

Tender cost: Rs. 1500/-

TENDER DOCUMENT

For

**Performance Investigation of Solar Thermal Systems for Sustainable Built Environment
(2020-2021)**



Madhav Institute of Technology & Science, Gwalior – 474005

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

General Terms and Conditions

#Validity of rates must be for minimum 8 months.

#Warranty period 12 Months (free of cost).

#Performance security 5% will be deducted at the time of payment, which will be released/returned after successful working of equipment/software for a period of six months.

#Supply will be done within 30 days from the date of order.

#In case of unjustified delay, liquidity damages will be deducted @0.01% per day.

#Tender cost is Rs. 1500/- which is to be deposited along with tender in the form of DD in favor of the Director, MITS Gwalior

1. Quotation,
 - 1.1 The contract shall be for the full quantity as described in the tender.
 - 1.2 Corrections, if any, shall be made by crossing out, initialing, dating and re-writing.
 - 1.3 All duties and other levies payable by the supplier under the contract shall be included in the unit price.
 - 1.4 Applicable taxes shall be quoted separately for all items.
 - 1.5 The prices quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
 - 1.6 The Prices should be quoted in Indian Rupees only.
2. Each bidder shall submit only one quotation.
3. Evaluation of Quotations,

The Purchaser will evaluate and compare the quotations determined to be substantially responsive i.e. which

 - 3.1 are properly signed and
 - 3.2 Confirm to the terms and conditions, and specifications.
4. Award of contract:

The Purchaser will award the contract to the bidder whose quotation has been determined to be substantially responsive and who has offered the lowest price for the item.

 - 4.1 Notwithstanding the above, the Purchaser reserves the right to accept or reject any quotations and to cancel the bidding process and reject all quotations at any time prior to the award of contract.
 - 4.2 The bidder whose bid is accepted will be notified of the award of contract by the Purchaser prior to expiration of the quotation validity period. The terms of the accepted offer shall be incorporated in the purchase order.
5. Payment shall be made in Indian Rupees as follows:

Delivery, Installation, training and Satisfactory Acceptance - 95% of total cost.
The performance security (5% of basic cost of order value) will have to be deducted from the payable amount and will be returned after successful working of equipment/software for a period of six months.
6. You are requested to provide your offer latest by **14:00** hours on **25/01/2021**. **The Technical bid of offers will be opened at 14:30PM on 25/01/2021. The commercial offer of technically eligible bidders will be opened at 15:00 PM on 25/01/2021.**
7. All supplied items are under warranty of 12 months or higher with support and maintenance (free of cost) from the date of successful acceptance of items.
8. Information brochures/ Product catalogue, if any must be accompanied with the quotation clearly indicating the model quoted for.
9. The Vendors must enclose OEM certificate/authorized channel partner /authorized distributor/authorized dealer.
10. The vendor must submit the GST certificate and ITR of last three years.

11. Vendor must produce a certificate with his seal and sign on his letter head that he accept all the terms and condition in the invitation letter.
 12. If items are not supplied within time line, paneling may be imposed on the supplier.
 13. Training Clause: Seller has to arrange the training with course material(if required) at MITS, Gwalior without any extra payment
 14. Testing/Installation Clause: Seller has to install the equipments successfully at MITS, Gwalior without any extra payment
 15. **Sealed quotation to be submitted/ delivered at the address mentioned below,**
Director, Madhav Institute of Technology & Science,
Gola Ka Mandir, Residency Road Gwalior-474005(M.P) India
 16. **Please Mention the following things on the top of the envelop**
 - i. **Name of the project along with Package Name (A or B or both A & B)**
 - ii. **Last date of Submission**
 17. The outer sealed envelope must specify the **NAME OF PROJECT ALONG WITH PACKAGE NAME**. There must be two sealed envelope inside it. The first sealed envelope must be marked as **ENVELOPE – 1**. It must contain following documents:
 - GST certificate
 - ITR of last three years
 - OEM certificate/authorized channel partner /authorized distributor/authorized dealer certificate
 - Product catalogue
 - Work experience in the same domain if any
 - **EMD in the form of DD in favour of the Director, MITS Gwalior.**
 - i. **EMD will be Rs 20,000/- if bidding for only PACKAGE A**
 - ii. **EMD will be Rs. 15,000/- if bidding for only PACKAGE B**
 - iii. **EMD will be Rs 35,000/- if bidding for both PACKAGE A& B**
- The second sealed envelope must **only contain the financial bid** (marked as **ENVELOPE – 2**). The second envelope will only be opened when the committee finds the offer as technically suitable as per our terms and conditions.
18. The vendor must seal and sign on each page of tender document.
 19. The Institute reserve the right to cancel the tender without any notice.

DIRECTOR

It is certified that, the (Firm name), agree all the terms and conditions of the tender.
We know that in case of any deviation from the terms and conditions our offer will be cancelled.

