



राष्ट्रीय विज्ञान शिक्षा एवं अनुसंधान संस्थान, भुवनेश्वर
(परमाणु उर्जा विभाग, भारत सरकार का एक स्वयं शासित संस्थान)
NATIONAL INSTITUTE OF SCIENCE EDUCATION AND RESEARCH, BHUBANESWAR
(AN AUTONOMOUS INSTITUTE UNDER DEPT. OF ATOMIC ENERGY, GOVT. OF INDIA)

Notice Inviting E-Tender No.: NC-000425-RIN4001-SPS-21-22

FUME HOOD



**NATIONAL INSTITUTE OF SCIENCE EDUCATION & RESEARCH
JATNI CAMPUS, P.O. – BHIMPUR-PADANPUR, VIA-JATNI
KHURDA – 752050, ODISHA, INDIA**

**Notice Inviting E-Tender
For
FUME HOOD**

E- Tenders are invited on behalf of the Director, National Institute of Science Education and Research, Jatni from the manufacturers(Indian or Foreign) and their authorised reseller/Indian agent only for supply & installation of the following items:-

<i>Sl. No.</i>	<i>Name of the Items</i>	<i>Tender No.</i>	<i>Name of Department</i>	<i>Qty. Sets.</i>	<i>Tender Fee in INR</i>
1.	FUME HOOD (Specification as mentioned in the technical bid)	NC-000425- RIN4001-SPS- 21-22	SPS	As per technical bid	NIL

<i>Sl. No.</i>	<i>Name of the Items</i>	<i>Tender No.</i>	<i>Name of Department</i>	<i>Qty. Sets.</i>	<i>EMD in INR</i>
1.	FUME HOOD (Specification as mentioned in the technical bid)	NC-000425- RIN4001-SPS- 21-22	SPS	As per technical bid	NIL against Bid Security Declaration as attached

- Tender Enquiry No : NC-000425-RIN4001-SPS-21-22
- Last date of submission of E-bid : 18/10/2021 up to 11.00 A.M
- Opening of Technical Bid : 21/10/2021 at 11.00 A.M

The details of general tender terms & conditions can be downloaded from <https://eprocure.gov.in/epublish/app> or Tender Free View Link from NISER Website <https://www.niser.ac.in/content/tender>.

FIC (Stores & Purchase)

Bid Security Declaration

(in Company's letter head)

Invitation to Bid/Request for Expression of Interest No. [Insert reference no.]

To

National Institute of Science Education & Research, Bhubaneswar

Post-Bhimpur-Padanpur,

Via- Jatni,

District- Khurda, India

PIN-752050.

I/We understand that, according to your NIT conditions, bids must be supported by a Bid Security. In lieu of the Bid Security, we submit the following undertaking: -

“I/We declare that we will be suspended/ disqualified for tendering with the entity for a period of 1 (One) year from the date of receipt of notice from you, if we withdraw or modify our bid during the validity period **OR** fail to sign the Contract **OR** fail to submit Performance Security (if applicable) before the defined deadline **OR** fail to execute contractual obligation within the stipulated time.”

Date: -

Place: -

Signature of the Bidder

(with Company seal)



**TECHNICAL BID
SUPPLY AND INSTALLATION
OF
FUME HOOD
FOR
NATIONAL INSTITUTE OF SCIENCE EDUCATION AND RESEARCH, JATNI
Notice Inviting E-Tender No. NC-000425-RIN4001-SPS-21-22**

Vendor Name				
SL. No.	Item Specification	Quantit y (In Nos.)	Accepted/Not Accepted (Kindly Mention)	Please specify if any deviation

**Low Const. Bypass type Bench Fume Hood
(Minimum Size: L 1800 x D 915 x H 2300
mm) (Suitable For AC Labs)**

i) FUME HOOD SUPERSTRUCTURE:-

Consisting of:

