6. In case of discrepancy in the data uploaded by supplier in the GSTN portal or in case of any shortages or rejection in the supply, then BHEL will not be able to avail the tax credit and will notify the supplier of the same. Supplier has to rectify the data discrepancy in the GSTN portal or issue credit note (details to be uploaded in GSTN portal) for the shortages or rejections in the suppliers, within the calendar month notified by BHEL.
7. For any such delay in availing of tax credit for reasons attributable to supplier (as mentioned above), interest (calculated @ SBI Base Rate + 6%) along with penalty if any will be deducted for the delayed period i.e. from the month of receipt till the month tax credit is availed, from the running bills.
8. Under GST regime, BHEL has to discharge GST liability on LD recovered from suppliers/contractors. Hence applicable GST shall also be recoverable from suppliers/contractors on LD amount. For this Debit note will be issued by BHEL indicating the respective supply invoice number.
9. This is to inform that GST portion of invoice, shall be released only upon Vendor declaring such invoice in his GSTR-1 and receipt of goods and Tax invoice by BHEL and Confirmation of payment of GST thereon by vendor on GSTN portal. Alternatively, BG of appropriate value may be obtained from vendor which shall be valid At least one month after the confirmation of date of payment of GST by vendor on GSTN portal and receipt of Tax invoice and receipt of goods, whichever is later. Above is subject to receipt of goods/service and tax invoice thereof along with vendor declaring invoice in his return and paying GST within timeline prescribed for availing ITC by BHEL.
10. That in case vendor delays Declaring such invoice in his return and GST credit availed by BHEL is denied or reversed subsequently as per GST law, GST amount paid by BHEL towards such ITC reversal as per GST law shall be recoverable from vendor/contractor along with interest levied/ leviable on BHEL.

Note: The above will be followed strictly for processing vendor payments to ensure GST Compliance.

Signature of the Bidder with Stamp



BHEL-VISAKHAPATNAM or Approved Sub- Contractor

Worley		Document Status Code
Status	Review Code	Status Description
	1	No Comments, Work may proceed.
<input checked="" type="checkbox"/>	2	The Contractor shall proceed with the fabrication / manufacturing taking care of and incorporating Owner / PMC comments. Contractor shall submit the drawings / documents after incorporating the comments.
<input type="checkbox"/>	3	Major non-conformance and deviation to contract specifications and the document is rejected. Contractor is to resubmit for review after incorporating comments.
	4	Document / Drawing Retained for Information.

Document status code assigned by: _____ Date: _____

Amol Pathak
18.06.2021

Manufacturers and suppliers remain responsible under all circumstances for their drawings. Manufacturers and suppliers are not to be accepted after the drawings are accepted by the Owner's comments and they shall never be entitled to allege express or tacit approval thereof by Jacobs nor shall they be entitled to allege that Jacobs has by accepting the drawings taken any responsibility for any defects in the drawings or the / PMC comments and drawings thereof.

M: Hot Oil Heater

QP NO: CQP 2519 Rev 00
Date: 31.08.2021
PAGE 1 of 3

PROJECT: IOCL Panipat PACKAGE: Hot Oil Heater SO NO: 7916 Customer PO : 44AC7500-00-ER-06-0105/2020-21/FOA/142 Dt. 08-01-2021
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SL No	COMPONENT & OPEARATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENTS	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
										M	C	N	
1	2	3	4	5	6	7	8	9	D				

RAW MATERIALS & BOUGHT OUT ITEMS

1.0	RAW MATERIALS & BOUGHT OUT ITEMS											
1.1	Pipes & Tubes as applicable	Mechanical Chemical NDT as applicable	A	TC verification	100%	Material Specification as per Column 2, Internal TDC.	Mfg TC/ Material Data Report	√	-	QC	R	Note 1
1.2	Flanges & Fittings as applicable	Mechanical Chemical NDT as applicable	A	TC verification	100%	Material Specification as per Column 2, Internal TDC	Mfg TC/ Material Data Report	√	-	QC	R	Note 1
1.3	Plates as applicable	Mechanical Chemical NDT as applicable	B	TC verification	100%	Material Specification as per Column 2, Internal TDC	Mfg TC As applicable	√	-	QC	R	Note 1
1.4	Other Materials as per respective material specification and BHEL Drawing						-			QC	-	Check on sample basis

Prepared by


P. Gopi Kishore
Manager/QA

Reviewed & Approved By

Kant:


A.K. Mandal
AGM (Q&BE)

LEGEND:


A: Critical; B: Major; P: Perform; R: Review; W: Witness; RW: Random Witness; V: Verification
QC: Quality Control; NDT: Non Destructive Testing; TDC: Technical Delivery Condition;
TC: Test Certificate; AWS: American Welding Society; WPS: Welding Procedure Specification; PQR:
Procedure Qualification Record; WQR: Welder Qualification Record;
RT: Radiographic testing; LPI: Liquid Penetrant Inspection; PMI: Positive Material Identification
M: BHEL/Approved sub-contractor; C: BHEL QC/ND/Authorized Inspection Agency (AIA);
N: TPIA appointed by BHEL for this project; For clauses marked with (TICK) in “D”, Certificates shall
be included in Documentation.

Approved By

Customer
Signature & Stamp

<div><div>बी एच ई एल</div><div></div></div>		MANUFACTURER'S NAME & ADDRESS BHEL-VISAKHAPATNAM or Approved Sub-Contractor		MANUFACTURING QUALITY PLAN					PROJECT: IOCL Panipat PACKAGE: Hot Oil Heater SO NO: 7916 Customer PO : 44AC7500-00-ER-06-0105/2020-21/FOA/142 Dt. 08-01-2021				
				ITEM: Hot Oil Heater			QP NO: CQP 2519 Rev 00 Date: 31.08.2021 PAGE 2 of 3						
SL No	COMPONENT & OPEARATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENTS	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
										M	C	N	
1	2	3	4	5	6	7	8	9	D				

2.0	INPROCESS INSPECTION												
2.1	Welding Qualification	Procedure Qualification	B	WPS Review	100%	ASME Sec IX as applicable	WPS PQR	-	P	QC	V		
2.2	Welder Qualification	Personnel Qualification	B	WQR Review	100%	AWS/IBR/IS (#)	WQR	-	P	QC	V		# As applicable
2.3	Edge preparation of Pressure parts	Soundness	B	Visual & LPI	100%	IS 800	LPI Report	√	P	QC & NDT	-		
2.4	Fit up inspection	Weld angle, mismatch, root gap	B	Visual & Dimension	100%	BHEL Drawing	-	-	P	QC	-		
2.5	NDE for Welds												
2.5.A	Butt welds in Radiant coils, Convection coils Crossover lines and all T joints	Soundness	B	RT	100%	Customer Specification	RT Report	√	P	NDT	*		*Random check
2.5.B	Root and final welds of all butt and fillet joints	Soundness	B	PT	100%	Customer Specification	RT Report		P	NDT	*		*Random check
2.5.C	All other welds	Soundness	B	Visual	100%	As per drawing	-		P	QC	-		
2.6	PWHT	Temp Vs Time	B	Review	100 %	Drawing & HT Cycle	HT Chart		P	QC	R		
2.7	Hydro test	Soundness	B	Visual	100%	Customer Specification & BHEL Drawing	Hydro test report	√	P	QC	W		Note 2

		MANUFACTURER'S NAME & ADDRESS BHEL-VISAKHAPATNAM or Approved Sub-Contractor		MANUFACTURING QUALITY PLAN					PROJECT: IOCL Panipat PACKAGE: Hot Oil Heater SO NO: 7916 Customer PO : 44AC7500-00-ER-06-0105/2020-21/FOA/142 Dt. 08-01-2021				
				ITEM: Hot Oil Heater									
SL No	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENTS	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
										M	C	N	
1	2	3	4	5	6	7	8	9	D				

3.0	FINAL INSPECTION & TESTING												
3.1	Visual & Dimensional check	Visual & Dimensions	B	Visual Measurement	100%	BHEL Drawing	Inspection Report	√	P	QC	W		
3.2	Identification & Painting	Stenciling, Cleanliness & PMI	B	Verification, Visual	100%	Customer Specification & BHEL Drawing	PMI report		P	QC	V		PMI for SS & Alloy Steel Items
3.3	Preservation & packing	Packing	B	Visual & Verification	100%	BHEL Drawing	-		P	QC	V		
3.4	Data Folder	Documents	B	Verification	100%	IBR As applicable #	IBR forms			QC			# For other than IBR, as per customer specification

Notes for CQP 2519 for Hot Oil Heater of IOCL Panipat:

* As per the approved PGMA Inspection Categorization Plan 7916 PGMA Cat List (Latest Revision).

