

TENDER ENQUIRY

Ref.: AFD/ESAS/TE/24/2022 I/15503

Feb 22, 2022

To,

Sub: Tender enquiry for "Fabrication, Supply, assembly & installation of two parallel & interconnected radiation detectors Casing/Covering assemblies for AFD main door as per specifications & layout drawings"

Sealed quotations are invited for and on behalf of The President of India for Fabrication, Supply, assembly & installation of two parallel & interconnected radiation detectors Casing/Covering assemblies for AFD main door as per specifications & layout drawings.

The scope of work, technical specifications and general terms and conditions are attached in *Annexure-I*.

1. This tender will be processed in Two-Part Bid System.
2. The tender submitted should have two separately sealed envelopes viz.
 - 2.1 First Envelope shall contain **Technical Bid (Part-A)**. Technical Bid (Part-A) must be written on the Envelope.
 - 2.2 Second Envelope shall contain **Commercial Bid (Part-B)**. Commercial Bid (Part-B) must be written on the Envelope.
3. The sealed Technical Bid (Part-A) shall contain Technical details of the offer and compliance with respect to our technical requirement, clearly mentioning deviations, if any.
4. The sealed Commercial Bid (Part-B) shall contain the detailed quotation including basic cost, applicable taxes and commercial terms and conditions.
5. Sealed envelopes of Technical Bid (Part -A) and Commercial Bid (Part -B) shall be kept in Single Sealed Cover/Envelope, which shall be treated as your offer against our enquiry.
6. Offers received as (i) technical and commercial parts in one bid, or (ii) technical and commercial bids in single envelope, or (iii) unsealed bids will be treated as invalid and no further communication will be made to the vendor.
7. Your offer in sealed envelope bearing "**Tender Enquiry No. & Due Date**" should be sent to the following address, so as to reach on or before **14 / 03 / 2022** by **Registered/Speed post only**.

To,

Shri P.J. Patil
SA/E, ESAS,
Atomic Fuels Division
Bhabha Atomic Research Centre, Mumbai -400085

8. Offer received through courier or person or after Due Date will be treated as Invalid.

Patil

(P. J. Patil)
SA/E, ESAS, AFD

(S. Kumar)
(S. Kumar)

Head, ESAS, AFD

(For & on behalf of The President of India)

A) Scope of Work and Specifications:-

Entire Supply of material is in the Supplier's scope only. Suppliers shall prepare its own layout, fabrication drawings and get it approved. It is to be ensured by the supplier that the fabricated SS detector casing/covering and cable covering assembly shall have sufficient rigidity, strength, longevity and bright surface finishing. Estimation of total quantity and weight of material for supply and fabrication work is the responsibility of supplier.

1) Design parameters:

- i. Fabrication of the radiation detector shield casing assembly shall reduce the background radiation field in such a way that dose rate after radiation shield shall be $< 5 \mu\text{R/hr}$
- ii. During system commissioning supplier shall demonstrate the reduction of dose rate /background radiation in presence of departmental representative.
- iii. Dose rate data sheet before and after the shielding of detector assemblies with known active source supplied by the purchaser shall be provided.
- iv. Detector casing assembly fabrication shall be done in such a way that it shall provide ease in handling, replacement, removal & installation of detectors as and when required.
- v. Detector casing assembly shall be designed to accommodate radiation detector housings of dia 80mm x 1.4mL including its electronics safely with sufficient clearances.

2) Design, supply, fabrication, machining, assembly and installation of finished AISI SS304L material C-shaped sensor/detector casing/covering assemblies as per drawings & specifications: Qty 2 nos.