- Structure frame in 2.0mm thick GI construction
- Inner lining, rear baffles, and top baffles in 6mm thick. Phenolic resin construction
- Outer panels in 1.2mm thick GI construction.
- Aerodynamic Shape front posts, in GI construction
- Flip-on type Airfoil in 1.6 mm thick SS construction
- Streamlined shaped exhaust duct collar in PP const.
- Combination type, frameless design sash in toughened glass const. with full length sash handle in anodized Al construction
- Sash movement mechanism with counterweight.
- Twin LED tube type light with fittings. The light shall provide (15) intensity adjustment levels, and (3) color options.
- Fume hood sash support to employ notched belt and shaft interlocked gears. Belt to be Polyurethane with green polyamide fabric on notch side, 10mm wide x 5.6mm thick rated at 3600N tensile strength. Support system to be rated to 300,000 cycles (one cycle = one full up and one full down sash motion) without a failure. Sash support system to employ retainers to ensure sash remains level and square throughout use.
- Access to services shall be through a trapezoid shaped gasketed panel constructed of the same material as the liner. The panel shall be easily removable without the use of tools.
- Constant Volume Fume Hood designed to yield 80 FPM face velocity at 18" sash opening
- Maximum sash opening to be 28", yielding 55 FPM face velocity
- Notched belt and rocket sash system
- Electronic sash stop at 18"

1

1 Set

II) FUME HOOD WORKTOP:-

- In telephone black natural granite construction or better for acid resistance,
- Having raised rails on all four sides,
- No oval cup sinks.

III) SERVICE VALVES:-

Having body in forged brass construction, extended spindle in Aluminium construction, colour coded knobs in plastic, angular shaped serrated nozzles, in epoxy coated forged brass const. 1.5mt. long flexible tubing with end fittings for following services:

Services - Tube Construction

Compressed Air - PU-4

Vacuum - SS braided Teflon Hose

Nitrogen - PU-4

Potable Water - Nylon braided PVC Hose

IV) ELECTRICAL SERVICES:

- internal wiring (all in non-FLP const.)
- Controller for Blower & light (Touch Pad)
- 16A, 2 Pole MCB - Legrand or eq. Make
- 5/15A 3-pin Socket with switch/ MCB - Legrand or eq. Make

V) CONTROLS :-

- Air velocity Monitor with low air alarm, with international standard certification.
- The alarm system shall indicate the actual face velocity of the hood regardless of sash position. The system shall have an air velocity sensor mounted on the interior side liner of the hood where it is easily accessible for cleaning. The velocity monitor shall digitally display the air velocity through the hood face in feet per minute. The alarm signals shall activate any time the face velocity falls below the low velocity alarm set point. There shall be both visual and audible alarm signals. The audible alarm shall have a mute. Low and high alarm

contacts shall be provided for remote monitoring. An hour-long “event timeline” detailing low velocity episodes shall be part of the alarm readout.

VI) FUME HOOD UNDER STRUCTURE :-

Fabricated out of heavy gauge rectangular shape hollow pipes in MS construction, duly finished with corrosion resistant specialty coatings.

VII) FUME HOOD UNDER-CABINET (CHEMICAL STORAGE PURPOSE) :-

- Detachable design general purpose twin cabinets completely isolated from each other
 - Special arrangement for air ventilation inside the cabinet
- Twin doors in double wall construction
- Flushed type recessed handle.
- Heavy duty knuckle-barrier special design door hinges
- 1 No. adjustable shelf.
- Recessed base frame in heavy duty GI const. or appropriate material
- Twin castors for easy removal of the cabinet.
- FRP Lining inside the chemical storage cabinet
- PP Tray for chemical storage
- Appropriate labelling for the cabinets should be provided

Cabinet -1: Should be acid resistant and should occupy a maximum of half storage of total available under storage space.

Cabinet -2: For common chemical storage.

ACCESSORIES :-

- 200 mm dia. Duct damper in PP const. complete with predrilled flanges on both sides, manual operation handle and extended spindle, suitable for motorized drive.
- Scaffold Grill (1630 x 750mm) in Vertical rod design, fabricated out of 12.0mm dia.,
- Epoxy rods, having 150mm pitch between two rods.
- Temperature Indicator with dual probe in Teflon coated SS const.