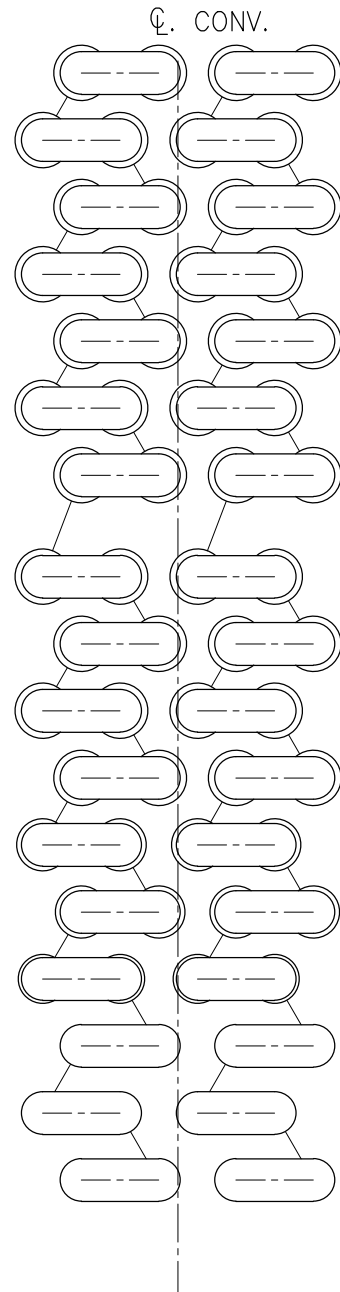
- 1) Pipes and fittings shall be procured in seamless condition
- 2) Only for Radiant coils and convection coils. After hydro test in coils, dry / hot air shall be used for cleaning.
- 3) Coil ends shall be capped for safety.
- 4) After completion of painting, stenciling shall be done on all the equipment using normal Arial lettering style. Lettering colour can be black or white depending on the background to have legibility.
- 5) PMI shall be 100%. PMI is only for stainless steel (pipes, flanges, fittings and plates), alloy steel (flanges and fittings) and weldments of alloy steel and stainless steel. All alloy stainless steel. All alloy materials shall be stenciled with PMI OK after satisfactory PMI check.
- 6) Quality Plan for Site Construction Activity (CQP 2520 Rev.00) in line to point no.26 of KOM MOM Dt. 22-01-2021 is being submitted separately.

Painting Schedule for Hot Oil Heater Package

S.No.	DESCRIPTION	SURFACE PREPARATION & PROFILE	PRIMER COAT		FINISH PAINT		TOTAL DFT µm/min
			PAINT	NO OF COATS / DFT	PAINT	NO OF COATS / DFT	
1.	External surfaces of Heater casing, FG Duct, H/Box, ACHE, Heater Supporting structure & Stack	Abrasive Blast Clean to Sa 2½	Inorganic zinc silicate @ 75µm	1	High temperature silicon acrylic @ 50µm- Color code_RAL9006 Aluminum.	1	125
2.	Heater inside surface in contact with Ceramic Fiber	Abrasive Blast Clean to Sa 2½	Epiplus-56 of Shalimar or Equ.@ 90-100 microns each	2	-	-	180-200
3.	Stair tower & Other Misc. structures.	Abrasive Blast Clean to Sa 2½	Inorganic zinc silicate @ 75µm	1	High temperature silicon acrylic @ 50µm- Color code_RAL7035 Light grey	1	125
4.	Hand railing (Hot dip Galvanized as per latest revision of BS 1461 Coating weights as per Table-1 BS 1461)	Sweep blast Using Aluminium oxide or garnet abrasive media.	High build epoxy @75µm	1	Two pack acrylic polyurethane @50µm Color code_RAL3001 Red	1	125
5.	Staircase, Ladders and Walkways	Abrasive Blast Clean to Sa 2½	Inorganic zinc silicate @ 75µm	1	High temperature silicon acrylic @ 50µm- Color code_RAL9017 Black	1	125
6.	LP Steam Piping & Fittings (PGMA: 24-400)	Abrasive Blast Clean to Sa 2½	Inorganic zinc silicate @ 75µm; Colour Code: Aluminium RAL- 9006	1	-	1	75
7.	Instrument Air Piping & Fittings (PGMA: 24-300)	Surface Profile to 40-60 µm	Two pack Epoxy phenolic @ 150µm; Colour Code: May Green RAL-6017	1	Two pack Epoxy phenolic @ 150µm; Colour Code: May Green RAL-6017	1	300
8	Hot Oil piping external to Heater	Abrasive Blast Clean to Sa 2½	Inorganic zinc silicate @ 75 m Colour Code: Aluminium RAL-9006	1			75
9	Fuel Gas line	Abrasive Blast Clean to Sa 2½	Two pack epoxy phenolic @ 150 m Colour Code: Orange RAL-2008	1	Two pack epoxy phenolic @ 150 m Colour Code: Orange RAL-2008	1	300

Notes:

1. Sweep blast stainless steel, Galvanized steel surfaces using Aluminum oxide or garnet abrasive media.
2. Insulation/Refractory related paint will be supplied by Refractory supplier








DETAILS OF MK. JO-1


SECTION A-A
(CONVECTION OUTLET PLAN VIEW)

BBE	:	BEVELED ON BOTH ENDS
●	:	INDICATES SHOP WELD
✱	:	INDICATES FIELD WELD
FPW	:	FULL PENETRATION WELD
EL.	:	ELEVATION
⊕	:	CENTER LINE

