

	<p>Institute of Infrastructure, Technology, Research And Management (An Autonomous University, Established by Government of Gujarat) IITRAM Campus, Parishkar Campus, Near Khokhra Circle, Maninagar (East), Ahmedabad – 380026, Gujarat. Phone: 079-67775430 e-Mail: office@iitram.ac.in Website : www.iitram.ac.in</p>
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Tender No.: 2022/30

Date: 18.10.2022

NOTICE INVITING TENDER

Important Information:

Name of Work:	BID FORM for Supplying, Installing, Commissioning of Fire Suppression System for Data Center (Server Room) at IITRAM
Date of Issue	18.10.2022
Tender Fee	Rs.1770.00 (Including 18% GST)
EMD	Rs.17,500.00 (Refundable)
Last date for Online BID Submission	17.11.2022 till 06.00 PM
Last date for Physical BID Submission	19.11.2022 till 05:00 PM
Opening of Technical BID	21.11.2022 at 11.30 AM
Opening of Financial BID	To be announced later through email
Tender Inviting Authority and Address	The Registrar (In-Charge), Institute of Infrastructure, Technology, Research And Management, Near Khokhara Circle, Maninagar (East), Ahmedabad – 380026, Gujarat. Phone: - 079-67775430

Institute of Infrastructure, Technology, Research And Management

NOTICE INVITING TENDER

Name of Work: **Supplying, Installing, Commissioning of Fire Suppression System for Data Center (Server Room) at IITRAM**

Sir,

The Institute of Infrastructure, Technology, Research And Management (IITRAM), Ahmedabad invites quotations for **Supplying, Installing, Commissioning of Fire Suppression System for Data Center (Server Room) at IITRAM** under “Two bid system in e-Tender format.” Interested parties who wish to participate in this e-Tender may obtain the Tender documents from IITRAM website www.iitram.ac.in or from <https://education.nprocure.com>. Firms have to submit the technical documents through RPAD, Speed Post or in Person till the last date and time prescribed for submission. Tender sent by other means will not be accepted in any case. Hardcopy of Tender Document, Tender Fee, EMD and other essential documents should be submitted on or before **19.11.2022 till 05:00 PM** in the office of the Room No. G2, IITRAM, Near Khokhara Circle, Maninagar (East), Ahmedabad-380026. Financial bid is to be submitted in electronic form only on (n)Procure website (<https://education.nprocure.com>).

1. Eligibility Criteria:

- 1.1 The firm should have PAN No. Enclose a copy of the PAN Card.
- 1.2 The firm should be registered with GST. Enclose a copy of the Registration No.
- 1.3 The firm has to submit at least last three years Income Tax Return of their firm.
- 1.4 The firm has to submit the Firm Registration Certificate.
- 1.5 The firm has to submit the Authorization Letter from the Original Manufacturer in case if the firm is a Distributor or a Supplier.

2. General Terms and Conditions:

- 2.1 The firm has to quote the price for the item as mentioned in particular **Annexure-I**.
- 2.2 The price quoted shall including taxes, other levy payable, all freight, packing & forwarding, transportation, loading & unloading, custom duty, excise duty & other duties, other charges to supply Goods at IITRAM.
- 2.3 Rates quoted should also including training, installation, commissioning, erection and demonstration of machine/material/goods/instruments/equipment at our site.
- 2.4 The items for which quotation have been submitted must be in accordance with the specifications given in **Annexure-I**.
- 2.5 The rates quoted by the firm shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
- 2.6 The offer shall be valid up to 90 days from the date of opening of Technical bid.
- 2.7 The Tender is liable to be rejected if complete information is not given therein or if the particulars and date (if any) asked for in the scheduled tender are not fully filled in. Particular attention must be paid to delivery date and also to the particulars referred to in the condition of the contract.
- 2.8 Financial bids will be opened in online format of technically qualified firms only.
- 2.9 Tenders not complying with the above conditions are liable to be rejected at the sole discretion of IITRAM without any further reference / communication.
- 2.10 This tender is not transferable.