- i. Fabrication of SS304L sensor detector enclosure/casing assembly shall be done as per approved drawings and specifications only.
- ii. Square C-shaped casing/covering shall be fabricated from Min. 5 mm thick AISI SS304L plates/sheets to achieve specified dimensions as per drawings and specifications.
- iii. Plates shall be welded perpendicular to each other within ± 1 deg tolerance along entire length of the assembly.
- iv. Plates shall be staggered fillet welded at inside joints and shall be full fillet welded from outside joint to obtain smooth surface finish. Care shall be taken to avoid any surface distortion, warpage etc.
- v. Overall outside dimensions of each C-shaped casing/covering assembly shall be 160mm W x 110mm D x 1820mm H x 5 mm thick min.
- vi. Straightness of the assembly shall be maintained within 1mm in 1000
- vii. All essential fittings, components shall be machined, fabricated as per approved drawings and specifications and assembled integrally prior to installation at specified locations.
- viii. Front side of these assemblies shall be covered by 3mm thick transparent Perspex sheets for viewing purpose.
- ix. Entire assembly shall be fixed on foundations at specified locations. Foundation plates shall be flushed finish with existing floor level.
- x. It is to be ensured by the supplier that fabricated assembly shall have sufficient strength, stability, leak tightness and longevity. Workmanship of best quality is essential. Surfaces shall have smooth mirror like finish. Dents, cracks, burrs, scratches, rough surfaces, pin holes, any other surface defects etc are not permissible.

3) Design, supply, fabrication, assembly and installation of finished AISI SS304L material C-shaped cable casings/coverings as per drawings & specifications: Qty 1 no.

- i. These casing/coverings shall accommodate common electrical cables running from both the above mentioned sensors/detectors which are to be placed at either ends of the gate.
- ii. Material of construction shall be AISI SS304L
- iii. Overall dimensions of the C-shaped casings/coverings shall be 160mm W x 110mm D x 4460mm L x 5 mm thick
- xi. Fabrication of SS304L Cable casings/coverings assembly shall be done as per approved drawings and specifications only.
- xii. Square C-shaped casing/covering shall be fabricated from Min. 5 mm thick AISI SS304L plates/sheets to achieve specified dimensions as per drawings and specifications.
- xiii. Plates shall be welded perpendicular to each other within ± 1 deg tolerance along entire length of the assembly.

- iv. Plates shall be staggered fillet welded at inside joints and shall be full fillet welded from outside joint to obtain smooth surface finish. Care shall be taken to avoid any surface distortion, warpage etc.
- v. Straightness of the assembly shall be maintained within 1mm in 1000
- vi. This assembly shall be mounted above sensor/detector assemblies to connect them for electronics communication.
- vii. These covering shall be fixed on top side with 2mm thick SS304L sheets with help of hex flat head set screws at specified pitch along the entire length.
- viii. It is to be ensured by the supplier that fabricated roofing top shall have sufficient strength, stability, leak tightness and longevity. Workmanship of best quality is essential. Surfaces shall have smooth mirror like finish. Dents, cracks, burrs, scratches, rough surfaces, pin holes, any other surface defects etc are not permissible.
- ix. This entire assembly shall be fixed to adjacent wall and to the false ceiling using proper clamping & supports so as to maintain clear head room.
- x. Entire assembly shall provide aesthetic appearance.

B) General technical requirements:-

1. All material to be used for this work shall be in the scope of Supplier. Supplier shall use relevant IS standard material for this work.
2. All SS Materials shall be tested for Mech, Chem and IGC tests as per relevant test standards. Tests shall be performed at standard, NABL accredited labs only. Supplier shall bear the charges of material testing. Material identification, testing shall be witnessed by departmental concerned person.
3. Supplier shall carry out actual measurements at site and suggest deviations/corrections/modifications if any to make necessary changes if required.
4. In case of any technical doubts, supplier shall contact concerned authority for clarifications.
5. Supplier shall have to arrange for arc/tig welding m/c. along with all consumables (welding electrodes, filler rods etc) required for this work.
6. All welding shall be carried out by TIG/GTAW technique.
7. Cutting, arc welding, grinding work etc. shall be carried out with utmost care. Supplier shall follow all safety measures while carrying out such work. Department shall provide gas cylinders for gas cutting purpose if available, otherwise supplier shall use other safe metal cutting methods.
8. Burrs, sharp edges, projections etc. caused as a result of cutting, welding etc shall be removed to maintain smooth surface. Workmanship of best quality is essential requirement and should be maintained. Surfaces shall have smooth mirror like finish. Dents, cracks, burrs, scratches, rough surfaces, pin holes, any other surface defects etc are not permissible.
9. Supplier shall clear off all left out/unwanted material at the end of the work and ensure clean work area before handing over.
10. Supplier should have the previous experience in metal fabrication and erection work or similar site work along with quality assurance plan and should provide documentary evidence of the same for site visit clearance.
11. Suppliers having knowledge and experiences of preparing documentations, BARC procedures, standard welding procedures, safety procedures, material testing and inspection facilities, calibrated equipments etc. shall be preferred for the work contract.
12. Supplier shall obtain Medical Fitness certificates for all his workers involved in this work.
13. It is the responsibility of the supplier to use all essential safety gears such as welding screens, asbestos gloves, helmets apron etc. while performing welding work
14. The required personal items i.e. safety shoes, soap & undergarments etc. shall be provided by the supplier to their employees engaged in this work
15. QAP (Quality Assurance Plan):-
Supplier shall submit a documented procedure for Quality Assurance Plan for fabrication of SS 304L casing/covering assembly as mentioned against this work.
QAP should include:-
 - (i) Raw material Testing, (iii) Fabrication Steps, (iv) In-process Inspection Stages,
 - (ii) (v) Final testing methods, (vi) Welding procedures, Weld sequencing and Cleaning procedures,