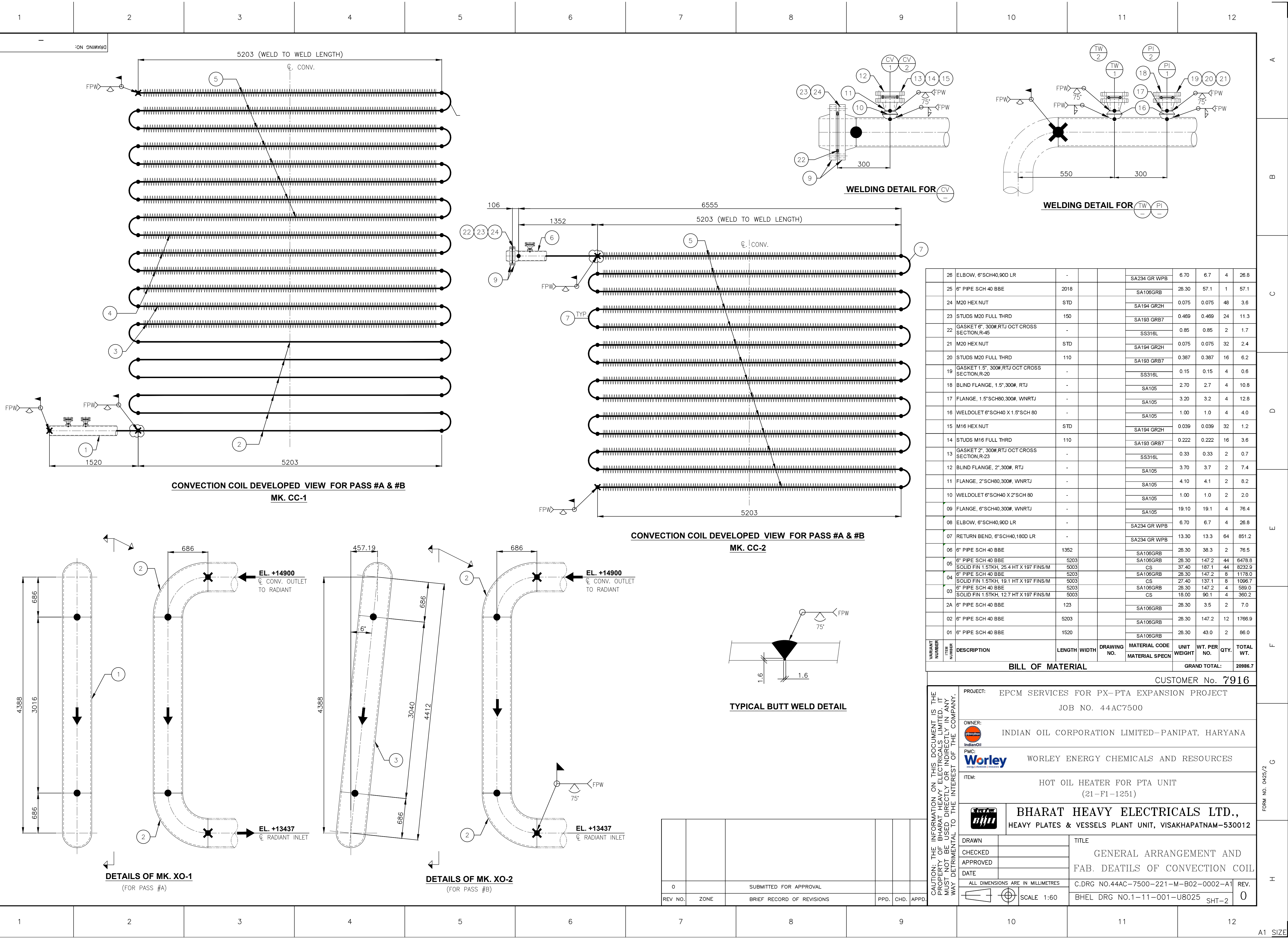
CUSTOMER No. 7916

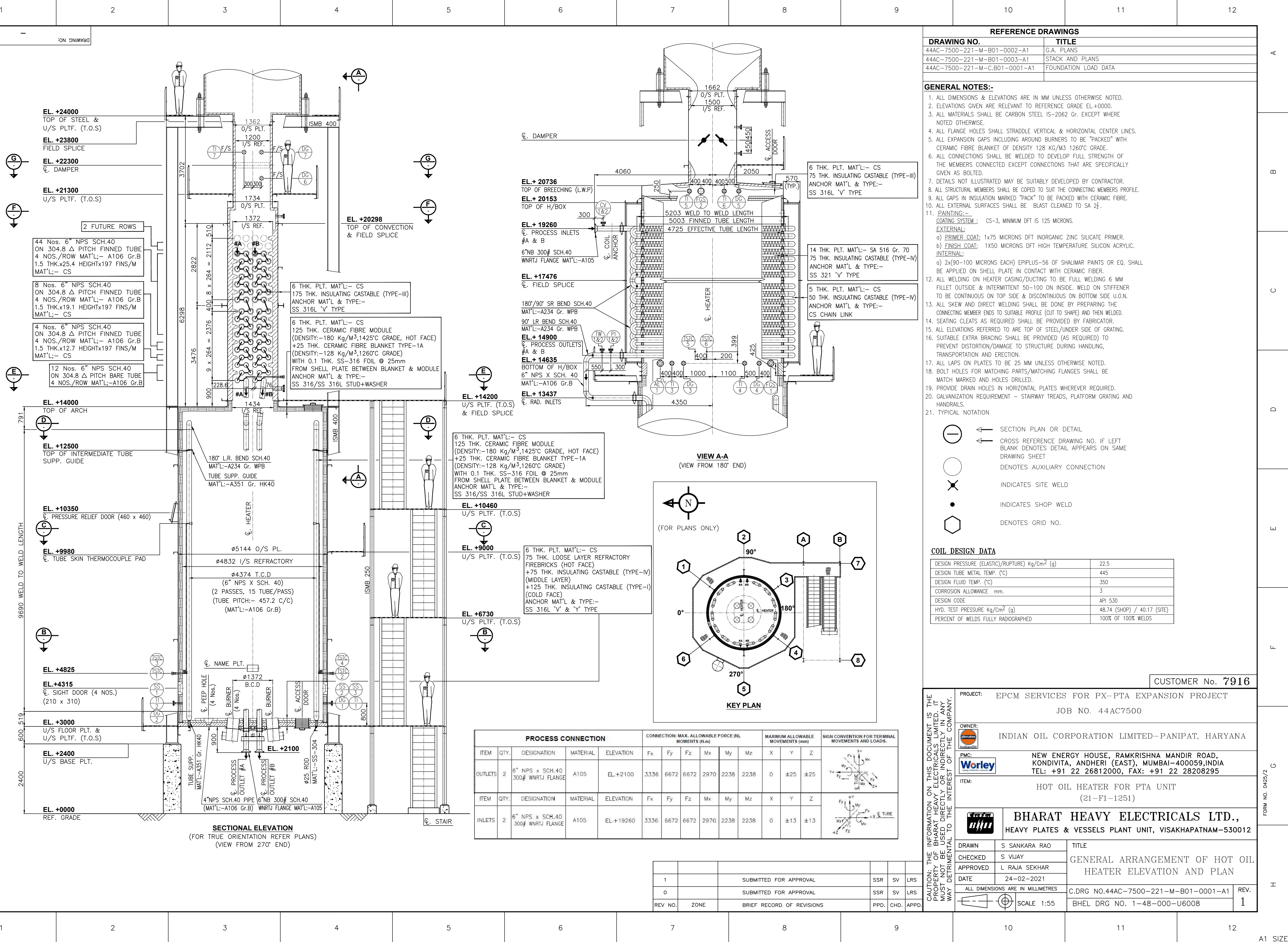
PROJECT: EPCM SERVICES FOR PX-PTA EXPANSION PROJECT		JOB NO. 44AC7500	
OWNER:  IndianOil		INDIAN OIL CORPORATION LIMITED-PANIPAT, HARYANA	
PMC:  Worley <small>energy chemicals resources</small>		WORLEY ENERGY CHEMICALS AND RESOURCES	
ITEM:		HOT OIL HEATER FOR PTA UNIT (21-F1-1251)	
		BHARAT HEAVY ELECTRICALS LTD., HEAVY PLATES & VESSELS PLANT UNIT, VISAKHAPATNAM-530012	
DRAWN		TITLE GENERAL ARRANGEMENT AND FAB. DEATILS OF CONVECTION COIL	
CHECKED			
APPROVED			
DATE			
ALL DIMENSIONS ARE IN MILLIMETRES		C.DRG NO.44AC-7500-221-M-B02-0002-A1	REV.
  SCALE 1:60		BHEL DRG NO.1-11-001-U8025	SHT-1
			0