- 2.11 IITRAM reserves the right to choose, accept or reject any or all requests/deviations/offers, in full or part and also reserve the right at any stage to reduce or increase the quantity and split the order.
- 2.12 The Supplier/Vendor has to submit photocopy of following documents along with duly signed & stamped:
- i. PAN Card
 - ii. Firm's Registration Certificate
 - iii. GST Registration Number
 - iv. Income Tax Return (Last three years')
 - v. This NIT Documents, Annexures, Appendix, etc.
 - vi. If firm is newly established, provide chartered accountant certificate to make firm eligible for tender. In case of foreign company/organization/industry, has to provide necessary document like firm registration, original manufacturing certificate etc. Otherwise, it shall be liable for disqualification of this NIT.
- 2.13 **Performance Security:** The successful firm shall be required to deposit Performance Security from any Nationalized Bank @5% of the cost of the items to be supplied for the duration of warranty plus additional two months in favor of "IITRAM" within 30 days of the receipt of the Purchase/Work Order. If the firm fails to comply with the above requirements within the said period, the EMD already deposited by him/ them shall be applicable for forfeiture and IITRAM shall purchase the items required at the risk and cost of the successful firm.
- 2.14 This Performance Security will be returned (without any interest) within 30 (Working) days after satisfactorily completion of warranty period.
- 2.15 The successful firm shall have to enter into the Agreement in the prescribed Performa provided by IITRAM. (In Rs.300 Stamp Paper).
- 2.16 **Inspection:** Pre-dispatch inspection at Bidders site or inspection after the delivery of goods, as the case may be.
- 2.17 **Inspection Charges** @0.5% within Gujarat State and Inspection Charges @1% for outside Gujarat State of the total order value should be borne by the bidder.
- 2.18 All or any Claim(s), dispute(s) or difference(s) arising out of or in with connection with this agreement shall be subject to the jurisdiction of the Courts at Ahmedabad only.
- 2.19 Any loss or damage caused to the article in transit/Installation/Testing is to be made up item by the firm free of cost within period of 30 days.
- 2.20 If the firm is blacklisted by Central Government or State Government or any other Government body then its submitted tender will be rejected. It is essential for firm to submit **Appendix - I** duly filled, signed, sealed & stamped manner in hardcopy, **failing which the tender will be summarily rejected.**
- 2.21 If there happens to be a holiday on any date indicated in the quotation, the transaction shall be performed on the next Working Day.
- 2.22 No firm shall withdraw his rates after the Tender is opened. If a firm does so, his tender related deposit/s shall be forfeited and such firm shall be considered ineligible for work/contract in future.

3. Submission of bid:

- 3.1 The Tender document can be downloaded from website www.iitram.ac.in or from <https://education.nprocure.com>. The fully filled in and complete in all respect Tender must be submitted with Tender Fee, EMD in the form of Demand Draft in separate cover in favor of the "IITRAM" payable at Ahmedabad.
- 3.2 Please mention Tender Number and Firm Name of Firm on back side of DD.
- 3.3 The EMD is refundable (without any interest) within 30 (Working) days after successful award of Purchase/Work Order:

- 3.3.1 EMD of unsuccessful suppliers / vendors will be returned within 30 (Thirty) working days from the date of award of Purchase/Work Order.**
- 3.3.2 EMD of successful supplier / vendor will be returned within 30 (Thirty) working days after submission Performance Security.**
- 3.3.3 The EMD shall be forfeited:**
- If the bidder withdraws his bid during the validity period of the bid.
- 3.4 The firm has to submit the Tender in two parts viz., (a) Technical Bid in envelop No.1 and (b) EMD in envelope No.2; both these envelopes should be sealed and put together in a covering envelope, super scribed with, Please Don't Open, bid for *“Supplying, Installing, Commissioning of Fire Suppression System for Data Center (Server Room) at IITRAM”* with due date, Tender Number and complete address.
- 3.5 The bidder has to provide the make, model and detail technical specifications of the quoted item(s) and provide the technical specification of item as mentioned in Appendix-I. **Without this information, bid submitted by the bidder will be rejected.**
- 3.6 The firm has to submit financial quotation online only at (n)Procure portal.
- 3.7 **It is essential for firm to submit Annexures, Appendix & Tender documents (all pages) and other essential documents as mentioned in this NIT notice with duly filled, signed, sealed & stamped manner in hardcopy, failing which the firm tender will be summarily rejected.**
- 3.8 Price quoted “ONLINE” will only be considered for L1.

