

Post Pre-bid clarification/Corrigendum for Tender specification for different instruments

Sub: Change of specification after pre-bid meeting

Pre-bid meeting with the prospective bidder for the aforementioned tenders were held on 21/09/2017 as per schedule.

Few Firms raised their concern on some technical issues on both the equipment which were discussed in detail by the committee and committee proposed following amendments in the tender specifications of item as listed below.

RCB/ATN/12/17-18/Liquid Nitrogen container

Point number 12 on technical specification is not valid now and committee recommend to change the point as

- Sufficient number of racks should be quoted to accommodate minimum 2000 vials.
- Product should be CE certified

All the other technical specification remain same for the above mentioned tender.

RCB/ATN/11/17-18/Controlled walk-in Plant Growth Chambers

The revised and final specifications are as follows:

Specifications for controlled walk-in plant growth chambers

Construction:

- 1) Standard catalogued units (2 Nos) oriented side-by-side to fit total Exterior Dimension of at least 23Ft W, 10Ft D, 10Ft H (excluding height of condensing unit). Interior Dimensions (each unit separately) : At least 9Ft 11" W, 9Ft 11" D, 7Ft 3" H.
- 2) Chamber casing: Wall panels both exterior and interior, white enamel coated, rust free and galvanized steel-bonded construction, 4" PUF-insulation of CFC-Free nature.
- 3) Door: One per unit of dimension at least 3.5 Ft W X 6.5 Ft H. Positive door closure, inside safety release hatch and cam-type self-closing hinges. Thermal plastic gasket with magnetic core and door stop option.
- 4) Observation window (1 per unit): Dimensions approx 1 Ft X 1Ft with pane separation and light-tight cover.

5) Plant growth modules: Free-standing shelving units (module) with three-tiered shelves each measuring at least 4 ft W X 3Ft D. Each tier should have its own top-mounted adjustable lamp canopies (total 3 per module) of equal dimension covering the entire growth area of the shelf below. Each tier should have a shelf liner. Clear growth height between shelves and light should be at least 22".

6) Plant growth area (per room) must at least be 144 Ft²

7) Aisle dimensions: At least 42" wide.

Lighting:

1) Programmable light intensity levels (at least 275 micromoles/m²/sec) of balanced spectrum over each growth area provided by a combination of T8 fluorescent and halogen incandescent lamps. Independent 2-level programming possible for each lamp type. Installed refrigeration system should counterbalance heat generated from the lamps. Lighting system should be equipped with high efficiency electronic ballasts.

2) Service light installed and operated through exterior switch.

3) Quantum light meter for display and recording of light output, displayed through user interface.

Temperature:

1) Adjustable temperature control in range of approximately +15°C to +35°C (± 0.5°C at the control point) with lights on, and +10°C to +35°C (± 0.5°C at the control point) with lights off mode.

2) Sensors located in a self-contained portable aspirator for accurate sampling and monitoring at plant locations.

3) Fan speed should be adjustable from 50% to maximum.

4) Programmable limit-tracking alarm system (user -defined) and an independent factory-set alarm

5) All components utilized for temperature control such as valves and electric heaters must be energized and de-energized by solid state devices. Electro-mechanical relays or contactors are not acceptable.

Refrigeration:

1) Refrigeration system should have a outdoor air-cooled condensing unit, compressor, receiver, suction accumulator, control and pressure regulating valves and electrical disconnect. A complete weatherized hood and a crankcase heater for low ambient temperature conditions should also be included with the condensing unit.

2) Electromagnetic 3-way proportional valve to regulate heating and cooling functions of the chamber should be present.

3) Heat-exchanger coils should be of copper-tube construction.

4) Condensing unit refrigerant should be CFC-free.

5) The control system should monitor the refrigeration functions and any deviation from the set limits should be indicated with visible and audible alarms.

Air Flow:

1) Uniform, horizontal, adjustable, continuous airflow system provided by a full ceiling, conditioning plenum. Conditioned air should be directed horizontally across the plant material from side wall plenums and returned to the conditioning plenum through center aisle return air grilles. Conditioning plenums should contain all fans, heaters and valves necessary to meet the specific parameters.

2) Filtered and adjustable fresh air intake (100 cfm) and exhaust openings to enable air exchange to the chamber(s).

3) Manual switch mounted on control panel to reduce fan speed and reduce interior noise should be present.

Humidity:

1) Programmable relative humidity (RH): up to 70% with lights OFF/ON limited by a 25°C maximum dewpoint (empty chamber). Precision control to maintain $\pm 3\%$ RH. Equipped with dry humidity sensors. Additive humidity should be provided by siphon fed, air assisted atomizing spray nozzles.

Control system:

1) The control panels (1 for each unit) must be integrated into the existing Central Management System installed in the institute.

2) The control panels should be designed specifically for plant growth chambers/rooms.

3) High resolution, password-protected, colour, touch-screen control panel controlling light, temperature and humidity. Control panel must have a capacity to store at least 15 programs (one minute resolution) of at least 45 lines of 24 hour durations. Also a scheduling of upto 8 programs to run on a day-, multi-day or seasonal-mode should be possible.

4) Independently programmable transitions in STEP mode or ramp-mode for light duration and intensity, relative humidity and temperature.

5) On-screen graphical display on the control panel for set point and actual conditions for a minimum of 5-day history.

6) Built-in ethernet connectivity must in the control panel. A USB port to download the data should be present on the control panel.

7) Detailed data storage and access/modifications to set point and actual conditions should be possible via a remote network connected PC/laptop provided by the vendor.

8) Start-Up Delay: To reduce start-up loads after a power failure chamber(s) should be programmable with varying restart times.

9) Coded audible alarms for deviation from both upper and lower limits based on user set-programme should be included.

Additional requirements:

- 1) A suitable UPS unit (1 per chamber) capable of 20 minutes of power back-up to the respective controller should be quoted.
- 2) Suitable servo stabilizers (1 per chamber) should be quoted as per requirement.
- 3) A single RO system, for maintaining humidity should be quoted.
- 4) Complete system (and not parts alone) must be CE certified, (documentary proofs should be submitted)
- 5) Manufacturer should be ISO certified (documentary proofs to be enclosed).
- 6) Standard power requirements of each system should be 3-phase 240 V with grounded wire.
- 7) THE VENDORS ARE REQUIRED TO PHYSICALLY VISIT THE SITE PRIOR TO SUBMITTING THEIR OFFERS ON TURNKEY BASIS.
- 8) Manufacturer must provide exclusive support and service personnel with extensive experience to repair/service when necessary. Downtime should be under 24 hrs.
- 9) Bidders must be international manufacturer with more than 20 years experience. Installation documents of at least 15 Multi Tier Walk-in Plant Growth room of equal or more growth area in India and 200 worldwide in renowned research centres/universities must be provided. Satisfactory performance report from users should also be provided.
- 10) Original colour Catalogue should be provided.