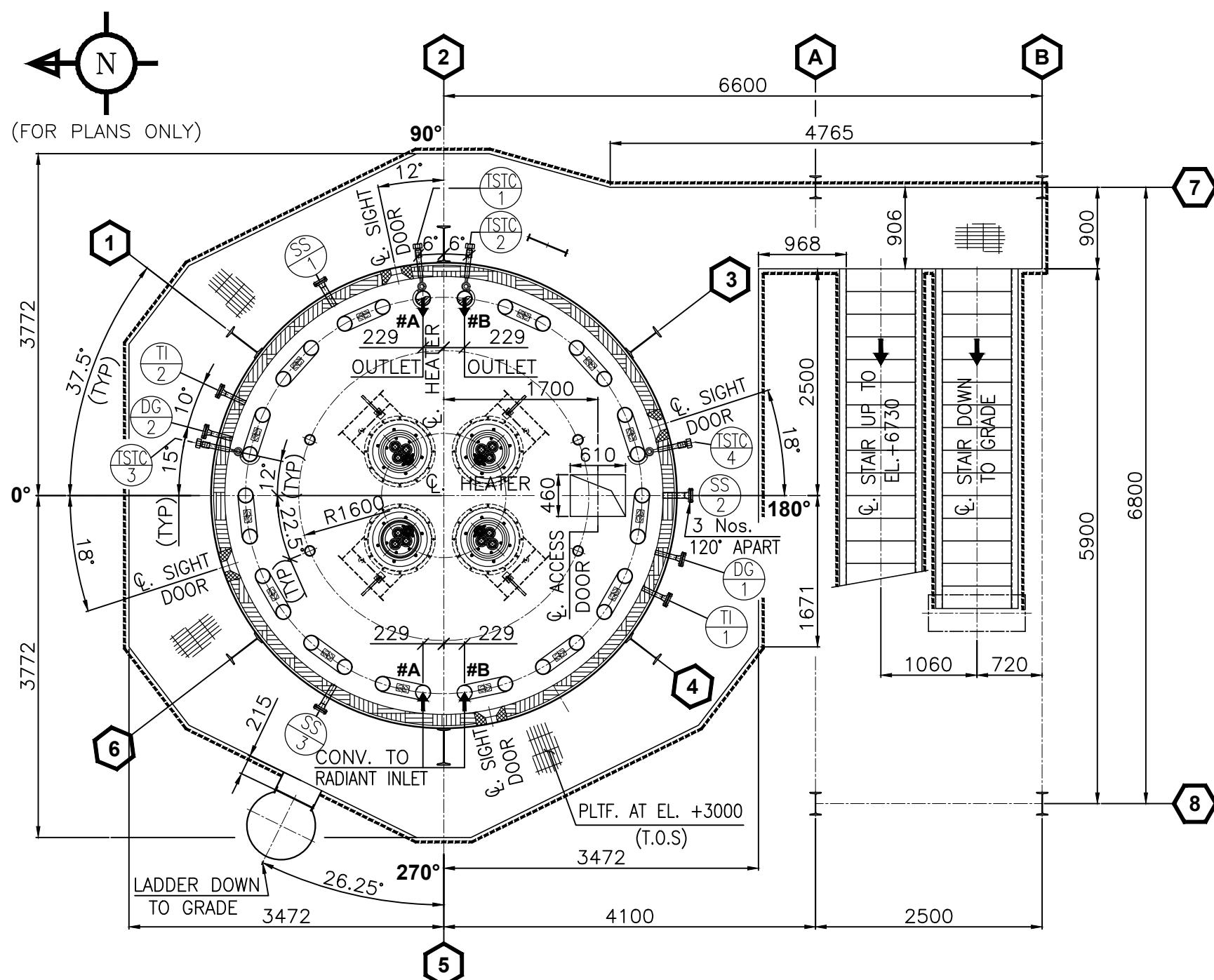
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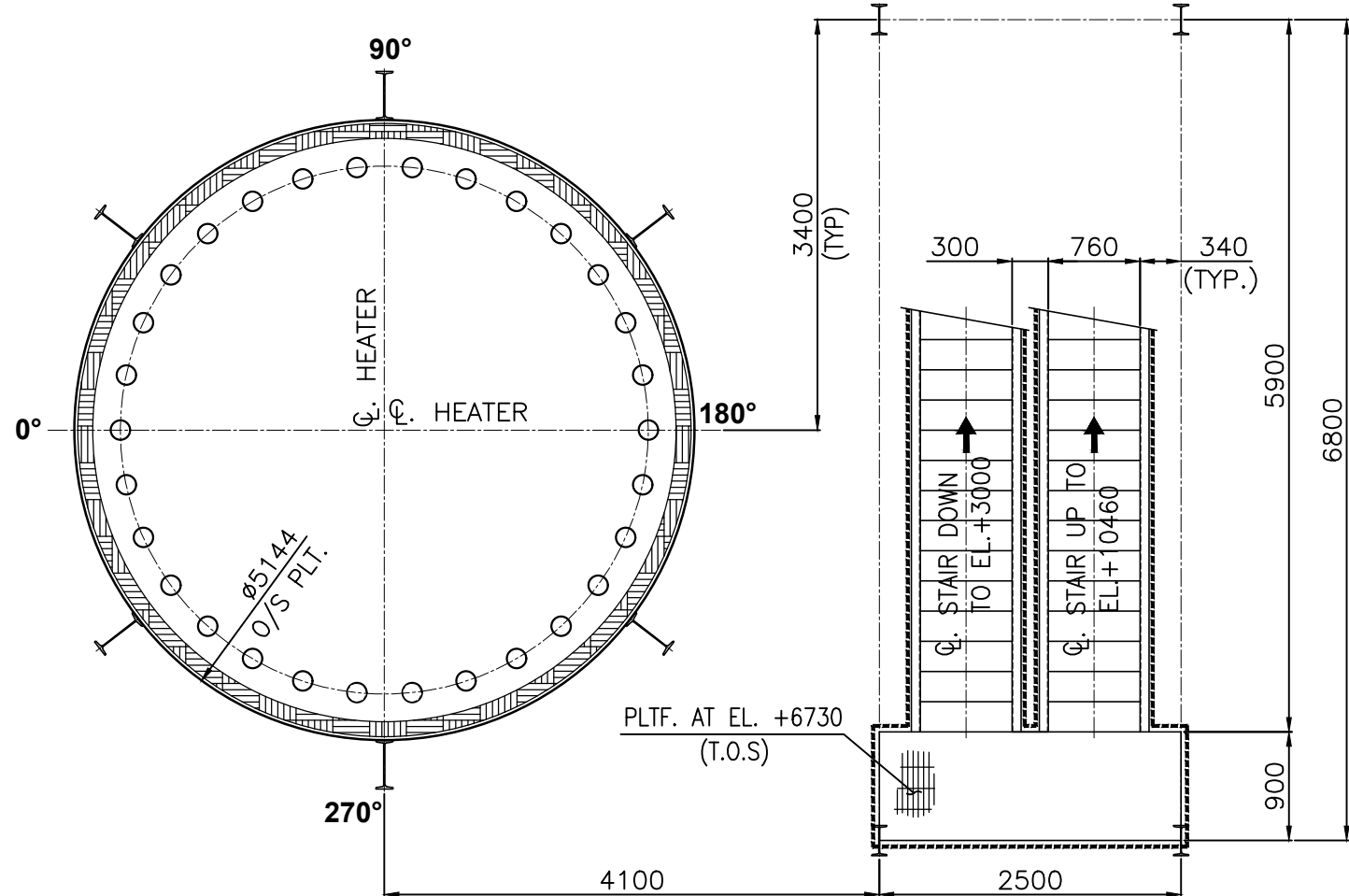
(FOR PLANS ONLY)