4. Evaluation of Quotations:

The tender evaluation committee of the IITRAM will evaluate and compare the received quotations to determine the substantially responsive tender i.e. (i) tender is complete (ii) properly signed (iii) confirm the terms/conditions and specifications. Further, the financial evaluation will be done only for the substantially responsive tender based on the following parameter(s):

- Total Price quoted (ONLINE ONLY) as per specifications mentioned in **Annexure-I.**

5. Award of Contract:

- 5.1 IITRAM will award the contract to the firm who has offered lowest price.
- 5.2 Notwithstanding the above, IITRAM reserves the right to accept or reject any quotation and to cancel the bidding process and reject all quotations at any time prior to the award of contract without giving any reason.
- 5.3 The firm whose bid is accepted will be notified of the award of contract by the IITRAM prior to expiration of the quotation validity period. The terms of the accepted offer shall be incorporated in the Purchase/Work Order.

6. Period of Work Completion & Penalty:

- 6.1 The work must be completed within 60 days from the issue date of Work/Purchase Order.
- 6.2 **Penalty:** Penalty of 1% per week of order value will be charged after duration specified above individually. Further, 06 weeks or above delay from above mention days may lead to cancellation of order at the discretion of the university and forfeiting of Performance Security or EMD or Maximum Penalty shall be applicable 10%.

7. Warranty:

- 7.1 Minimum One-year complete warranty from the date of complete installation, commissioning and erection of all the Equipment/Instruments/Machines/Goods at our site.
- 7.2 **Warranty certificate should be provided by original manufacturer in case of bidder is distributor or supplier on company's letter head.**

8. Terms of Payment:

- The payment in INR will be released against clear cut firm Tax Invoice through the “CROSSED BANK CHEQUE” instrument within 30 days’ credit period after acceptance of successful delivery & installation at IITRAM.

9. Address for the Physical Bid Submission:

**The I/c. Registrar
Institute of Infrastructure, Technology, Research And Management,
Near Khokhara Circle, Maninagar (East), Ahmedabad- 380026.**

I/c. Registrar

(Detailed Specification)

General

The bidder shall supply, install, test and put in operation NOVEC 1230 (Fluro Ketone – FK-5-1-12) based fire suppression system. The fire suppression system shall include and not be limited to gas release control panel, UL listed and PESO approved seamless cylinders, discharge valve (with solenoid and pneumatic actuator) as the case may be, discharge pipe, check valve and all other accessories required to make a complete operation system meeting applicable requirements of NFPA 2001 (2012 edition) standards and installed in compliance with all applicable requirements of the local codes and standards.

The system design should be based on the specifications contained herein, NFPA 2001 and in accordance with the requirements specified in the design manual of the agent. The bidder, shall confirm compliance to the above along with their bid.

The system shall be properly filled and supplied by a UL listed OEM (Original Equipment Manufacturer) with UL listed filling plant.

Generally, the key components* of the system shall be UL listed. The NOVEC 1230 gas shall:

- a) comply with NFPA 2001 (2012 edition) standard
- b) have the approval from US EPA (Environmental Protection Agency) for use as a total flooding fire extinguishing for the protection of occupied space:
- c) be given Underwriters' Laboratories Inc. (UL, USA) component listing for the NOVEC 1230 gaseous agent.
- d) must have zero ozone depletion potential (ODP)
- e) have a minimal life span in atmosphere, with atmospheric life time of less than 5 days
- f) be efficient, effective and does not require excess space and high pressure for storage;
- g) commercially available

*Key components are valves and its accessories, actuators, flexible discharge and connection hoses, check valves, pressure switch, and nozzles

Design Condition

The Novec 1230 agent is stored in seamless steel cylinders and dry nitrogen is added to provide additional energy to give the required rapid discharge. At the normal operating pressure of 25 bar at 21° C, the agent is a liquid in the container.