16. Welding requirements:-

- i) Welding procedures and welder shall be qualified as per ASME section IX prior to production weld.
- ii) All the welding of SS to SS shall be done by GTAW process using AWS A5.9-ER-308L filler wires.
- iii) Tungsten electrodes shall be conforming to ASME section-II, part-C, SFA 5.12, EW-Th2.
- iv) DP test shall be carried out on all weld joints to check surface imperfections.
- v) Fillet weld joints between SS plates shall be ground flushed and finished smooth.

17. Inspection and final acceptance:-

- i) Physical verification of all items as per technical specifications.
- ii) Straightness of entire assembly shall be maintained within 2-3 mm over the entire length.
- iii) All weld surfaces shall have a smooth finish for easy dismantling, fixing and removal.

C) Terms and Conditions:-

1. Taxes GST, if any, shall be specified separately.
2. Quotations/offers shall be valid for min. 90 days.
3. Supplier should **clearly and separately** mention the basic cost of supply, GST etc in the offer.
4. Supplier shall quote **lumpsum** for the entire work specified and not for each item individually.
5. Work completion period is **90 days** from the date of issue of the work order.
6. Any delay which is attributable to the contractor is liable for penalty @ ½ % per week (max. 10%) to be imposed on the contractor.
7. In case of delay in work completion, supplier may send request letter to concerned authority for extension in work completion period with proper justification for delay in work. Concerned authority may or may not give extension with or without penalty depending on the justification for delay.
8. Income tax @2% and GST TDS @2% will be deducted from the Suppliers bill.
9. The materials, fabricated items used against this work order shall be utilized for R&D purpose. Therefore, GST exemption is applicable and eligible for GST @5% against exemption certificate.
10. Supplier should give guarantee for a minimum period of One Year for the workmanship.
11. Contractor must furnish their PAN no. & GST Registration Certificate.
12. 100% payment will be arranged after satisfactory completion of work at AFD and on submission of:
(a) Bills in triplicate, (b) Advanced stamped receipt, (c) Delivery Challan, (d) Guarantee Certificate
(e) Site Clearance Certificate, (f) GST Undertaking, (g) Work Completion certificate, (h) ITR undertaking
13. Min. two workers & a supervisor shall be present at site during the work. During execution, all safety measures such as safety shoes, hand gloves, headgear for welding, certified machines for electrical jobs etc. are to be followed. The supervisor shall be experienced enough for safety (fire & personal) to oversee the site activities.
14. The upkeep of area is the responsibility of contractor. Any unwanted or extra materials shall be kept at designated area shown by departmental supervisor. For elevated jobs proper Safety Belts shall be used by all workers.
15. Contractor shall obtain police verification certificate (PVC) for all his employees including his supervisors and workers engaged in the work.
16. **Site Visit:-** The contractor shall have to visit the site to comprehend the scope of work and equipment conditions. The same will be arranged by the undersigned. The site can be visited on 04/03/2022 between 10.00 hrs to 16.00 hrs. only. However, for site visit, prior intimation of at least three working days is necessary for arranging the entry permits.