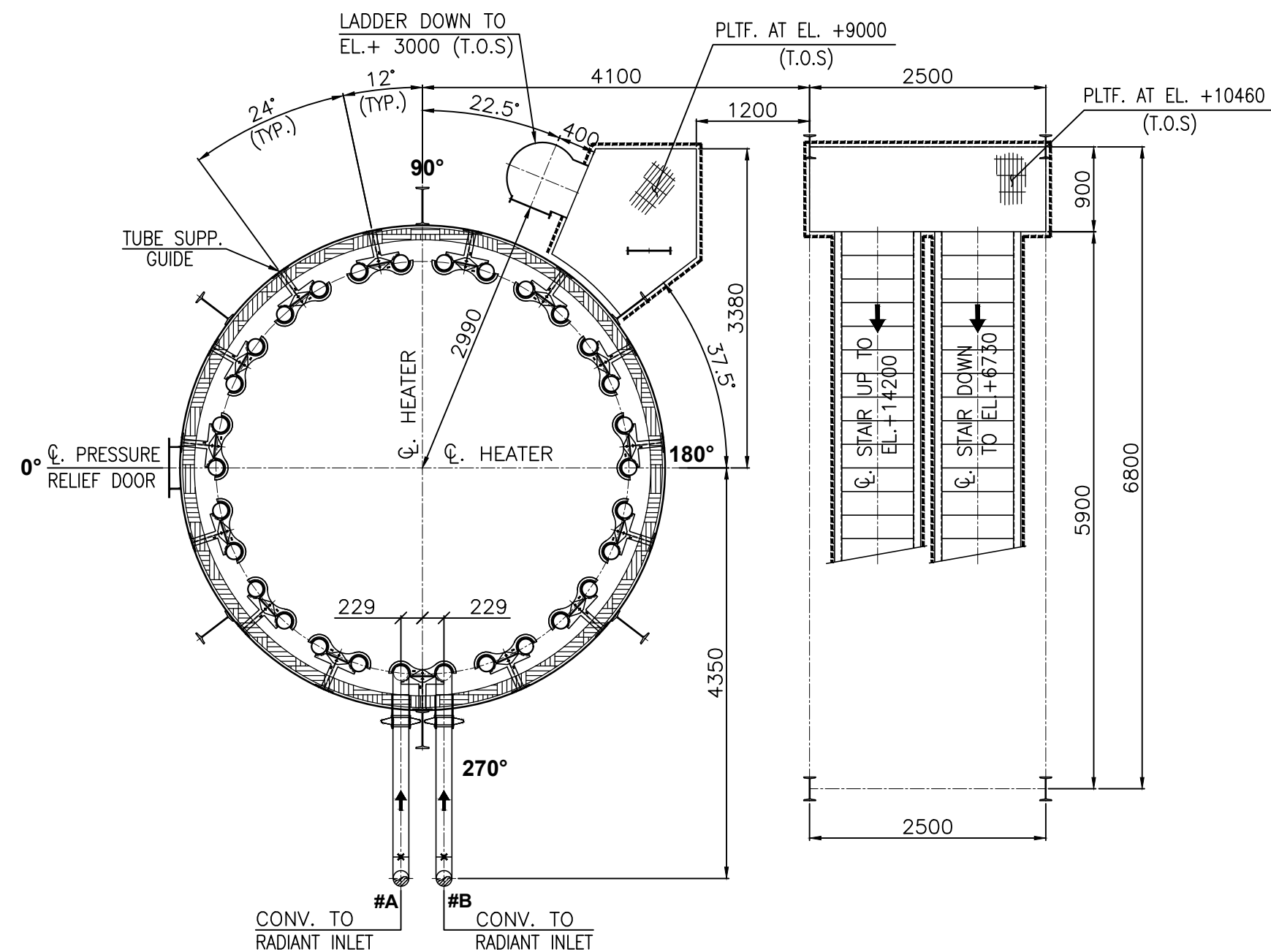




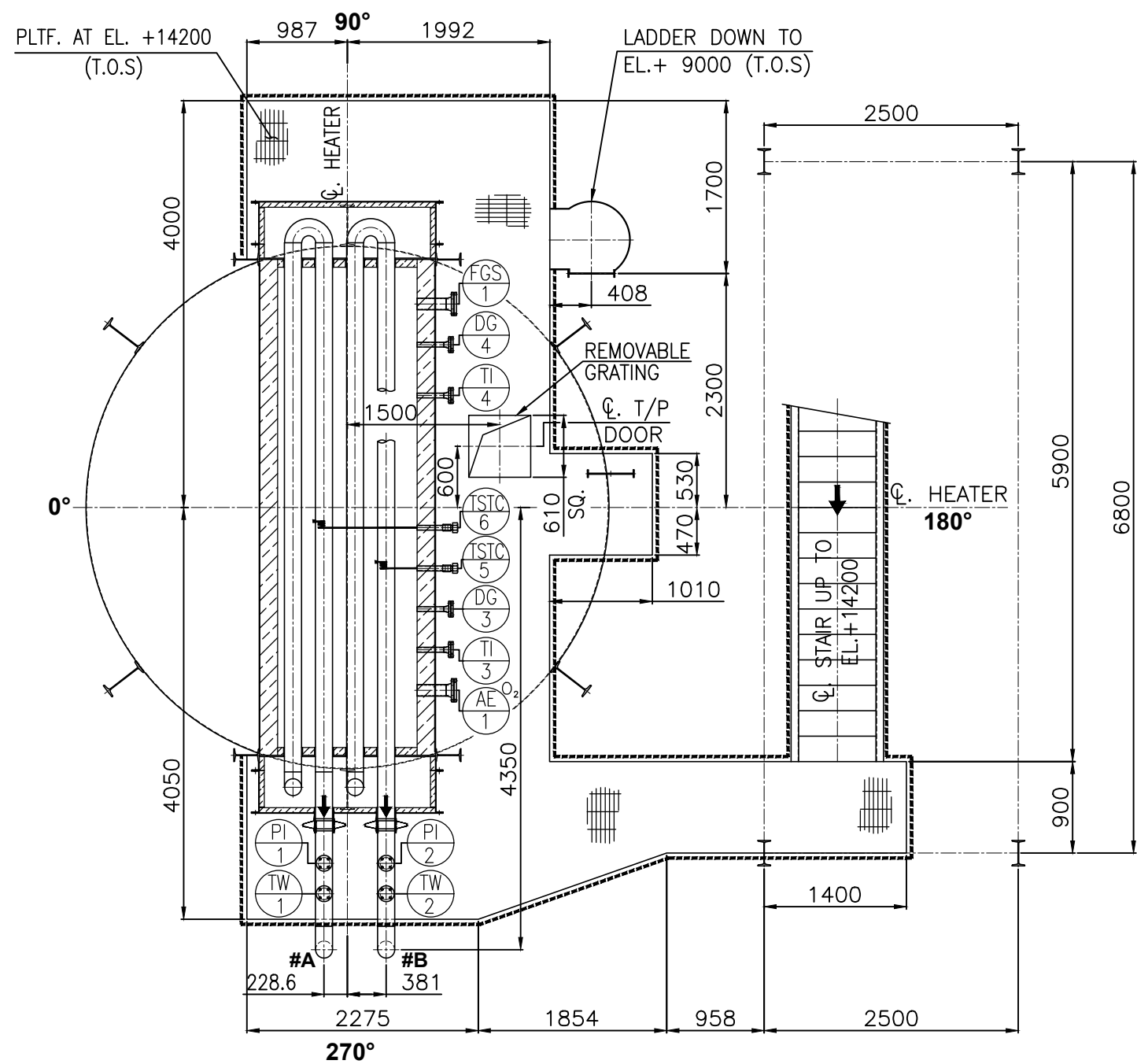
SECTION B-B



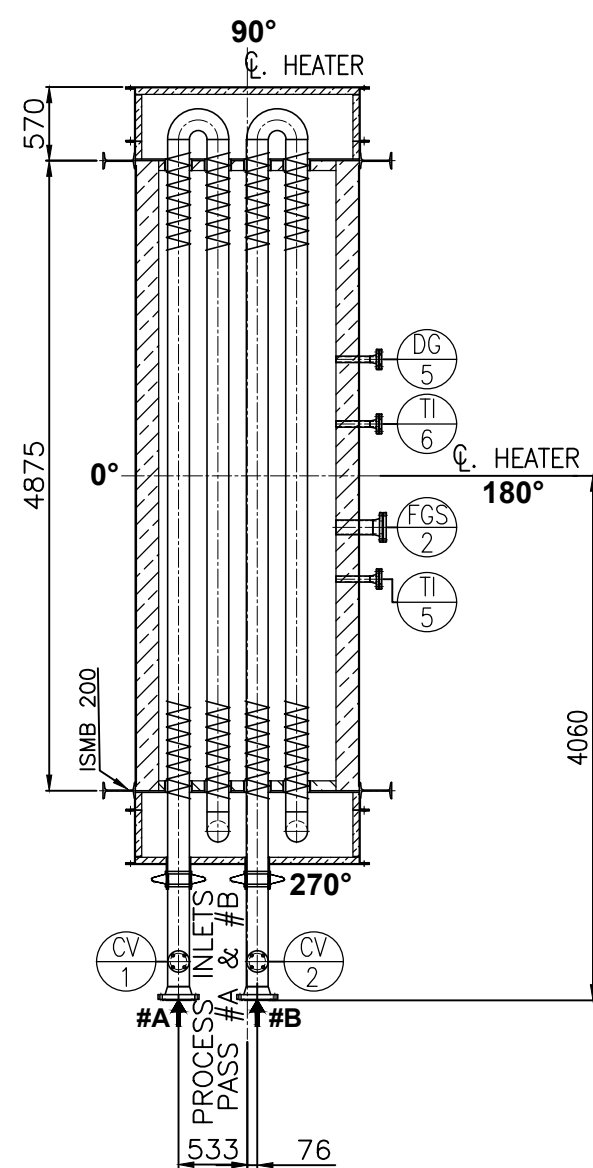
SECTION C-C



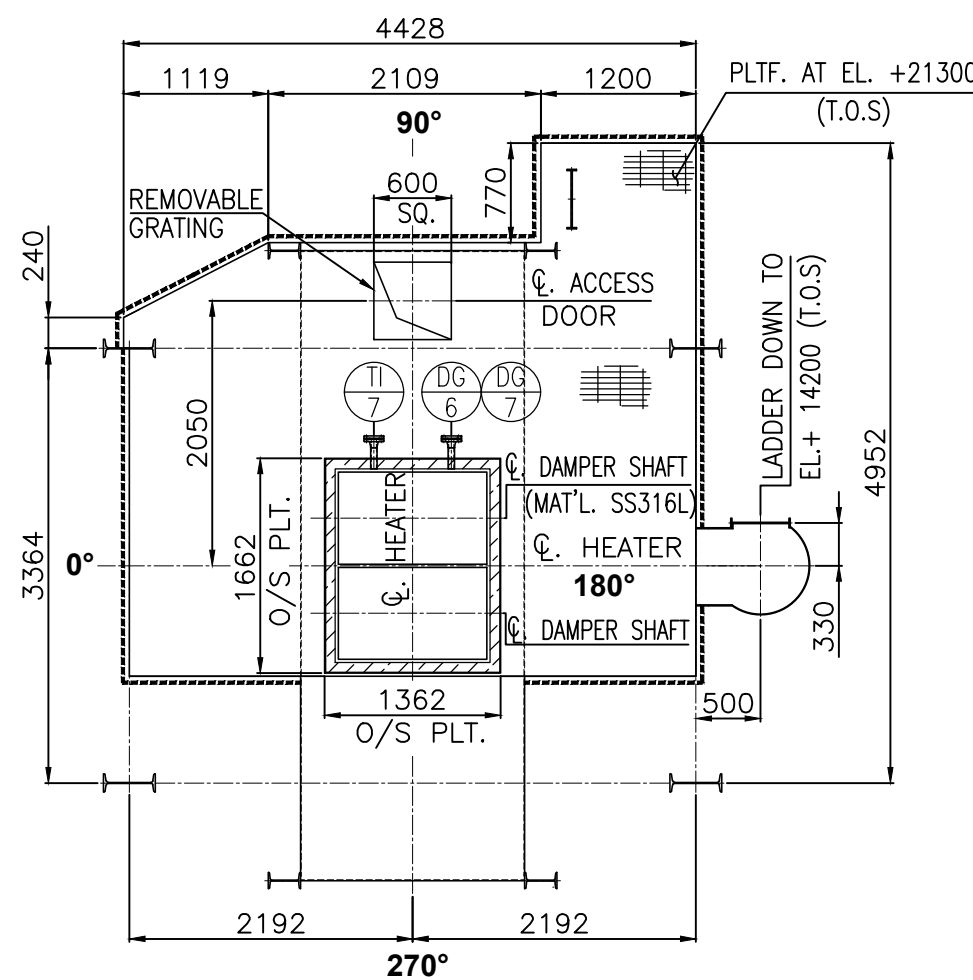
SECTION D-D



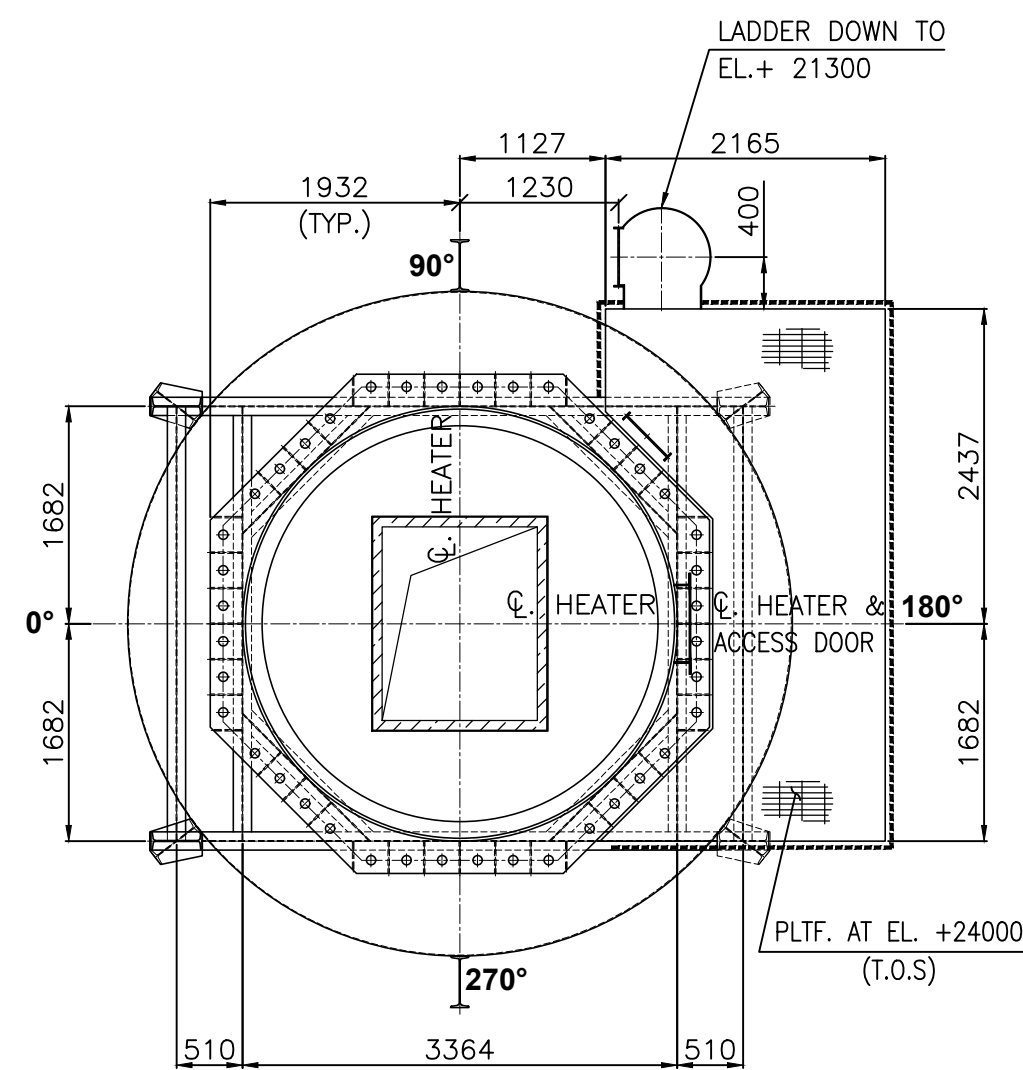
SECTION E-E



SECTION F-F



SECTION G-G

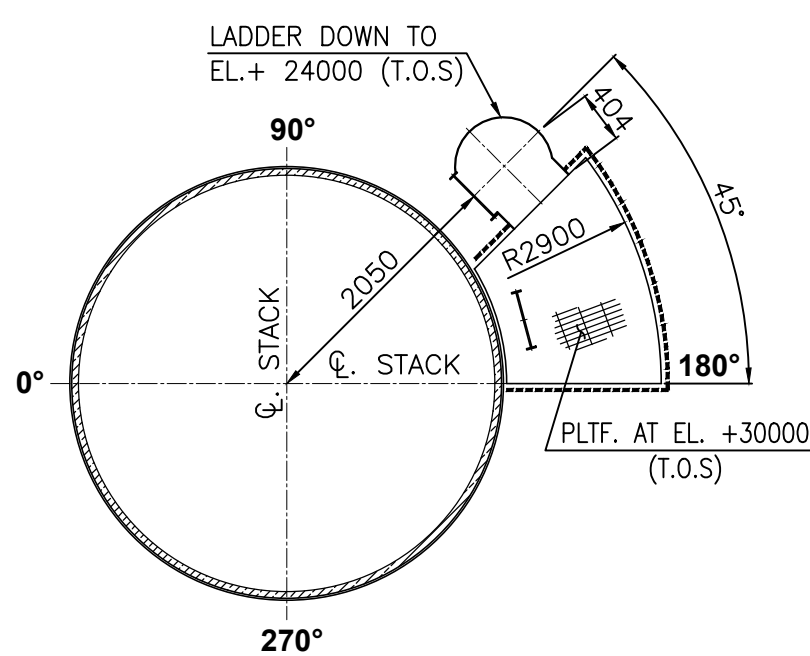


SECTION H-H

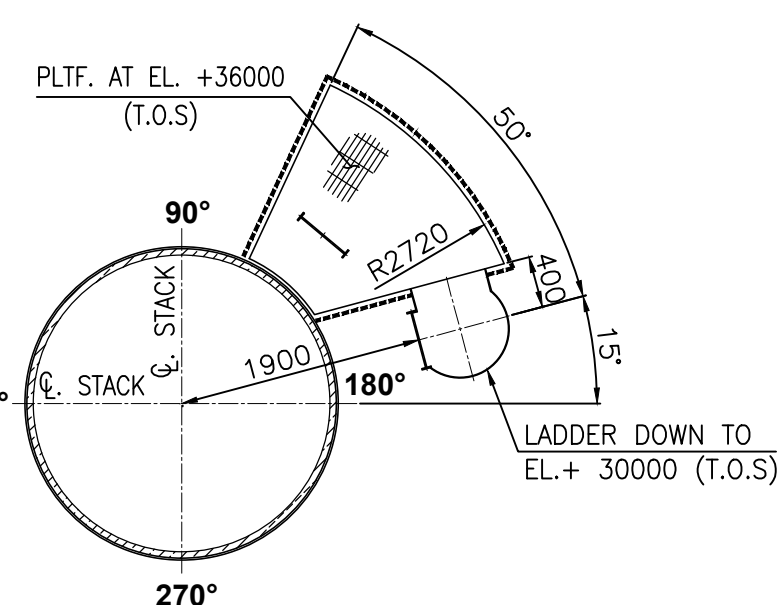
CUSTOMER No. 7916