- The designer shall consider simultaneous total flooding of all voids within the protected volume. The system shall be designed in accordance with the OEM's Design Manual.
- In order to extinguish a fire using clean agent, the concentration of agent delivered to each void shall be above the minimum design concentration. The following shall be considered while designing the system.
- The minimum design concentration shall be 4.7%. Class C Design concentration.
- If the protected volume has a floor and / or ceiling void the spaces shall be included in the protected volume, employing a minimum design concentration not below that of the main room compartment.
- The discharge nozzles shall be located within the protected volume in compliance to limitations and with regard to spacing, floor and ceiling coverage, etc. The nozzles shall be positioned such that they would cover the entire area up to the extreme corners of the area under protection and the design concentration will be established in all parts of the protected volumes.
- The final numbers of discharge nozzles shall be according to the OEM's product manual.
- The average pressure at each nozzle shall not be less than 4.00 Bar.

- The gas flow calculations shall be carried out on special software given by the OEM. The software should support usage of seamless cylinders which have a different design compared to the standard containers used worldwide. The system acceptance report shall show the resulting concentration in each independent void to be above 4.7% and the average pressure at each nozzle to be not less than 4.00 Bar.
- A fill density between 0.56 Kg/Lt to 0.92 Kg/Lt or as recommended by the manufacturer should be considered for the agent to be discharged within the specified time not exceeding 10 seconds and not less than 5 seconds.

The design concentration shall follow at minimum NFPA 2001 for under floor, room and ceiling space. Unless otherwise approved, room temperature for air-conditioned space shall be taken around 20°C. For non-air conditioned space, the temperature shall be taken around ambient temperature. The system shall be designed with minimum design concentration of 4.7 % as applicable to Class A & C fire.

The OEM should carry out the piping Isometric design and provide the hydraulic flow calculation results generated by using their UL listed design software.

The system shall be so designed that a fire condition in any one protected area shall actuate automatically the total flooding of clean agent in that area independently. The entire system shall incorporate inter-alia detection, audible and visual alarms, actuation and extinguishing.

SYSTEM DESIGN

All components offered by the OEM including the cylinders shall be UL listed. The filling of the system shall take place in a UL listed filling plant owned by the OEM supplier.

Cylinders

Each cylinder shall be seamless steel type manufactured from billets and tested in accordance with IS 7285 / BS 5045 standard and approved by PESO. **The cylinders shall be UL listed for filling with Novec 1230 systems.**

The cylinder/valve assembly shall have suitable metallic protection for the valve enabling transportation of the filled cylinders safely.

The cylinders shall be super-pressurized with dry Nitrogen to 25 bar. The cylinder shall be capable of withstanding any temperature between -30 Deg C and 70 Deg C.

All cylinders shall be distinctly and permanently marked with the quantity of agent contained, the empty cylinder weight, the pressurization pressure and the zones they are protecting

Cylinder Valve

The UL listed valve shall be mounted directly on the cylinder and should NOT have any adaptor provision between the cylinder and Valve as per requirements of PESO. Cylinders with Adaptor between Valve shall be rejected as it is a violation of the PESO norms.

Each cylinder valve shall have a provision for fixing a UL listed supervisory pressure switch and a safety burst disc to protect the cylinder from over pressure. The UL listed cylinder valve shall have a disabling plug to prevent accidental discharge of the valve during transportation and installation.

Each valve is to be fitted with a pressure gauge for monitoring pressure in the cylinder.

The master cylinder valve is to be released electrically which is performed by means of a solenoid valve arrangement. Pilot cylinder actuation and pyrotechnic devices shall not be accepted.

Cylinder valve Actuators

In a single cylinder system the cylinder shall have a UL listed solenoid operated actuator and manual actuator as a single component. Multi cylinder systems shall have the same fitted on to the master cylinder and pressure operated actuators fitted on each slave cylinder. All actuators shall be UL listed and OEM make and locally manufactured actuators shall not be used.

Hoses

Each cylinder valve shall be provided with a plug in type UL listed flexible rubber discharge hose of minimum 50mm size with a proof pressure of 69 Bar. Each hose shall be permanently marked with the test pressure and OEM's part number. Multi cylinder systems shall have an interconnect hose for each cylinder. All hoses shall be UL listed and OEM make. Locally manufactured hoses shall not be used.

Manifold Check valve

The manifold shall be fabricated from ASTM A106 Schedule 40 seamless pipe and shall be independently threaded to the UL listed check valve. The Manifold shall preferably be fabricated at site based on the shop drawing from the OEM.