Vendor Name, Seal and Sign with Date

Madhav Institute of Technology & Science, Gwalior – 474005

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INVITATION FOR QUOTATION

Name of the Department: Mechanical Engineering Department

Name of the Project/Package: Performance Investigation of Solar Thermal Systems for Sustainable Built Environment” under research promotion Scheme AICTE

S N	Item name*	Qty	Make	Model	Unit Rate without GST (in Lakhs)	Total Cost without GST (in Lakhs)	GST %	Total Cost with GST
1.	Single User CFD with Laptop	01						
2.	(a) Thermal Image Camera	01						
	(b) Temperature Gun	01						
3.	(a) Pyranometer	1						
	(b) Digital Hygrometer with Probe	2						
	(c) Solarimeter	2						
4.	Direct Convective heat transfer coefficient measuring device	1						
5.	Thermal conductivity measuring apparatus	1						
6.	Compact heat exchanger	4						
7.	(a) PV/T Panel	4						
	(b) Temperature Measurement Channel	1						
8.	Constant Temperature bath	1						
9.	Nano-Particles	5 kg						
10.	(a) Polycarbonate sheet	50 m ²						
	(b) DC Fans	06						
	(c) Hot-wire Anemometer with probe	01						
	(e) Thermocouples	15						
	(f) Battery	01						
GRAND TOTAL WITHOUT GST								
GRAND TOTAL WITH GST								

Price must be inclusive of supply, installation, commissioning and training.

Detailed specifications are attached.

It is certified that, the (Firm name), agree all the terms and conditions of the tender. We know that in case of any deviation from the terms and conditions and specifications, will cancel our offer.

Vendor Seal and Sign with Date

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Name of the Department: Mechanical Engineering Department

Name of the Project/Package: Performance Investigation of Solar Thermal Systems for Sustainable Built Environment” under research promotion Scheme AICTE

Following are the details of approved machineries/equipments (Non- Recurring) which are to be purchased for research project.

S.No.	Item Description	Quantity	
PACKAGE A			
1)	Single User CFD with Laptop CFD Specification: Autodesk CFD Ultimate single user Subscription software for Lifetime or renewal in 5 years, CD containing CFD tutorials from research perspectives, Free technical support for atleast 3 years. Laptop specification: 8th Generation Intel® Core™ i7-8550U processor, Windows® 10 Home Plus Single Language English, 8GB RAM, 4GB Graphics, 128GB SSD + 1TB Hard Drive & 1920 x 1080FHD IPS Infinity Edge Display, 3×USB3.0 port, Ethernet Port, HDMI port, High definition Audio, Microsoft Office 2016, Battery backup: 6 hours, 15.6 inches screen size. Two weeks complete training of the software for faculty members	01	
PACKAGE B			
2)	Thermal Image Camera Temperature range: -10 to 350 °C, IR resolution of 320 x 240 pixels, via integrated Testo Super Resolution Technology 640 x 480 pixels, thermal sensitivity of 0.06°C, Wireless communication. Temperature Gun Temperature range: -60 to 500°C, Infrared accuracy :±1°C, resolution: 0.1°C, low battery, laser and backlight indication and an auto power off facility that turns the instrument off after 15 seconds, Optic/Target ratio: 11:1.	01 01	
3)	Pyranometer Range: 0 to 2000 W/m ² , Operating Voltage: 6-12 V DC, rechargeable battery with backup of 2-3 days, Operating temperature: -40 to 80°C, LCD Display, field view: 180°, data logging: minimum 1 GB storage, store minimum of 20000 readings, adjustable time interval between readings from 1 sec to 3600 sec, Port for data transfer to PC, software interface to monitor the pyranometer. Digital Hygrometer with Probe Range: 0 to 100 %RH and -20 to +60 °C temperature, Accuracy: ±1% RH and ±0.5 °C temperature, Resolution: 0.1°C, NTC type sensor, Operating temperature: -20 to 50°C, ISO certified, Max./min. values, Hold button to freeze	1 2 2	