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	JOB NO. 44AC7500	
	OWNER: INDIAN OIL CORPORATION LIMITED-PANIPAT, HARYANA	
	PMC: NEW ENERGY HOUSE, RAMKRISHNA MANDIR ROAD, KONDIVITA, ANDHERI (EAST), MUMBAI-400059,INDIA TEL: +91 22 26812000, FAX: +91 22 28208295	
	ITEM: HOT OIL HEATER FOR PTA UNIT (21-F1-1251)	
	Bharat Heavy Electricals Ltd. Logo	
	Bharat Heavy Electricals Ltd. HEAVY PLATES & VESSELS PLANT UNIT, VISAKHAPATNAM-530012	
	DRAWN: S SANKARA RAO	TITLE: GENERAL ARRANGEMENT OF HOT OIL HEATER PLANS
	CHECKED: S VIJAY	REV. C.DRG NO.44AC-7500-221-M-B01-0002-A1
	APPROVED: L RAJA SEKHAR	REV. 0
DATE: 24-02-2021		
ALL DIMENSIONS ARE IN MILLIMETRES		
SCALE: 1:55		

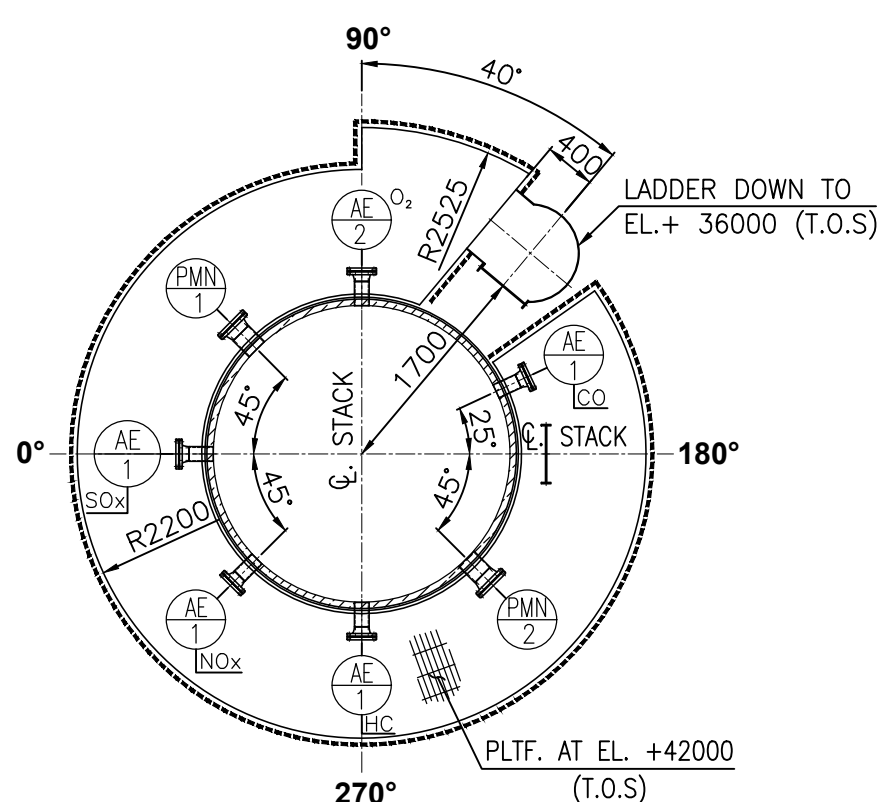
0		SUBMITTED FOR APPROVAL	SSR	SV	LRS
REV NO.	ZONE	BRIEF RECORD OF REVISIONS	PPD.	CHD.	APP