Other Accessories

Electric Control Head, Pressure operated control head, Master Cylinder Adapter Kit, Flexible discharge hose, discharge Nozzles, and other required accessories shall be approved or listed for use with the clean agent.

All the gaskets, O-ring, sealant and other components shall be constructed of materials compatible with the clean agent.

The system should be engineered using hardware & accessories approved by the Engineering System Distributors of clean agent as mentioned in the list of approved makes. The Vendor shall submit the detailed data sheets of each component with the required part Nos and also the common system data sheet containing these parts with part Nos.

FIRST FILL, RE-FILLING AND MAINTENANCE

The filling plant shall be UL listed and PESO approved based out of India and should be from the OEM only.

In case of any leakage or accidental discharge of the agent, the refilling shall take place from the UL listed filling plant only from a valid PESO approved OEM filling station in India itself. The contractor should indicate the source of re-filling and the time that will be taken for re-filling and replacement.

PIPING AND FITTINGS

All piping shall be ASTM A-106, Grade-B, Schedule 40 seamless pipes and all fitting shall be of ASTM A-105 standard. Distribution piping and fittings shall be installed in accordance with the manufacturer's requirements, NFPA 2001, and approved piping standards and guidelines.

All distribution piping shall be installed by qualified individuals using accepted practices and quality procedures. All piping shall be adequately supported and anchored at all directional changes and nozzle locations.

All Piping shall be reamed, blown clear and swabbed with suitable solvents to remove burrs, mill varnish and cutting oils before assembly.

All pipe threads shall be sealed with Teflon tape pipe sealant applied to the male thread only.

Discharge Nozzles

Engineered discharge nozzles shall be provided within the manufacturer's guidelines to distribute the clean agent throughout the protected spaces. Nozzles shall control the flow of clean agent to ensure high velocity, proper mixing in the surrounding air and uniform distribution of the agent throughout the enclosure.

The number of nozzles and their positions must be chosen so that the design concentration is maintained everywhere in the enclosure. Nozzle shall be located where they can be adequately supported on walls, ceiling or structural members. Software generated calculation supporting the nozzle design shall be submitted by the successful bidder.

DOCUMENTATION

The system engineering company should prepare & submit along with the bid documents, the piping Isometric drawing and support the same with a UL listed hydraulic flow calculation generated using the agent's design software. The calculations shall validate the fill density assumed by the bidder.

The bidder shall submit copies of datasheets of hardware used in the system. The bidder shall also submit copy of PESO approval letter for the cylinder proposed to be used. The bidder shall also submit calculations to evidence the qty of agent considered for the system.

The successful vendor must submit, along with the supply invoice, a certificate of authenticity for the agent, duly checked and vetted by the OEM.

The system engineering company should provide, as part of the handing over, the As-built drawings and operation & maintenance manual.

Fire Detection & Gas Release Panel & Operation Process

Fire detection shall be achieved using the microprocessor based fire detection cum gas release panel specifically used for each protected area. The detectors shall be in cross zone and the trigger from the panel shall be for 2 stage action.

Some of the enhance features of the detection cum gas release panel shall be,

- Easy on-site configuration
- Upload / download of configuration data's
- Event logging facilitates identifying origin of events
- Display countdown timer before extinguishing release
- Extinguishing automatic activation with various alarm combinations
- 72h battery backup time
- Various system test modes
- Automatic calibration facility for actuators control lines (solenoid or pyrotechnical actuators)
- Manual Release button for manual activation of extinguishing
- Emergency hold button to temporary stop the extinguishing or abort button to cancel the initiated extinguishing release as long as the pre-warning time is running
- Remote transmission facility for transmitting alarms and faults
- In compliance with EN12094-1 / EN54-2 +A1 / EN54-4 +A2

If in case the fire detection part is handled by a separate fire control panel, the panel shall have the capability to integrate with larger fire detection system. Also the panel shall have the facility to connect repeater panel for remote status indication and remote control.

AUTO MODE OPERATION

The sequence of operation of the gas release system shall be as follows.

When the any one of the detector connected to the building fire alarm panel goes into alarm, immediately the sounder cum strobe shall get activated.