	<p>readings, Display light, Auto Off function, AA battery powered.</p> <p>Solarimeter Solar irradiation measuring range: from 1 W/m² to 1500 W/m², Frequency of the measure: 2 /s, Accuracy: 5% of measurement, Calculation frequency (W/m²): 1/min (average on 60 seconds), Storage capacity: 31 days, 44640 saved recording points Operating temperature: from -10°C to +50°C, Portable</p>		
4)	<p>Direct Convective heat transfer coefficient measuring device For measuring the convective heat transfer coefficient i.e. the device that will measure the convective heat transfer coefficient in digital value</p>	1	
5)	<p>Thermal conductivity measuring apparatus Thermal Conductivity Range: 0.005 to 1800 W/mK, Temperature Range: -160°C to 1000°C, Accuracy, Repeatability: 5%, 2%, Standard: ISO/DIS 22007-2.2, Materials: Solids, Liquids, Paste and Powder, Directional Measurement : Bulk, Through-thickness and In-plane</p>	1	
6)	<p>Compact heat exchanger 2 Ton and 1 ton split AC (Condenser : Copper Tubing)</p>	4	
7)	<p>PV/T Panel (200 W each) Mono-crystalline silicon 200 W PV panels, Operating temperature: -40°C to 80°C, Efficiency not less than 15% .</p> <p>Temperature Measurement Channel (8 Channel) Suitable for J/K/T type thermocouples, 0-400°C temperature Measurement, LCD Display, Resolution: 0.01°C, Power supply 85-265V AC, 50/60Hz, Adjustable Relay set points, data logging: minimum 1 GB storage, store minimum of 20000 readings, adjustable time interval between readings from 1 sec to 3600 sec,, Port for data transfer to PC, software interface to monitor the data logger.</p>	4 1	
8)	<p>Constant Temperature bath Temperature Range: 5°C above ambient to 120°C, Temperature control accuracy +/- 0.10°C, Resolution: 0.1°C, Power supply 220-230 Volts, Volume: 25 L, Power rating: 2500 W, Safety thermostat, Temperature controlled by electronic microprocessor based auto tune PID controller with 0.01°C.</p>	1	
9)	<p>Nano-Particles Copper Oxide (CuO) and Aluminium Oxide (Al₂O₃)</p>	5 kg	
10)	<p>Polycarbonate sheet Transparent, UV coated, 90% light transmittance, 6mm thickness, multiwall, Temperature resistance: -5 to 100°C, Thermal coefficient of expansion: 0.065 mm/m °C, U-value: 3 W/m</p> <p>DC Fans Air Volume: upto 10 CFM, Speed: upto 6000 RPM, Operating at 1Amp and 12 V DC, Axial flow, Blade material: Plastic</p>	50 m ² 06	

Hot-wire Anemometer with probe Air velocity: 0 to 30 m/s, Temperature: -20 to +80°C, Accuracy: +/-3% FS, resolution: 0.01m/s and 0.1°C, Fast response time, LCD display with backlight, Thermistor sensor for temperature measurement.	01	
Thermocouples K-Type thermocouples, Accuracy +/-1°C, wire length 5 m each, Extension k-type thermocouple wire: 10 m Length	15	
Battery 12 Volts Gel maintenance free battery, Li-ion Solar Battery, Voltage: 12 V, No of Cell : 6, Estimated Battery Capacity : 4000 AH, Suggested Battery Capacity @ C10 at 27°C : 4000 AH, System Configuration : 6 Nos. Cells 4000 AH Battery (4 * 1000 AH in parallel string), Max. recharging current (A) : 204, Min. recharging current (A) : 102, Discharge AH (o/p) : 1600 AH, Recharge AH (i/p) : 1696 AH	01	

Price must be inclusive of supply, installation, commissioning and training.

It is certified that, the (Firm name), the technical specifications are exactly specified in the tender. We know that in case of any deviation, our offer will be cancelled at any stage.

Vendor Seal and Sign with Date

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Special Terms and Conditions

1. System should be calibrated and certificate of calibration is necessary at the time of supply.
2. Experience Criteria, Bidder Turnover, OEM Authorization Certificate, OEM Annual Turnover shall be provided by the tenderer for the last three years.
3. In case any tenderer is seeking exemption from Experience / Turnover Criteria, the supporting documents to prove his eligibility for exemption must be provided for evaluation by the buyer.
4. In the last three year, the tenderers should have supplied the product/components/equipment to the minimum two Government or Autonomous organization/Institution. The copy of the proof is to be attached.
5. Scope of supply (Bid price to include all cost components): Supply, Installation, Testing and Commissioning of Goods.
6. Availability of Service Centres: Tenderer/OEM must have a Functional Service Centre in the State of each Consignee's Location in case of carry-in warranty. (Not applicable in case of goods having on-site warranty).
7. If service center is not already there at the time of tender, successful tenderer / OEM shall have to establish one within 30 days of award of contract. Payment shall be released only after submission of documentary evidence of having Functional Service Centre.
8. The successful tenderer shall be solely responsible for the Goods / Services including, without limitation, the applicable guarantee / warranty, shelf-life, quantity, quality and the title and for giving the correct and accurate details of the offer their Goods and / or /Services indicating product specifications, quantity which can be supplied over the specified time period, etc.
9. The tenderer would ensure that the Goods or /Services offered are latest, new and complete in all respects.
10. Where tenderer is selling any Goods which needs spare parts, tenderer should ensure and make available such spare parts for a minimum period of three years from the date of expiry of warrantee period (unless otherwise specified).
11. The individual tenderers shall ensure that the products offered in tendering and/or ordered shall remain available with them during the tender / contract validity period.
12. The Tenderers shall be responsible for erection, installation and commissioning of the machines/equipments at the destination site, free of cost and also for making it fully operational.
13. Successful Tenderer shall make provision for imparting training at MITS Gwalior free of cost during Site Acceptance Test (SAT) regarding:-
 1. Maintenance of the systems.
 2. Pre-and post-installation training to operating staff
14. Successful tenderer shall provide free of cost at least two weeks training programme for CFD software for the faculty at our Institution.
15. Successful tenderer should provide at least 24 months after sales service from the date of commissioning.

It is certified that, the (Firm name), agree all the special terms and conditions of the tender. We know that in case of any deviation from the special terms and conditions and specifications, will cancel our offer.

Vendor Seal and Sign with Date