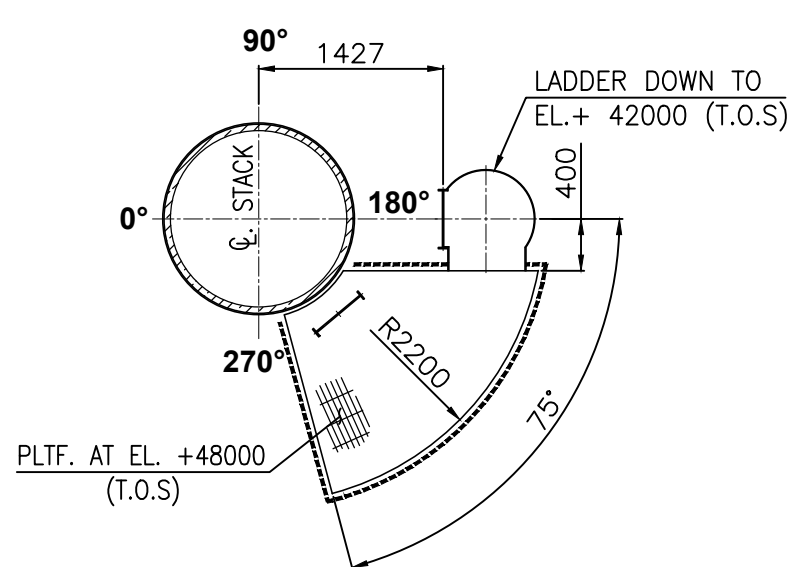
SECTION J-J



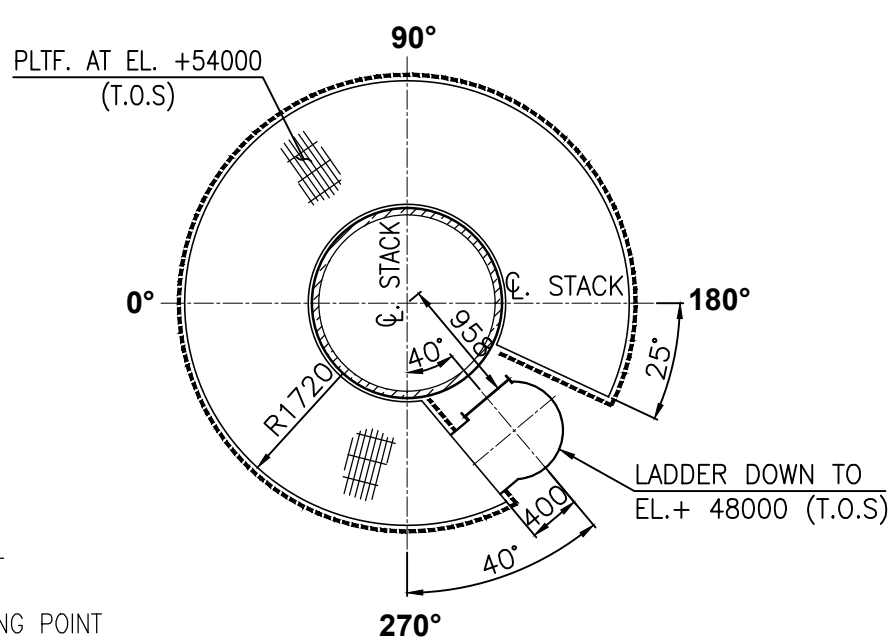
SECTION K-K



SECTION L-L



SECTION M-M







SECTION N-N












LEGEND:-

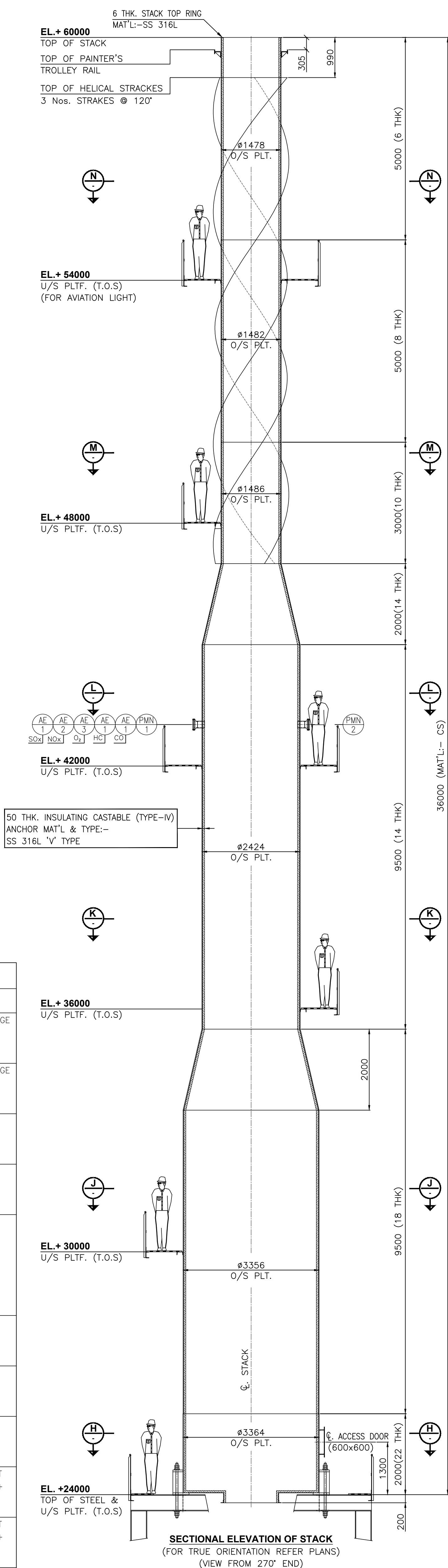
O/S : OUTSIDE
EL.+ : ELEVATION
T.O.S : TOP OF STEEL
℄ : CENTER LINE
L.W.P : LOWER WORKING POINT
N/S : NEAR SIDE
F/S : FAR SIDE
FC : FABRICATION CONTRACTOR
FIS : FURNACE IMPROVEMENTS SERVICES
I/S : INSIDE
U/S : UNDER SIDE
U.N.O. : UNLESS NOTED OTHERWISE
(TYP.) : TYPICAL
N/S : NEAR SIDE
F/S : FAR SIDE
B.F : BLIND FLANGE

REV NO.	ZONE	SUBMITTED FOR APPROVAL	BRIEF RECORD OF REVISIONS	SSR	SV	LRS
0						

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PROJECT: EPCM SERVICES FOR PX-PTA EXPANSION PROJECT	
JOB NO. 44ACT500	
INDIAN OIL CORPORATION LIMITED-PANIPAT, HARYANA	
OWNER:  Indian Oil Corporation Limited	PLOT: 
ITEM:	NEW ENERGY HOUSE, RAMKRISHNA MANDIR ROAD, KONDIVITA, ANDHERI (EAST), MUMBAI-400055,INDIA TEL: +91 22 26812000, FAX: +91 22 28208295
HOT OIL HEATER FOR PTA UNIT (21-F1-1251)	
	
BHARAT HEAVY ELECTRICALS LTD., HEAVY PLATES & VESSELS PLANT UNIT, VISAKHAPATNAM-550012	
DRAWN	S SANKARA RAO
CHECKED	S VIJAY
APPROVED	L RAJA SEKHAR
DATE	24-02-2021
ALL DIMENSIONS ARE IN MILLIMETRES	
	
GENERAL ARRANGEMENT OF HOT OIL HEATER STACK AND PLANS	
C.DRG NO.44AC-7500-221-M-B01-0003-A1	REV.
BHEL DRG NO. 1-48-000-U6010	0

LIST OF AUXILIARY CONNECTION			
SYMBOLS	QTY.	SERVICE	DESCRIPTION
	7	FLUE GAS TEMPERATURE	1 1/2"NPS x SCH.40 WITH 300# WNRF FLANGE + B.F + GASKETS + NUTS & STUD PIPE MATERIAL:- SS304L FLANGE MATERIAL:- A105
	7	DRAFT GAUGE	1 1/2"NPS x SCH.40 WITH 300# WNRF FLANGE + B.F + GASKETS + NUTS & STUD PIPE MATERIAL:- SS304L FLANGE MATERIAL:- A105
	2	FLUE GAS SAMPLING	4"NPS x SCH.40 WITH 150# WNRF FLANGE + B.F + GASKETS + NUTS & STUD PIPE MATERIAL:- SS304L FLANGE MATERIAL:- A105
	2	O ₂ ANALYZER	4"NPS x SCH.40 WITH 150# WNRF FLANGE + B.F + GASKETS + NUTS & STUD PIPE MATERIAL:- SS304L FLANGE MATERIAL:- A105
	1	SOx ANALYZER	4" NPS x SCH.40 WITH 150# WNRF FLANGE + B.F + GASKETS + NUTS & STUD PIPE MATERIAL:- SS304L FLANGE MATERIAL:- A105
	1	NOx ANALYZER	
	1	CO ANALYZER	
	1	HC ANALYZER	
	2	MONITORING NOZZLES	6" NPS x SCH.40 WITH 150# WNRF FLANGE + B.F + GASKETS + NUTS & STUD PIPE MATERIAL:- SS 304L FLANGE MATERIAL:- A105
	3	SNUFFING STEAM	2"NPS x SCH.80 WITH 150# WNRF FLANGE + B.F + GASKETS + NUTS & STUD PIPE MATERIAL:- SS304L FLANGE MATERIAL:- A105
	2	COIL VENT	6" SCH.40 x 2" SCH.80 3000# WELDOLET +2" NPS x SCH.80 300# WNRTJ FLANGE + B.F + GASKETS + NUTS & STUD MATERIAL:- A105
	2	PROCESS FLUID TEMPERATURE	6" SCH.40 x1 1/2" SCH.80 3000# WELDOLET +1 1/2" NPS x SCH.80 300# WNRTJ FLANGE + B.F + GASKETS + NUTS & STUD MATERIAL:- A105
	2	PRESSURE GAUGE	6" SCH.40 x1 1/2" SCH.80 3000# WELDOLET +1 1/2" NPS x SCH.80 300# WNRTJ FLANGE + B.F + GASKETS + NUTS & STUD MATERIAL:- A105
	6	TUBE SKIN THERMOCOUPLE	1 1/2" NPT 3000# THREADED COUPLING WITH PLUG PIPE MATERIAL:- SS304L



SECTIONAL ELEVATION OF STACK
(FOR TRUE ORIENTATION REFER PLANS)
(VIEW FROM 270° END)