The fire detection cum gas release panel shall ensure that the access control shall get deactivated.

The first stage activation in the gas release circuit shall happen only when any one of the detectors in the protected area goes into alarm.

When the first stage gets activated, the specific zone numbers and the detectors location shall be displayed and the panel buzzer shall start operating. The stage 1 bells shall be identified by the fact that they pulsate at the rate defined by timer 1.

The panel shall also illuminate the "ALARM" lamp on the control panel face.

The sounder cum strobe shall remain on until the alarm is silenced in the panel. The panel shall return to normal only after the fire alarm condition is cleared and a reset is performed in the panel.

The second stage activation in the gas release panel shall happen when the second detector in the protected area goes into alarm in the second stage or vice versa.

The PAC units shall be deactivated. The panel shall also illuminate the "PRE DISCHARGE" lamp on the control panel face

When the second stage is activated, the second zone number and the detectors location shall also be displayed on the panel and the sounder shall be activated which is identified by a continuous tone. The stage 2 bells indicate that area is to be evacuated.

The timer shall start to trigger the signal for gas release. The delay set time shall NOT exceed 60 seconds. It shall be possible to program the delay timing at site

During the delay time period, the Gas release can be aborted by activating the "Manual abort switch" mechanically. The countdown timer shall count down till 10 second and stop. Once if the abort switch is released, the timer shall start count down from 10 seconds. Releasing and pressing again the manual abort switch shall reset the count down time to 10 seconds. A buzzer shall be activated when the abort switch is operated.

After the expiry of the timer, the output from the actuator output terminal of the panel shall activate and operate the solenoid valve in the master cylinder. It is important to note that the actuator output on the panel shall be enabled only if the automatic gas release mode is selected

A Gas sign board with lamp (Located outside the protected area) shall also illuminate indicating that the gas discharge have taken place

The gas shall discharge into the protected area within 10 seconds as stipulated in the NFPA 2001 guidelines (2012 edition) or latest edition. The gas shall permeate into all the voids in the desired quantity so that the fire shall be quenched.

As long as both the stages remain in alarm, the output to solenoid shall be active. If at least one of the two stage returns to normal as explained above, the delay timer shall stop. The gas release shall not happen if the delay is set to zero.

MANUAL MODE OPERATION

The manual release shall happen in three ways. Manual Release through the panel, Manual release station & Manual Release directly from the cylinder

The electric manual release (activated through the panel) shall be a dual action switch device which provides a means of manually discharging the suppression system from the panel

The manual release station shall also be a dual action device requiring two distinct operations to initiate a system actuation.

Manual actuation shall be capable of bypass the time delay or shall have the time delay depending upon the client requirements. It shall be possible to program both at site and abort functions and shall cause all release and shutdown devices to operate in the same manner as if the system had operated automatically.

Manual release station shall be located at each entry from the protected hazard and the abort station shall be located at the exit side

If the "Manual release lever on the master cylinder shall be activated by operating the lever, the gas shall get released immediately. Abort function cannot be performed after activating the manual release lever.

CONNECTION DETAILS

The Addressable detectors shall be connected in loops which are independently addressed from the fire alarm panel. Or Conventional detectors shall be used and the same shall be connected to the conventional fire detection cum gas release panel.

The manual abort station and manual release stations shall be connected to fire alarm cum gas release panel. In addition, the gas release panel shall have the manual mode switch as explained above

The discharge pressure switch shall be connected to the gas release panel thro addressable monitor modules.

The sounder cum strobes shall be connected gas release panel

The solenoid actuator shall be connected to gas release panel in the Gas release terminal

The fire trip input for the PAC units are looped and connected to throw addressable control modules to the fire alarm cum gas release panel

The Access controlled door release shall be connected to the fire alarm cum gas release panel through addressable control modules

The monitor module shall be connected from the Building fire alarm panel to the gas release panel for alarm communication * fault status of the gas release panel.

MANUAL RELEASE UNITS/ STATIONS

Manual release units - double action type shall be provided at each exit of the protected area and as indicated on the drawings. Manual release unit casings shall be coloured YELLOW and shall be inscribed with the lettering " AGENT (NAME) MANUAL RELEASE POINT". Mounting heights for manual release units shall be agreed on site.