The quotations submitted without site visit will NOT be considered.

Contractor shall have to carry valid Photo identity card (Driving license, passport, adhaar card) while visiting this premises. Failing to bring valid identity cards, vendors will not get access into our premises. Further, entry permits will not be arranged for next dates if vendors unable to visit the site on permitted dates for any reasons. Contractor should not carry any type of electronic items such as mobile, pen drive, camera etc with him/her at the time of visit. For preparing entry permit, you can contact the undersigned on ph. No. 25594869 or can mail to (pjpatil@barc.gov.in) giving complete details of firm, name of visitors, occupation/designation, identity proof, PVC details, probable date of visit etc.

D) Confidentiality clause:-

I. Confidentiality:-

No party shall disclose any information to any third party concerning the matters under this contract generally. In particular, any information identified as "Proprietary" in nature by the disclosing party shall be kept strictly confidential by the receiving party and shall not be disclosed to any third party without the prior written consent of the original disclosing party. This clause shall apply to the sub-contractors, consultants, advisers or the employees engaged by a party with equal force.

II. "Restricted information" categories under Section 18 of the Atomic Energy Act 1962 and "Official Secrets" under Section 5 of the Official Secrets Act 1923. :-

Any contravention of the above-mentioned provisions by any contractor, sub-contractor, consultant adviser or the employees of a contractor will invite penal consequences under the aforesaid legislation

III. Prohibition against use of BARC's name without permission for publicity purposes. :-

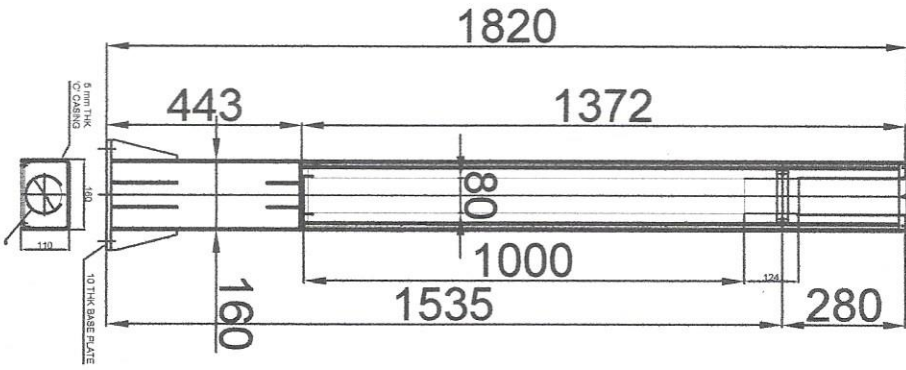
The contractor or sub-contractor, consultant, adviser or the employees engaged by the contractor shall not use BARC's name for any publicity purpose through any public media like Press, T.V. or Internet without the prior written approval of BARC.

A handwritten signature in blue ink, followed by the date 20/02/22 written below it.

Technical Requirements to be filled by the Vendor & to be placed in the Technical Bid envelope

Description		Vendor's Response (Yes / No / Details / Deviations, if any)
1.	Whether Vendor has adequately understood the specifications & other requirements?	
2.	Whether Vendor has previous experience of fabrication for similar shielding casing? (If yes, preliminary design of shielding casing shall be submitted)	
3.	Material of construction of: 3.1 Casing/coverings 3.2 transparent sheet for viewing 3.3 assembly components	
4.	Details about the item, the Vendor intends to supply: (SS304L material shall be tested for Chem, Mech, IGC test as per IS standard and the reports shall be provided) 4.1 SS304L plates/blocks/components 4.2 PVC pipes and rods 4.3 perspex sheets	
5.	Safe dose rate reduction by shielding	
6.	Straightness of final assembly as per specification	
7.	Demonstration of system for its functioning and reporting of dose rate values as per specification after installation and commissioning at site?	

(Signature & seal of the Vendor)



SCHEMATIC LAYOUT FOR DETECTOR CASING ASSEMBLY