- Heat resistant wire suitable for temperature range 100° C to 150° C
- Ceiling Enclosure Panels in GI const; duly powder coated.
- Appropriate water piping from the water point in the lab to the hood should be provided

EXHAUST AND DUCTING SYSTEM :-

- Fan (315 mm Dia or better) – atleast one fan for the specified Fume Hood
- Single piece molded UV treated chemical resistant SISW direct driven centrifugal fan in PP construction with suitable stand in MS powder coated construction, CFM 600 to 650
- Corrosive resistant PP Impeller with extra strength, high efficiency, properties which produces lower noise and power consumption.
- Drive - 1.5 HP, 2800 RPM, 415V, 50Hz., TEFC Class B insulation induction motor with IP55 enclosure, in Non- FLP const or better
- 16A, 3Ph MCB for Fan - Legrand or eq. Make
- DOL Starter for Motor.

CENTRIFUGAL PP EXHAUST FAN :-

- The exhaust fans supplied and installed shall be of ‘Centrifugal Corrosion Resistant’ type and shall be capable of delivering the design flow rate against all duct losses.
- The fans shall be robust in construction and suitable for continuous duty operation. It shall be mounted with ease of maintenance and shall be installed with proper vibration isolators to minimize vibration transmission to ductwork and support structure.
- Fans selected shall be silent and vibration free when running and suitable for outdoor use and shall not exceed 3000rpm.
- Aerodynamic performance of the fan shall be tested and comply ‘ISO 5801’ standards. Sound level shall be tested and comply with ‘ISO 5136.2’ standards.
- The casing shall be of self-supporting design, thermoformed welded by machine.

The material of construction shall be polypropylene (PP) and suitable for use against corrosive 'medium' and a maximum allowable operating temperature of 70°C.

- No metal parts shall be exposed and in contact with the airstream.
- Impeller material of construction shall be polypropylene (PP) and suitable for use against corrosive.
- Electro-galvanized stand shall be used to support the fan and the motor in view of the corrosive environment.
- A standard hub seal shall be fitted onto the impeller hub to prevent the corrosive 'medium' from contacting the shaft.

MOTOR AND ACCESSORIES :-

The standard TEFC electric motor shall be with class 'F' insulation and class 'B' temperature rise. Motor shall be suitable for outdoor installation with IP55 protection and suitable for operation with 415V/3Ph/50Hz electrical supply. Motor shall be flange mounted (B5) or foot mounted (B3) based on the fan configuration.

PP/FRP DUCTING :-

- PP means PPGL: One side smooth & glassy finish and other end is mat finish.
- The smooth surface should be the inner surface of the duct.
- On mat side, FRP lining to be done.
- 25 mm x 25 mm Stitch welding is done on inner surface and continuous welding on outer surface with 5 mm welding thickness.
- FRP Lining to be done on the outer surface of PPGL I.e. on mat side.
- One layer FRP is one mm.
- The final layer should be with fine mat to have smooth and good finish.
- While making the lining, there should not be any air pockets or any sort of Uneven finish.
- There should be time gap between the FRP layers, allowing each layer to be got dried.
- Isothelic resin to be used.
- The flange thickness should be 1.5 times of the duct thickness up to 750 mm and 2 times above 750 mm ducting.

- All flanges are to be matched with M8, GI fasteners and flat washers on both the sides.
- All the flanges should have fasteners at the 4 corners.
- All the fasteners to be fixed at a pitch distance of between 125 mm to 150mm.
- All the flanges should be properly ground and dressed.
- Duct support distance should not be more than 2500 mm.
- Any duct length should not be more than 3600 mm.
- All square / rectangular ducts with more than 1800 mm length should have a brazing frame at the center on the external surface.
- Provide 40 x 40 flanges up 750 mm duct size and 50 x 50 above 750 mm.
- The finish paint should be admiral grey unless specified.
- 5 mm Thick Neoprene gasket shall be used between the flanges.

PP DAMPERS :-

- Dampers shall be double thickness heavier than the thickness of the large duct & shall be rigid in construction.
- The volume control dampers shall be of an approved type, lever operated & complete with locking devices which will permit the dampers to be adjusted & locked in any positions.
- Construct blades of 5 mm thick PP MOC, provide heavy-duty molded self-lubricating nylon bearings, 13mm (1/2") diameter Plastic axles spaced on 225mm (9") centers. Construct frame of 300 mm diameter outer with Flange for fitting minimum 6 bolts and nuts.

