



केन्द्रीय औषधीय एवं सगंध पौधा संस्थान, लखनऊ
CENTRAL INSTITUTE OF MEDICINAL & AROMATIC PLANTS

(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद)
(Council of Scientific & Industrial Research)

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शुद्धिपत्र

कॉन्फोकल माइक्रोस्कोप, वाल्क-इन प्लांट ग्रोथ चेंबर, लिक्विड क्रोमैटोग्राफी कपल्ड विद क्वाडरूपोल टाइम-ऑफ-फ्लाइट (क्यूटॉफ) मास स्पेक्ट्रोमीटर एवं लेबोरेटरी फर्नीचर की क्रय हेतु जारी निविदा दिनांक 12.01.16 के क्रम में दिनांक 22.01.16 एवं 27.01.16 को आयोजित पूर्व बोली बैठक के संदर्भ में सक्षम प्राधिकारी ने तकनीकी विशिष्टताओं में कतिपय संशोधन अनुमोदित किया है। निविदा प्रस्ताव जमा करने की अंतिम तिथि दिनांक 04.02.16 से बढ़ाकर दिनांक 11.02.2016 समय अपराहन 2.30 बजे की गयी है। तकनीकी बिड 11.02.16 को अपराहन 3.30 बजे खुलेगी। संबंधित विस्तृत विवरण सीमैप की बेबसाइट www.cimap.res.in पर उपलब्ध है।

निविदा की शेष तकनीकी विशिष्टतायें, नियम और शर्तें यथावत रहेंगीं।

भंडार एवं क्रय अधिकारी

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Specification for Walk in plant growth chamber

S. No.	Description
1	<p>Volume:</p> <ul style="list-style-type: none"> • Minimum volume required is 23,000 liters or above.
2	<p>Lighting:</p> <ul style="list-style-type: none"> • Minimum from 600-1100 $\mu\text{moles}/\text{m}^2/\text{s}$. • T-5 output Fluorescent lamps plus extended life tungsten incandescent lamps. • Programming and control of the lighting is done via single real time controller (minimum of 3-5 stage programmable levels of each lamp type). • Lamp Heat: Removed by the refrigeration system. • Light meter: Quantum light meter for display and recording of light output. • Canopy Barrier: A transparent barrier, located between the lamp canopy and growing space is provided to promote temperature uniformity within the growing space (barrier is optimized to allow light into the growing space, while containing a majority of the heat produced by the lamps within the canopy) (barriers may be easily removed for cleaning or replacement) • Light Reflector: Specular aluminum light reflectors
3	<p>Controller Feature :</p> <ul style="list-style-type: none"> • Controls temperature, lighting, humidity (optional) and CO₂ (optional) • Single-board electronic solid-state design. 10 Key industrial Keypad with VFD display and LED indicator • Programs can be configured to run in real time or elapsed time. Continuous, Diurnal and multi-step program feature. Memory of minimum 50 or more programs storage with multistep feature. • Ramping and non-ramping program methods. • Multiple programs can be linked creating complex sequence to simulate natural conditions. • The number of output channels used for control of lighting events, convenience outlets etc., minimum 23 channels. • Trouble shooting with on board diagnostics • Dual experiment protection via integrated yet independent temp limit shutdown. Auto-restart when temp inside is normal. • Temp low and high deviation alarm. • Ambient temp monitoring. • alarm (audio and visual) • 24 hour chamber monitoring • Power failure event logging. • Auto restart in case of power failure with inbuilt battery to protect memory for at least 5-7 years. • Two Calibrations offset per input channel. One for Lights ON and another for lights OFF. • Three programming styles, Diurnal, 24-hour programming and Non 24-hour programming (elapsed time) • Highly visible display provides display of settings and chamber conditions • RTD temperature sensor input • Programs are created and run in real time • Multiple programs can be linked together to simulate natural conditions • the controller may maintain the accumulated hours that each light output has been activated —