ABORT UNITS / STATIONS

Abort switches, where provided, shall be located within the protected area and shall be located near the means of egress for the area. The abort switch shall be of a type that requires constant manual pressure to cause abort, In all cases the normal and manual emergency control shall override the abort function. The abort switch shall be clearly recognizable for the purpose intended.

The abort units shall be momentary devices requiring constant pressure to maintain contact closure and shall be coloured RED and shall be inscribed with the lettering " AGENT (NAME) ABORT POINT". Mounting heights for abort units shall be agreed on site.

Remote Lamp Unit

Remote lamp units shall be provided to give indication of an activated smoke detector within a ceiling or floor void.

Documentation

The vendor should prepare & submit the piping Isometric drawing and support the same with a hydraulic flow calculation generated by using the agent's design software. The calculations shall validate the fill density assumed by the bidder.

The vendor shall submit copies of the datasheets of the hardware used in the system.

The vendor shall also submit calculations to evidence the quantity of agent considered for the system.

The System Company should provide, as part of handing over, the as-built drawing, operation manual and maintenance manual. The as-built drawing shall exactly match the Isometric drawing submitted with the flow calculation prior to commencement of work.

The vendor must submit, along with the supply invoice, a certificate of authenticity, for the agent.

Vendor to submit copy of relevant approvals/test certificates of the offered items along with accessories and fittings.

Vendor to provide MSDS and Safety guidelines with respect to "Hazards to Personnel" and Environmental factors regarding its use as clean agent for firefighting purposes.

Supporting documents indicating the offered clean agent having zero Ozone Depletion Potential

The construction drawing and design calculation of the offered item

Vendor to provide list of spares to be maintained including cost thereof

Vendor shall provide CD/manual/maintenance instruction book, depicting the use and application of the system

Vendor to submit third party inspection certificates along with all accessories as required under technical specifications

The design & the installation shall be certified by principal system supplier

Testing Procedure for Gas Based Fire Suppression System

General

Prior to placing the completed system in service, the installation should be inspected and tested by qualified personnel to confirm that the system has been properly installed and will function as specified below.

- Conformance to System design.
- Suitability of piping, its correctness to project design, and its supports.
- Operating Sequences
- Suitable Hazard Environmental controls and Safety precautions and.
- Compliance with the norms of NFPA STD. 2001 (2012 Edition) and other applicable standards.

Piping

- Verify that pipe sizes and layout are as indicated on the project working drawings.
- Verify the piping supports and ensure the pipes are secured and restrained from the movement.
- After the installation after system piping is completed, and prior to the connection of the cylinders, accessories, nozzles etc., the discharge piping should be blown out and then Pressure tested for leakage. Plug or Cap all pipe outlets and apply 40 psi (3 bar) pressure with air for 10 minutes. At the end of 10 minutes, the pressure loss shall not exceed 20% of the test pressure. Under no conditions should water be used in testing.

Cylinders

- Inspect cylinders and ensure bracketing and cylinders are secure.
- Check pressure gauge and ensure pressure is correct for temperature at cylinder location.
- Check cylinder discharge bends and check valves for proper orientation, connection and tightness.
- Ensure that the cylinder operating components and auxiliary control devices are installed in accordance with the project drawing.
- All the required labeling as done on the cylinders

Nozzles

- Ensure each nozzle has an orifice drilled to suit the specific location and discharge flow requirements.
- Verify that nozzle locations and orifice sizes are as indicated in the project drawing.

Electrical

- All testing of the extinguishing system electrical circuits, Interlocks, Fire detectors and other electrical devices like solenoid actuators shall be carried out in accordance with the systems control panel.
- The control panel should indicate normal supervisory condition.
- Check the smoke detectors are in cross zone.

Room Integrity Test

NFPA2001 states that the design concentration of a clean agent post discharge shall be maintained for a sufficient period of time to ensure there is no re-ignition of fire once suppressed. NFPA 2001 and 12A require an enclosure integrity test as part of the acceptance procedure for all clean agent systems. This includes halocarbon and inert agents. This comprehensive test and calculation predicts the leakage area corresponding to the retention time of agent in the enclosure on discharge. Most specification state it must be ten minutes.