PVC FLEXIBLE HOSE:-

- PVC Coated flexible hose as required while installing the hood.
- Flexible connections shall be air tight and resistant to water and fire.
- Flexible connections shall be fitted to isolate fans from equipments and/or ductwork. The connections shall be arranged to permit the renewal of the connection without disturbing the duct work or the plant.

DUCT SUPPORT SYSTEM:-

A complete supporting system consisting of fully threaded rods, double L bottom brackets nuts, Washers, clamps for circular ducts and anchor bolts as supplied. To provide the required thermal break effect, Neoprene or equivalent material of suitable thickness shall be used between duct joints.

BIRD SCREENS :-

Galvanized woven mesh or weld mesh bird screens in rigid galvanized iron frames shall be installed behind all external louvers and over all relief and exhaust air openings to the outside of the building.

INSTALLATION:-

- Complete installation of the hood should be performed at the lab-site specified by NISER.
- Detailed training of all functionalities should be provided to atleast 2 users during installation.
- Detailed manuals and instructions for the instrument should be provided.
- Detailed pre-installation requirements for the instrument and ancillary requirements like electrical/water etc should be provided. However the pre-installation requirements should be limited and consistent with the section related to 'ADDITIONAL REQUIREMENT' section below.

ADDITIONAL REQUIREMENTS TO BE COMPLIED :-

- The manufacturing facility should have a valid
 - i) ISO – 9001: 2015; ISO – 14001:2015; OHSAS- 18001:2007 certificates ii) should submit third party Test certificate of “BIFMA HCF 8.1” by approved agency ; and iii) should also have valid ASHRAE certification (2016) for Fume Hood.
- Noise level of the chemical hood should be specified and if required appropriate documentation should be provided.

Preferences may be provided to company with lower noise level.

- Vendors / Bidders (OEMs) or their authorized Dealer or Agent who have carried out similar work in Govt., Semi Govt. Institute. The technical committee at NISER Bhubaneswar reserves the right to ask for photographs/drawings of the general assembly of the system and user report to satisfy themselves of the proven capabilities of the bidder in manufacturing systems similar to the one that is being specified here.
- The vendor should have in – house manufacturing facility for the steel Laboratory Furniture and Fume Hoods. This will allow easy and swift repair if required.
- The bidder must also have a local service center. Certificate of registration for the centers to be provided. Details about scope of service activities provided by the service centers must be provided. The contact details of the service engineers must be provided.
- The vendor should undertake a site visit to ensure that correct installation of the hood in the specified area of NISER. Appropriate documentary evidence for this should be provided. This is to ensure that all costs for complete installation is included in the price bid.
- NISER would only provide the electrical plug points and cables required for the connection of the hood. All other installation requirement should be included by the bidder in the tender documents.
- Unloading of material nearby the lab site will be completely taken care by the vendor.
- The fume hood structure should be such that it can go through a 5 feet door.
- The structure should comply with the ceiling height and hood installation and design should form a complete closed set up without any burrows.
- Provision for utility lines and drainage line up to the fume hood's inlet should be included.
- All accessories for the duct installation, scaffolding etc should be taken care by the vendor. NISER would provide the duct layout drawing if required.
- Complete structure and dimension of the hood and exhaust should be shared during the bid.
- The lead-time for the delivery of the equipment should not be more than 8 weeks

from the date of PO.

OPTIONAL ITEM:-

Vacuum Pump Storage Fume Hood Cabinets :-

Vacuum Pump Storage Fume Hood Cabinets are designed to allow vacuum pumps. The interior is lined with 1" thick neoprene foam for sound deadening and easy cleaning. Each cabinet is furnished with a 230V, 6/16 amp, duplex receptacle mounted on the inside cabinet back and a pilot lighted toggle switch mounted in the top front rail. (Wiring is not included.) Cabinets are also furnished with a 1 1/2" diameter PVC vent pipe for venting or access to the hood above. (Requires a 2" hole in the hood work surface.)

2	Above items should carry 1 year free comprehensive warranty from the date of installation. In case the tenderer provides warranty less than 01 year then he has to give justification for lesser period of warranty. Without justification his tender is liable to be rejected.
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Contact for information: (Only E-mail enquiries will be entertained)

For Technical Information:-

Dr. S P Senanayak

School of Physical Sciences

E-mail – Dr. S P Senanayak < satyaprasad@niser.ac.in >