	<p><i>the accumulated hours can be reset for each output</i></p> <ul style="list-style-type: none"> • <i>Available programmable outputs allow for user specific control requests (i.e. programmable electrical outlets)</i> • <i>Help system provides help with settings and programs</i> • <i>Ethernet port provides communications via a local network or Internet (controller can be accessed directly from the network or Internet)</i>
4	<p><i>Cabinet construction:</i></p> <ul style="list-style-type: none"> • <i>All rooms are built in panel sections</i> • <i>Each section consists of 4" thick urethane insulation, metal interior and exterior surfaces, cam-type fasteners and vinyl gaskets</i> • <i>Panels are manufactured in one-foot increments up to a maximum of four feet wide</i> • <i>Standard corner sections are 90° angles with either 12" x 6" or 6" x 12" sides</i> • <i>Panel edges are made by molding tongue and groove to facilitate assembly</i> • <i>A balloon type, NSF-listed PVC gasket is permanently foamed in place on opposite sides of tongue edges to accomplish an air-tight seal between panels</i> • <i>Panels are joined by engaging Posi-Locs embedded into the insulated panel edges (Posi-Loc access holes are covered with vinyl snap caps)</i> • <i>All interior corners and floor-wall-ceiling joints shall have a 3/8" radius for ease of cleaning</i> • <i>Finish: Standard metal exterior is 26-gauge embossed white galvanized steel, interior wall and ceiling surfaces are 24-gauge smooth steel with a baked white enamel finish (other optional metals are available upon request) (standard exterior ceiling metal is 26-gauge galvalume steel)</i> • <i>Interior floor is minimum of 14-gauge galvanized steel and designed to support a uniformly-distributed</i> • <i>Floor: Insulated floor provided with center drain exiting at front or rear of chamber</i> • <i>Instrument Ports: Two 1" diameter ports provided through front wall</i> • <i>Control Cabinet: Controller shall be mounted at eye level (a clear plexiglass cover shall protect controls from damage and shall be furnished with lock and 2 keys)</i>
5	<p><i>Growing height:</i></p> <ul style="list-style-type: none"> • <i>Should have a minimum plant growth height of more than 80 inch in between floor and the lamp bank barrier.</i>
6	<p><i>Growth Area: at least more than 90 ft²</i></p>
7	<p><i>Temperature:</i></p> <ul style="list-style-type: none"> • <i>In between 10°-45°C (±0.5-1.0°C) lights ON and 4°-45°C (±0.5-1°C) lights OFF.</i> • <i>Temperature Uniformity: ±0.5-1.0°C within work area on a horizontal plane.</i> • <i>The temperature setting accuracy 0.1°C</i> • <i>In case of safety alarm, the controller should shut down the chamber and restart when the temp returns to normal. The system should restart automatically when internal temp is normal</i>
8	<p><i>Insulation:</i></p> <ul style="list-style-type: none"> • <i>The insulation shall be "foamed-in-place" polyurethane with a at least 97% closed cell structure and in-place density of 2.2 lbs per cubic foot</i> • <i>Overall thickness may be 4" with an R factor of 32</i> • <i>The polyurethane insulation must retain dimensional stability in an operating temperature may</i>

	<i>range of -40°F (-40°C) to 250°F (121.1°C).</i>
9	<p><i>Door:</i></p> <ul style="list-style-type: none"> <i>room door is a flush type door opening (with a magnetic snap-in perimeter gasket, self-closing cam lift gravity hinges, a Posi-Seal door closure, and a key lockable latch handle with an inside safety release)</i> <i>Door jambs are made of fiberglass reinforced plastic</i> <i>Doors include an interior safety release</i> <i>Observation Window: A thermal-pane is provided for interior viewing (light tight cover provided).</i>
10	<p><i>Interior space:</i></p> <ul style="list-style-type: none"> <i>Work area minimum of 800 ft³ or above.</i>
11	<p><i>air flow</i></p> <ul style="list-style-type: none"> <i>Air Circulation: Uniform vertical (upward) airflow</i> <i>Fresh Air: Adjustable forced air exchange system to provide up to minimum of 20 air exchanges per hour of fresh air to the room</i>
12	<p><i>Refrigeration:</i></p> <ul style="list-style-type: none"> <i>Chamber Cooling Unit: Air-cooled condensing unit with hot gas by-pass system for continuous compressor operation, extended life and close temperature control (optional outdoor all weather air-cooled condensing unit available upon request)- Heater not accepted.</i> <i>Light Fixture Cooling Unit: Air-cooled condensing unit with hot gas by-pass system for continuous compressor operation during any lighted cycle</i> <i>Refrigeration Valves: Solenoid type with extended stem for long life and quiet operation</i> <i>Heat: Via hot gas and electric heaters</i> <i>Chamber Growth Space Evaporators: Four evaporator's design (two coils in each side wall of the chamber to maximize chamber performance)</i> <i>Light Fixture Evaporators: Four lamp heat exchangers are provided to dissipate lamp heat (heat exchangers are independent from the chamber growth space evaporators)(an independent temperature controller and valves will keep the lamp bank at the bulbs optimal operating temperature)</i> <i>Condensing Units Location: Each condensing unit will be placed in a rack which houses both units (one in top of the other [the rack should be place near the chamber])</i> <i>Solenoid valves have an extended stem for quiet and long life operation</i>
13	<i>Door lock with key, Delay timer to delay the start of the unit in case of power failure.Floor drain at the bottom, 220 volts operation, Service wiring diagram and spare parts list to be provided for the unit, Four level password protection for controller operation/ safety& security, Status LED in front to display mode of operation (Heat/Cool and other options), Light life time alarm, Indian agent to be ISO certified. One year's warranty.</i>
14	<i>RH: Range maximum up to 90% should have a control system with Spray nozzle humidifier or centrifugal atomizing humidifiers or any other has to be mentioned.</i>
15	<i>Option: CO2 addition, connection to external PC for control and monitoring, Extended temp maximum upto 60°C, suitable voltage stabilizer, PAR Light Sensor, Dimmable Lighting (close loop) with par light sensor, Dimmable Lighting (open loop control),</i>
16.	<i>User list of installation with minimum 50 in number in National or International research organization. The performance certificate of at least 10 institute in India has to be attached</i>

17.	A suitable compatible stabilizer for supporting the complete system and UPS back up for half an hour minimum for the controller
18.	International certification standard compliance
19.	Accessories required for maintaining the relative humidity (to be quoted optional), Dimmable light control option has to be mentioned.
20.	Minimum comprehensive warranty of three years and two years extendible. One complete set of extra lamps have to be quoted along with machine.
21.	RO water purification system, tank and external pump motor or any other accessories required for maintaining the of humidity system has to quoted along with machine.
22.	Full functional Installation and demonstration/training at CSIR-CIMAP site by the firm.