Please note that, it is bidder responsibility to seal all exposed areas of data center.

FORMAT FOR SUBMISSION OF COMPANY DETAILS (DATA SHEET)

Sr. No.	Particulars	Details to be filled by the Organization
1	Name of the Company	
2	Registered Office Address Telephone Number Fax Number e-Mail	
3	Correspondence Address Telephone Number Fax Number e-Mail:	
4	Details of the authorized person (Name, designation, address) Telephone Number Fax Number e-Mail:	
5	Is the firm - <ul style="list-style-type: none">• Government/ Public Sector Undertaking• Proprietary Firm• Partnership firm (if yes, give partnership deed)• Limited company or Limited Corporation• Member of a group of companies (if yes, give name and address and description of other companies)• Subsidiary of a large corporation (if yes give the name and address of the parent organization) If the company is subsidiary, state what involvement if any, will the parent company have in the project.	
6	Goods & Service Tax Number (GST):	
7	Permanent Account Number (PAN) of the firm.	

Seal & Signature of Company

Date: _____

Place: _____

FINANCIAL BID

(Format for Submission of Financial Details)

(Data Sheet to be submitted ONLY Online at (n)Procure Portal)

Sr. No.	Particulars	Qty.	Rate (Without GST)	Total Amount (INR)	GST Slab Rate (%)
A	B	C	D	E = (C*D)	F
1.	80 Lt PESO approved Cylinder assembly, Make & Model: 12-420140	01 Nos.			
2	Agent - FK 5- 1- 12 (Fluoro Ketone) - FK 1230@, Make & Model: 12-000120	46 Kgs.			
3	Electric Cum Manual Actuator Make & Model: 14-000031	01 Nos.			
4	1.5" Discharge Hose Flexible Make & Model: 14-000001	01 Nos.			
5	Warning Signage Make & Model: Local Standard	01 Nos.			
6	Discharge Nozzle Make & Model: 15-00000X-XXX	02 Nos.			
7	Cylinder Strap Make & Model: 14-000013-000	02 Nos.			
8	Manifold Discharge Pressure Switch (Optional) Make & Model: 14-000081-000	RO			
9	Cylinder Low Pressure Supervisory Switch (Optional) Make & Model: 16-000042-002	RO			
10	2 Zone Gas Release Control Panel with Battery Backup Make & Model: Ravel	01 Nos.			
11	Manual Abort Module Make & Model: KAC	01 Nos.			
12	Manual Release Module Make & Model: KAC	01 Nos.			
13	Conventional Smoke Detector with Cross Zoning of Detection including base Make & Model: RAVEL	02 Nos.			
14	Sounder with flasher Make & Model: RAVEL	01 Nos.			
15	Piping & Manifold MS schedule 40 ISI Seamless as per Design Make & Model: JINDAL / TATA	01 Lot.			

This table of financial bid is stated for reference purpose only and please do not disclose any price here at the time of submission of this document.

16	2C 1.5 Sq.mm copper armored flexible cable Make & Model: Local Standard	50 mtr.			
17	Data Center room for Window seal Make & Model: Local Standard	01 Lot.			
Total Amount (Excluding GST)					

Declaration:

I/We hereby declare and affirm that I/We have read and understood the terms and conditions of the contract as stipulated in this NIT.

Seal & Signature of Company

Date: _____

Place: _____

(To be printed on Firm's Letter Head)

Appendix - I

UNDERTAKING

I, _____ hereby declare that Firm / Company / Agency / Organization / Partnership firm / Proprietary firm titled as _____ has not been blacklisted or banned or debarred at any stage from inception till this date by any of the NITs / IITs / IIITs / Central Universities / IISERs / CSIR Labs Central and State Government body / PSUs / Autonomous Institute or any Other Government Organization. In case of the any fraudulency, the Firm / Company / Agency / Organization / Partnership firm / Proprietary firm is fully aware that the tender / contract will be rejected / cancelled by IITRAM and EMD / Performance Security or any deposited amount shall be forfeited.

In addition to above, IITRAM will not be responsible to pay the bills for any completed / partially completed/supplied work.

Seal and Signature of Company

Date: _____

Place: _____